

Optimizing Employee Innovation through Training: A Social Learning Theory Perspective with Self-Efficacy as a Mediator

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ABSTRACT

This research examines how employee training influences innovative behavior, with self-efficacy serving as a mediating factor, and is grounded in Social Learning Theory. A quantitative approach was used to analyze data from 320 PT Cakra Kencana Lestari employees using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results show that training significantly impacts innovation, both directly and indirectly, by enhancing self-efficacy. These findings contribute to the literature by empirically validating the psychological mechanism through which training fosters innovative behavior. The study underscores the strategic importance of integrating self-efficacy development into training design to maximize innovation outcomes. Practical implications suggest that organizations adopt learning interventions that build technical skills and empower employees psychologically. Future research should explore other mediating or moderating factors, such as leadership, organizational support, or motivation, in various organizational contexts.

ABSTRAK

Penelitian ini mengkaji bagaimana pelatihan karyawan mempengaruhi perilaku inovatif, dengan efikasi diri sebagai faktor mediasi, dan didasarkan pada Teori Pembelajaran Sosial. Pendekatan kuantitatif digunakan untuk menganalisis data dari 320 karyawan PT Cakra Kencana Lestari menggunakan *Partial Least Squares Structural Equation Modelling* (PLS-SEM). Hasil penelitian menunjukkan bahwa pelatihan berpengaruh signifikan terhadap inovasi, baik secara langsung maupun tidak langsung, melalui peningkatan efikasi diri. Temuan ini berkontribusi pada literatur dengan memvalidasi secara empiris mekanisme psikologis yang menjelaskan bagaimana pelatihan mendorong perilaku inovatif. Penelitian ini menekankan pentingnya strategi integrasi pengembangan efikasi diri dalam desain pelatihan untuk memaksimalkan hasil inovasi. Implikasi praktis menunjukkan bahwa organisasi sebaiknya mengadopsi intervensi pembelajaran yang tidak hanya membangun keterampilan teknis, tetapi juga memberdayakan karyawan secara psikologis. Penelitian selanjutnya sebaiknya mengkaji faktor mediasi atau moderasi lainnya, seperti kepemimpinan, dukungan organisasi, atau motivasi, dalam berbagai konteks organisasi.

1. Introduction

Technological advancements have become a critical driver of innovation in today's competitive business landscape [1], [2]. Nevertheless, the successful realization of innovation largely depends on the quality of human resources responsible for generating and implementing novel ideas that improve organizational efficiency and effectiveness [3], [4]. Strategic human resource management, particularly through training-based skill development, is widely recognized as a fundamental mechanism for building employees' innovative capacity and enhancing organizational competitiveness in the global market [5], [6]. Despite the increasing emphasis on innovation to sustain organizational performance amid complex business dynamics, many organizations face challenges in effectively translating training efforts into tangible innovative outcomes [7], [8].

At PT Cakra Kencana Lestari, a company that selects and places domestic private workers, has implemented continuous training programs to improve workforce quality across diverse industrial sectors. However, initial observations reveal persistent issues: employees often exhibit low confidence post-training and demonstrate limited innovation in task execution. This phenomenon indicates a gap between training delivery and its practical impact on employee capabilities, prompting an investigation into the underlying factors influencing this disconnect, specifically, the role of self-efficacy in mediating the relationship between training and innovation.

Training is a core strategy for developing employee skills, knowledge, and confidence, essential for fostering innovation [9], [10]. However, the linkage between training and innovation is often shaped by intervening variables; factors such as organizational

culture, the broader work environment, and notably employees' self-efficacy—their confidence in applying acquired skills—play a pivotal role in determining the overall effectiveness of training initiatives [11], [12]. This complexity necessitates a thorough examination of how self-efficacy influences the transfer of training into innovative behaviors within organizations.

Empirical evidence from prior studies highlights the substantial influence of innovation on employee performance and organizational competitive advantage is well-documented, as innovation fosters enhanced problem-solving, adaptability, and value creation—capabilities that directly contribute to superior individual output and sustainable market positioning [13], [14]. However, research has yet to comprehensively elucidate how training initiatives can enhance innovation through mechanisms like self-efficacy. Some findings suggest that training alone does not guarantee improved innovation or performance, as mediating factors may alter outcomes [15], [16]. Therefore, the relationship among training, self-efficacy, and innovation remains insufficiently explored.

