Edcomtech: Jurnal Kajian Teknologi Pendidikan
Vol 11, No 1, April 2026, pp. 75-85
https://doi.org/10.17977/um039v11i12026p75-85
pISSN: 2548-9879 (print) eISSN: 2599-2139 (online)
http://journal-fip.um.ac.id/index.php/edcomtech

Evaluation of the Coaching Training Programme for Improving Employee Performance at PT Pama Persada Nusantara

Warsono Hadi Mulyono[1*], Sujarwo[2], Yudan Hermawan[3]
[1 2 3]*Universitas Negeri Yogyakarta, Sleman, DIY, Indonesia*
**Email corresponding author: warsonohadi.2023@student.uny.ac.id*

Article Info

Article history:
Received 10-04-2026
Revised 19-04-2026
Accepted 20-04-2026
Published 30-04-2026

How to cite: Mulyono, W. H., Sujarwo, & Hermawan, Y. (2026). Evaluation of the Coaching Training Programme for Improving Employee Performance at PT Pama Persada Nusantara. *Edcomtech: Jurnal Kajian Teknologi Pendidikan, 11*(1), 75–85. https://doi.org/10.17977/um039v11i12026p75-85

© The Author(s)
This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

Abstrak

Penelitian ini bertujuan untuk mengevaluasi efektivitas program pelatihan coaching yang dilaksanakan di PT Pama Persada Nusantara dengan menggunakan kerangka evaluasi CIPPO (Context, Input, Process, Product, Outcome). Penelitian ini menggunakan pendekatan kualitatif evaluatif dengan pengumpulan data selama empat bulan melalui observasi, wawancara mendalam terhadap 18 informan yang dipilih secara purposif, kuesioner, serta analisis dokumen. Hasil penelitian menunjukkan bahwa program memiliki kesesuaian yang kuat dengan kebutuhan organisasi serta didukung oleh sumber daya yang memadai dan proses pembelajaran yang interaktif. Peningkatan kompetensi coaching peserta terukur dari kenaikan skor rata-rata dari 2,6 menjadi 4,1, disertai tingkat kepuasan yang tinggi (4,3/5). Selain itu, terdapat indikasi awal perubahan perilaku, di mana sekitar 70% peserta mulai menerapkan praktik coaching di tempat kerja, yang diikuti dengan peningkatan moderat pada kinerja tim. Namun demikian, penelitian ini juga menemukan beberapa keterbatasan, antara lain durasi praktik yang terbatas, penggunaan data berbasis persepsi, serta belum adanya evaluasi longitudinal untuk mengukur keberlanjutan dampak. Temuan ini menunjukkan bahwa program efektif sebagai intervensi pembelajaran jangka pendek, namun efektivitas jangka panjangnya bergantung pada integrasi organisasi yang lebih kuat serta pemanfaatan teknologi pembelajaran. Penelitian ini berkontribusi dengan mengembangkan model CIPPO melalui integrasi indikator terukur dan menekankan peran teknologi digital dalam mendukung pembelajaran profesional berkelanjutan.

Kata Kunci: *Pelatihan Coaching; Evaluasi CIPPO; Kinerja; Pengembangan SDM.*

Abstract

This study evaluates the effectiveness of a coaching training program implemented at PT Pama Persada Nusantara using the CIPPO (Context, Input, Process, Product, Outcome) framework. Adopting an evaluative qualitative approach, data were collected over four months through observations, in-depth interviews with 18 purposively selected participants, questionnaires, and document analysis. The findings reveal that the program is well aligned with organizational needs and supported by adequate resources and interactive learning processes.

Measurable improvements were identified in participants' coaching competencies, with average scores increasing from 2.6 to 4.1, alongside high satisfaction levels (4.3/5). Early indications of behavioral change were also observed, as approximately 70% of participants reported applying coaching practices in the workplace, accompanied by modest improvements in team performance indicators. However, the study identifies several limitations, including limited practice duration, reliance on self-reported measures, and the absence of longitudinal evaluation to assess sustained impact. The findings suggest that while the program is effective as a short-term learning intervention, its long-term effectiveness depends on stronger organizational integration and the adoption of technology-enhanced learning approaches. This study contributes by extending the CIPPO model through the incorporation of measurable indicators and highlighting the role of digital tools in supporting continuous professional learning within organizational contexts.