Self-efficacy, an individual's belief in their ability to execute specific tasks or behaviors successfully, is a crucial psychological construct influencing motivation, learning, and performance outcomes across organizational settings [17]. It emerges as a pivotal mediator bridging training and innovation. High self-efficacy correlates with greater confidence in skill application and a heightened propensity to engage in innovative problem-solving [18], [19]. Exploring how training enhances self-efficacy and fosters innovation is essential to optimizing human resource development strategies that yield measurable organizational benefits.

Given these theoretical insights and observed organizational challenges, this study applies Social Learning Theory as its conceptual framework to investigate how training influences employee innovation through enhancing self-efficacy. The research addresses existing knowledge gaps and provides actionable recommendations for companies like PT Cakra Kencana Lestari enables them to devise more effective training interventions that elevate technical competencies and strengthen employee confidence and innovative capacities. Ultimately, this study seeks to enrich the broader discourse in human resource management by advancing theoretical understanding and providing actionable insights relevant to contemporary organizational challenges and practices.

This conceptual model will be empirically examined using the PLS-SEM technique, facilitated by the SmartPLS software. This methodological approach is particularly suited for assessing complex causal relationships, as it enables simultaneous evaluation of direct and indirect effects. Specifically, it allows for

rigorous testing of the mediating role of self-efficacy in the linkage between employee training and innovation which can be seen on Figure 1.

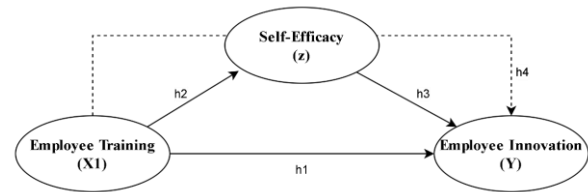


Figure 1. Research Model

The following hypotheses are proposed in this study:

H1: Employee training has a direct and significant effect on employee innovation.

H2: Employee training has a direct and significant effect on self-efficacy.

H3: Self-efficacy has a direct and significant effect on employee innovation.

H4: Self-efficacy mediated the indirect relationship between employee training and innovation.

2. Research Method

This study adopts a quantitative research design, employing a structured survey methodology. This approach was selected for its capacity to systematically and objectively capture and quantify the relationships among key variables using numerical data. The use of survey instruments enables the efficient collection of information from a representative sample of employees, thereby enhancing the generalizability of the findings. Moreover, the design supports rigorous statistical analysis, ensuring the reliability and validity of the conclusions drawn regarding the dynamics between employee training, self-efficacy, and innovation.

In this study, three main variables are analyzed. First, training (X) is defined as a learning process provided by an organization to enhance employees' skills and knowledge. Indicators used to measure training include the relevance of training materials, training methods and techniques, the application of training results in the workplace, and evaluation of training effectiveness [20], [21]. Second, self-efficacy (M) refers to an individual's confidence in effectively completing tasks and facing work challenges. Indicators include confidence in completing tasks, ability to overcome work obstacles, motivation to achieve goals, and adaptation to change [17]. Third, employee innovation (Y) is defined as the ability of individuals to create and implement new ideas to improve organizational efficiency and effectiveness. Indicators used to measure employee innovation include the ability to generate new ideas, initiatives to improve work processes, the application of creative ideas, and organizational support for innovation [22], [23]. By

defining and measuring these variables, this study aims to better understand the relationship between employee training, self-efficacy, and innovation.

This research's target population comprises PT Cakra Kencana Lestari employees who have actively participated in organizational training programs within the past twelve months. A purposive sampling technique was adopted to ensure alignment between respondent characteristics and the study's analytical objectives. This non-probability sampling method allows for the deliberate selection of individuals who possess specific experiential attributes—in this case, prior involvement in structured training activities—deemed essential for evaluating the research constructs.

The appropriateness of the sample size was determined using the Krejcie and Morgan formula, a widely accepted statistical method in social science research for estimating sample adequacy based on population size. Employing a 95% confidence level and a 5% margin of error, the analysis yielded a recommended sample size of 320 respondents. This number is considered robust for quantitative analysis using the PLS-SEM technique, providing sufficient statistical power and generalizability of results. The respondents selected through this process are anticipated to offer reliable and representative data reflecting employee training, self-efficacy, and innovation dynamics. By focusing on participants with direct training experience, this sampling strategy enhances the internal validity of the findings. It reinforces the study's contribution to human resource development literature, particularly in identifying psychological mechanisms mediating training inputs into innovative workplace behavior.

Data collection in this study was conducted using a structured questionnaire employing a 5-point Likert scale, designed to capture respondents' perceptions regarding employee training, self-efficacy, and innovation. To maintain data integrity, the questionnaires were administered directly at the workplace of PT Cakra Kencana Lestari under researcher supervision, ensuring completeness and minimizing response bias. This analytical method was selected for its robustness in assessing complex causal relationships, including direct and indirect effects, and its capacity to model latent variables with multiple indicators. Ethical considerations were observed throughout the research process, including obtaining informed consent, ensuring respondent confidentiality, and restricting the use of data to academic purposes only—the empirical investigation at PT Cakra Kencana Lestari in Beringin Village, Alalak District, Barito Kuala Regency, South Kalimantan. This location was strategically selected based on the company's strong emphasis on human resource development, aligning with the core themes of the study.

3. Results and Discussion

3.1. Respondent Profile

Table 1 presents a comprehensive profile of the demographic attributes of the 320 respondents who participated, analyzed explicitly by gender and generational age group. Regarding gender distribution, the data reveal that 176 respondents (55%) were male, while 144 respondents (45%) were female. This slight predominance of male participants suggests a relatively balanced gender representation within the sampled workforce of PT Cakra Kencana Lestari, albeit with a marginal male majority. Regarding age, respondents were classified into two generational cohorts for analytical clarity: Millennials (29–44 years) and Generation Z (13–28 years). The findings show that 118 respondents (37%) were Millennials.

Table 1. Respondent Background Information

Profile	Frequency	Percent (%)
Gender:		
Man	176	55
Woman	144	45
Total	320	100
Age:		
Millennials (Age 29 - 44 years)	118	37
Generation Z (Age 13 - 28 years)	202	63
Total	320	100

In contrast, a significant majority—202 individuals (63%)—were identified as part of Generation Z. This demographic composition highlights that the study's respondent pool is predominantly composed of younger employees, suggesting a workforce that is primarily influenced by the characteristics and working preferences of Generation Z. The high representation of Generation Z may also indicate that the company is actively engaging younger talent, who are more likely to participate in organizational development programs such as training and innovation initiatives. Understanding this demographic profile is essential for interpreting the study's results, especially given that age and generational factors may influence individuals' receptivity to training, levels of self-efficacy, and propensity for innovation. Consequently, these demographic insights offer contextual depth to the analysis and interpretation of the study's findings.

3.2. Validity and Reliability

The testing for three key variables: Employee Training, Employee Innovation, and Self-Efficacy. All constructs show strong internal consistency based on Cronbach's Alpha values, with scores of 0.864, 0.876, and 0.847, respectively, each exceeding the minimum threshold of 0.7 (see Table 2). Furthermore, all constructs exhibit Composite Reliability (CR) values exceeding the recommended threshold of 0.7, signifying strong internal consistency. Specifically, the CR values are 0.907 for Employee Training, 0.915 for Employee Innovation, and 0.897 for Self-Efficacy, confirming the robustness of the measurement model.

The Average Variance Extracted (AVE) values for all latent constructs surpass the accepted benchmark of 0.50, affirming satisfactory convergent validity across the measurement model. Specifically, the AVE values are 0.709 for Employee Training, 0.730 for Employee Innovation, and 0.686 for Self-Efficacy. These results suggest that each construct captures a substantial portion of the variance in its respective indicators, thereby validating the observed items' internal consistency and explanatory adequacy. The high AVE scores suggest that the items used to measure each variable are well-correlated and effectively capture the underlying theoretical constructs. Consequently, the findings affirm that the measurement instruments employed in this study are both statistically valid and theoretically sound for evaluating employee training, innovation, and self-efficacy. This robustness in construct validity enhances the overall reliability and credibility.