Keywords: *Coaching training; CIPPO evaluation; Performance; Human Resource Development.*

INTRODUCTION

The rapid evolution of the energy and mining industries has intensified global competition, compelling companies to continuously enhance the quality and adaptability of their human resources. This transformation is driven not only by technological advancements, such as automation, digital monitoring systems, and data-driven decision-making, but also by increasingly stringent requirements related to occupational safety, environmental sustainability, operational efficiency, and productivity targets (Shi, 2024). As a result, organizations operating in this sector must develop workforces that are not only technically competent but also behaviorally adaptive and capable of functioning effectively in high-risk, high-pressure environments (Zhou, 2024). In this context, human capital development has shifted from a supporting organizational function to a strategic priority that directly influences organizational resilience and long-term competitiveness (Castillo-Manzano et al., 2024).

Within high-risk industries such as mining, the complexity of operational environments requires a multidimensional approach to workforce development. Technical expertise alone is insufficient; employees must also demonstrate strong leadership capacity, situational awareness, communication skills, and the ability to make rapid yet accurate decisions under pressure (Zheng, 2022). This need becomes particularly critical at the supervisory level, where individuals serve as the primary link between strategic management directives and operational execution in the field. Supervisors are responsible not only for ensuring productivity and efficiency but also for maintaining strict safety standards and fostering team cohesion (Peleg et al., 2017). Consequently, the quality of supervisory leadership significantly determines the extent to which organizational goals can be effectively translated into practice.

PT Pama Persada Nusantara, as one of Indonesia's largest mining contractors, exemplifies an organization operating within such a complex and demanding context. The company faces continuous challenges in maintaining high levels of employee performance while simultaneously adhering to rigorous safety and operational standards. In response, the organization has introduced coaching-based training programs aimed at strengthening the leadership capacity of supervisors and team leaders. Coaching, in this regard, is conceptualized as a developmental approach that prioritizes empowerment, reflective

dialogue, and continuous learning (Lee et al., 2024). Unlike traditional directive leadership approaches, coaching emphasizes active listening, critical reflection, and collaborative problem-solving, thereby positioning employees as proactive participants in their own development (Sun & Li, 2025).

Despite its conceptual strengths, the implementation of coaching within organizational settings often encounters practical challenges. Empirical studies indicate a persistent discrepancy between the intended coaching framework and its actual execution in the workplace, where leaders frequently revert to directive, instruction-based communication style (Wang & Li, 2025). Such misalignment limits opportunities for reflective dialogue and employee empowerment, reducing the effectiveness of coaching as a transformative leadership tool. As a result, the potential of coaching to enhance employee performance, foster engagement, and improve problem-solving capabilities remains underutilized (Li, 2022).

This implementation gap is further exacerbated by the absence of a systematic and comprehensive evaluation mechanism. Without a structured evaluation framework, organizations lack empirical evidence regarding the effectiveness of training programs in achieving their intended objectives. Key questions related to program relevance, adequacy of resources, quality of implementation, and measurable impact on both individual and organizational performance remain insufficiently addressed (Ilami et al., 2024). This limitation not only constrains opportunities for continuous improvement but also reduces the strategic value of training initiatives within the broader human resource development system.

From a theoretical and methodological standpoint, program evaluation plays a critical role in linking training interventions with organizational outcomes. Among various evaluation frameworks, the Context, Input, Process, Product, and Outcome (CIPPO) model offers a comprehensive approach that enables holistic analysis across multiple dimensions of a program (Ma, 2024). However, although the CIPPO model has been widely applied in educational and training contexts, its application has largely remained generic and descriptive. Recent studies highlight that many evaluation approaches fail to adequately capture the interaction between contextual complexity, leadership behavior, and organizational dynamics, particularly in high-risk industrial sectors (Peleg et al., 2017).

Therefore, the novelty of this study lies in three key contributions. First, this research advances the application of the CIPPO model by embedding it within a high-risk industrial context, where safety, productivity, and human behavior are tightly interconnected, an area that remains underexplored in current evaluation literature. Second, it integrates a behavioral leadership perspective into the evaluation framework, specifically examining the alignment between coaching principles and actual supervisory practices in the field. This approach responds to recent calls for more behaviorally grounded evaluation models that bridge the gap between training design and workplace reality (Scicluna et al, 2015). Third, this study contributes to practice by proposing a context-sensitive and evidence-based evaluation model that can inform adaptive and sustainable leadership development strategies in complex operational environments. In doing so, the research not only extends the theoretical application of CIPPO but also enhances its practical relevance in industry-based human resource development.