Table 2. Construct Consistency and Accuracy

Variable	Cronbach's Alpha	Composite Reliability	AVE
Employee Training	0.864	0.907	0.709
Employee Innovation	0.876	0.915	0.730
Self-Efficacy	0.847	0.897	0.686

3.3. Discriminant Test

Table 3 presents the discriminant validity results based on the Fornell-Larcker criterion, which stipulates that the square root of the AVE for each latent variable—positioned along the diagonal of the correlation matrix—must exceed its correlations with all other constructs (off-diagonal values). The findings reveal that the square root of AVE for Employee Innovation is

0.854, greater than its correlations with Employee Training (0.645) and Self-Efficacy (0.755). Similarly, the AVE square root for Employee Training is 0.842, surpassing its correlations with Employee Innovation (0.645) and Self-Efficacy (0.558). The construct of Self-Efficacy also satisfies this criterion, with a square root of AVE at 0.828, exceeding its correlations with Employee Innovation (0.755) and Employee Training (0.558). These outcomes confirm that all constructs possess adequate discriminant validity, substantiating their empirical distinctiveness. The clear demarcation among the latent variables reinforces the structural soundness of the measurement model and bolsters the credibility of the study's conceptual framework.

Table 3. Fornell-Larcker Criterion

	Employee Innovation	Employee Training	Self-Efficacy
Employee Innovation	0.854		
Employee Training	0.645	0.842	
Self-Efficacy	0.755	0.558	0.828

3.4. Hypothesis Testing

Table 4 presents the results of hypothesis testing, indicating that all hypothesized paths within the structural model are statistically meaningful and thus empirically corroborated. The direct influence of Employee Training (X1) on Employee Innovation (X2) has a path estimate of 0.325, a t-value of 7.915, and a p-value of 0.000, affirming that training efforts favor employees' innovative behavior. Furthermore, Employee Training demonstrates a notable positive impact on Self-Efficacy (M), as shown by an estimate of 0.558, a t-value of 12.345, and a p-value of 0.000, indicating that systematic training enhances employees' belief in their professional capabilities.

Table 4. Hypothesis Testing

Hypothesis	Path Coefficient	Standard Deviation	T Statistics	P Values	Note
Employee Training (X1) → Employee Innovation (X2)	0.325	0.041	7.915	0.000	Accepted
Employee Training (X1) → Self-Efficacy (M)	0.558	0.045	12.345	0.000	Accepted
Self-Efficacy (M) → Employee Innovation (X2)	0.574	0.048	11.955	0.000	Accepted
Employee Training (X1) → Self-Efficacy (M) → Employee Innovation (X2)	0.320	0.029	10.870	0.000	Accepted

Likewise, the effect of Self-Efficacy on Employee Innovation is statistically notable, with a path estimate of 0.574, a t-value of 11.955, and a p-value of 0.000, implying that greater self-efficacy leads to stronger innovative behavior. Notably, the mediating role of Self-Efficacy in the connection between training and innovation through an indirect path estimate of 0.320, supported by a t-value of 10.870 and a p-value of 0.000. These outcomes underscore the crucial role of psychological mechanisms in translating training into innovation. Overall, the findings provide compelling empirical validation for all proposed hypotheses and emphasize the need for training programs that build technical expertise and foster psychological empowerment to maximize innovation potential in organizational settings.

3.5. The Influence of Employee Training on Employee Innovation

The results affirm that employee training exerts a direct and statistically meaningful positive effect on employee innovation, as reflected by a path estimate of 0.325, a t-value of 7.915, and a p-value of 0.000. These metrics provide robust empirical support for Hypothesis 1. This result aligns with the core principles of Social Learning Theory, which asserts that individuals learn and adopt new behaviors through observation, imitation, and reinforcement processes within a social context [17]. Training is a structured platform for employees to best practices, innovative techniques, and problem-solving frameworks in the workplace. These experiences help employees build

technical knowledge and creative confidence, essential for innovation. Training can stimulate ideation, promote adaptive thinking, and reinforce experimentation by enabling employees to view challenges as opportunities for improvement. In this sense, training functions not merely as a learning intervention but as a catalyst for behavioral transformation, empowering employees to apply acquired knowledge to generate novel solutions and contribute to organizational effectiveness.

This finding is supported by previous research. Certain research demonstrated that well-structured training programs significantly enhance employees' cognitive and functional abilities, key drivers of innovative performance [24]. Furthermore, highlighted the significance of cultivating continuous learning ecosystems as a catalyst for enduring innovation, asserting that organizations must strategically invest in developmental infrastructures to sustain competitive advantage and adaptive capacity and create cultures in which learning is constant and innovation is encouraged [25]. These insights are particularly relevant for PT Cakra Kencana Lestari, where innovation is necessary for improving the quality of workforce placement services. Training should therefore be viewed as a strategic investment, integrated into broader innovation management initiatives. By developing training initiatives that enhance skills and encourage imaginative application, organizations can more efficiently translate learning experiences into innovative actions. This underscores the importance of aligning training content with innovation objectives, incorporating problem-based learning, scenario analysis, and reflective practice. Ultimately, training that supports both skill acquisition and psychological readiness will be more effective in cultivating innovation-oriented employees. Therefore, employee training serves as a crucial driver in cultivating an organizational culture that prioritizes experimentation, ongoing enhancement, and proactive approaches to problem-solving.

3.6. The Influence of Employee Training on Employee Innovation

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3.7. The Influence of Employee Training on Self-Efficacy

Hypothesis 2 is likewise validated, as employee training exhibits a robust and statistically meaningful impact on self-efficacy, evidenced by a path coefficient of 0.558, a t-value of 12.345, and a p-value of 0.000. This result confirms that effective training programs do more than enhance technical competence; they also shape employees' psychological states. Drawing from Bandura's theory of self-efficacy, belief in one's capability is developed through four principal sources: mastery experiences (performing tasks successfully), vicarious learning (observing others' success), verbal persuasion (encouragement from credible sources), and emotional and physiological feedback [17]. Well-designed training programs typically incorporate all four elements—providing hands-on learning, modeling

behavior through trainers or peers, offering constructive feedback, and creating a supportive environment. When employees perceive training as relevant, actionable, and aligned with their job responsibilities, they are more likely to internalize a sense of self-efficacy, increasing their motivation to apply acquired skills in the workplace. This cognitive shift forms the foundation for long-term performance improvement and behavioral change.

The current findings align with empirical studies that highlight the psychological outcomes of training. Self-efficacy following training is a significant predictor of learning transfer, which means that confidence in applying new skills determines whether training is used in practice [26]. Similarly, training enhances self-perceived competence, boosting engagement, persistence, and goal-directed behavior [27]. These insights affirm that training interventions should not be limited to content delivery or procedural instruction. Instead, they should be intentionally structured to cultivate belief systems that empower employees to act independently and creatively for organizations like PT Cakra Kencana Lestari, this means rethinking training as a strategic investment in psychological capital—particularly self-efficacy—essential for enabling employees to navigate dynamic work demands and pursue innovation. Embedding psychological elements into training design—such as goal-setting, positive reinforcement, and social modeling—can significantly enhance its transformative impact. Fostering self-efficacy through training is a critical step toward building a skilled but confident, resilient workforce capable of sustained high performance.

3.8. The Influence of Self-Efficacy on Employee Innovation

Self-efficacy has a statistically significant positive influence on employee innovation, as evidenced by a structural coefficient of 0.574, a t-statistic of 11.955, and a p-value of 0.000, thus supporting Hypothesis 3. This suggests that employees who believe in their abilities are more inclined to engage in innovation-related behaviors, such as experimenting with novel ideas, initiating improvements, and sustaining creative efforts even in the face of setbacks. Self-efficacy enhances an individual's intrinsic motivation and resilience, which are essential to innovative performance. When employees feel confident in their capacity to handle tasks and solve problems creatively, they are more likely to take initiative and push the boundaries of routine practices. This psychological readiness enables them to persist in implementing change and to contribute meaningfully to organizational development. In innovation-intensive environments, such self-belief plays a vital role in bridging the gap between ideation and execution, enabling individuals to translate abstract concepts into tangible outcomes that benefit the organization.

This finding aligns with previous research indicating that self-efficacy is a crucial psychological resource for innovation, particularly in its creative form. Creative self-efficacy directly correlates with an individual's capacity to generate and apply original solutions in the workplace [28]. Furthermore, it emphasized that employees with higher self-efficacy are more willing to challenge the status quo, take calculated risks, and act autonomously—behaviors indispensable for innovation [29]. These insights reinforce that building self-efficacy enhances personal confidence and creates the psychological conditions necessary for continuous improvement and experimentation. For organizations aiming to embed innovation into their culture, fostering self-efficacy through targeted interventions such as mentoring, feedback, mastery experiences, and recognition is essential. Empowering employees with a strong sense of self-efficacy enables them to act as innovation agents who drive transformation and adaptability in response to changing organizational and environmental demands.

3.9. The Mediating Role of Self-Efficacy Between Employee Training and Employee Innovation

Hypothesis 4 is also supported, demonstrating that self-efficacy significantly mediates the influence of employee training on innovation. The analysis reveals a structural coefficient of 0.320, a t-statistic of 10.870, and a p-value of 0.000, confirming the strength and significance of this indirect relationship. This result implies that the impact of training on innovation is not merely the result of knowledge transmission or skill acquisition, but instead occurs through a deeper psychological mechanism involving cognitive evaluations and motivational states. Self-efficacy plays a critical role in this process by serving as the internal mechanism through which external training experiences are interpreted, internalized, and translated into creative behaviors. When employees feel confident in their ability to apply what they have learned, they are more likely to explore new solutions, take calculated risks, and persist through uncertainty—all of which are essential for innovation. Thus, this mediation pathway offers more profound insight into how training achieves its intended outcomes in organizational contexts.

This agrees with earlier empirical work, which emphasized that psychological capital—self-efficacy, optimism, hope, and resilience—significantly amplifies employee contributions to performance and innovation [30]. Furthermore, another study found that employees with high self-efficacy are more capable of translating training inputs into creative outputs, particularly when organizational leadership provides supportive and empowering conditions [31]. These studies collectively suggest that the success of training programs hinges on content or delivery methods and their ability to enhance employees' belief in their competence, for

organizations such as PT Cakra Kencana Lestari, the implication is clear: investing in psychologically enriched training programs that incorporate elements like goal-setting, mastery experiences, social modeling, and constructive feedback can significantly strengthen employees' self-efficacy and, in turn, promote sustained innovation. Ultimately, acknowledging and leveraging the mediating role of self-efficacy enables organizations to optimize the impact of training, fostering a more dynamic, confident, and innovation-oriented workforce.

4. Conclusion

This study concludes that employee training is a pivotal driver of employee innovation, exerting both direct and indirect influence through the mediating role of self-efficacy. Grounded in Social Learning Theory, the findings reveal that training interventions enhance employees' technical competencies and build their psychological readiness, specifically, their belief in their capability to apply new knowledge innovatively. This underscores the importance of integrating cognitive and motivational elements into learning initiatives to maximize behavioral outcomes. The significant mediating effect of self-efficacy offers a deeper understanding of the internal processes that translate training into innovation, expanding the theoretical discourse on human resource development and organizational behavior. This research contributes to the human resource management literature by empirically validating self-efficacy as a key psychological mechanism linking training to innovation. This study offers practical insights, urging leaders and HR to design training that builds skills and psychological empowerment. Approaches such as feedback, coaching, experiential learning, and modeling may enhance self-efficacy and, in turn, innovation. Future research should examine additional mediating or moderating variables—such as leadership style, organizational climate, job autonomy, or intrinsic motivation—that may shape or strengthen the training–innovation linkage. Moreover, cross-industry and cross-cultural comparative studies could yield insights into contextual differences and enhance the generalizability of findings. Overall, this study reinforces the strategic role of training in cultivating innovation-oriented human capital within organizations.

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