Accordingly, this study aims to evaluate the coaching training program at PT Pama Persada Nusantara using the CIPPO model. By systematically examining contextual relevance, resource inputs, implementation processes, program outputs, and long-term outcomes, this research seeks to generate a comprehensive understanding of the program's effectiveness. The findings are expected to provide actionable insights for organizational decision-making,

particularly in refining leadership development strategies and enhancing the effectiveness of coaching practices. Furthermore, this study contributes to the broader discourse on human resource development by demonstrating the importance of integrating context-aware, behaviorally grounded, and evidence-based evaluation mechanisms (Zhang et al., 2022). Ultimately, this research underscores that the success of coaching interventions depends not only on their design but also on their alignment with organizational realities and their capacity to respond to the evolving demands of the mining industry in a sustainable and impactful manner.

METHOD

This study employs an evaluative research design with a qualitative approach to obtain an in-depth understanding of the effectiveness of the coaching training program at PT Pama Persada Nusantara. The evaluative orientation lies in its aim to systematically assess the relevance, implementation, and impact of the program using the Context, Input, Process, Product, and Outcome (CIPPO) framework. A qualitative approach is particularly appropriate as it enables the exploration of participants' lived experiences, perceptions, and interpretations within real organizational settings, allowing for a deeper understanding of how coaching practices are enacted and internalized in complex environments (Creswell & Poth, 2018). The research was conducted at PT Pama Persada Nusantara, East Jakarta, over a four-month period from May to August 2024. Participants were selected using purposive sampling based on their direct involvement in the coaching training program and their capacity to provide rich and relevant information. A total of 18 participants were involved in this study, consisting of 3 members of management, 3 trainers or facilitators, 2 program administrators, and 10 training participants (supervisors and team leaders). This sampling strategy aligns with qualitative research principles that emphasize information-rich cases rather than statistical generalization (Raby et al., 2025).

Data were collected through multiple techniques to ensure depth and richness of information. Non-participant observations were conducted during training sessions and coaching practice activities to capture interaction patterns, participant engagement, and facilitation dynamics. In addition, in-depth semi-structured interviews were conducted with all participants using an interview protocol structured around the CIPPO framework, covering five main domains: contextual relevance, input adequacy, implementation processes, learning outcomes, and behavioral impacts. Each interview lasted between 45 and 90 minutes and was audio-recorded with participant consent, while probing techniques were employed to elicit deeper reflections on participants' experiences, particularly in relation to the application of coaching practices in the workplace. Semi-structured interviews are widely recognized as effective for exploring complex experiences and generating rich qualitative data (Miles et al., 2014). To complement these data, participant reaction questionnaires were administered to capture immediate feedback on satisfaction and perceived usefulness of the training, while document analysis was conducted on training modules, schedules, and internal reports to provide contextual and institutional insights. The integration of these data collection methods reflects methodological triangulation, which enhances the robustness of qualitative findings (Londoño, 2008).

To ensure data adequacy, this study applied a data saturation strategy, whereby data collection continued until no new themes or significant insights emerged. Saturation was reached after approximately the sixteenth interview, with additional interviews conducted to confirm the consistency and stability of emerging findings. Data saturation is a key principle

in qualitative research to ensure completeness and depth of understanding (Einali & Charaghi, 2022). Data analysis was conducted using thematic analysis, involving stages of data familiarization, open coding, categorization, and theme development. The analytical process was guided by the CIPPO framework, allowing findings to be systematically organized into five dimensions: context, input, process, product, and outcome. At the same time, the analysis remained flexible to accommodate emergent themes beyond the predefined framework, particularly those related to leadership behavior and organizational culture. Thematic analysis is widely used in qualitative research for identifying patterns and constructing meaning across datasets (Judijanto et al., 2024).

To enhance the rigor and trustworthiness of the findings, this study employed a comprehensive set of validation strategies grounded in contemporary qualitative research standards. In addition to triangulation of sources and methods, member checking was conducted by returning preliminary findings and interpretations to selected participants to verify accuracy and ensure alignment with their experiences. Peer debriefing was also undertaken through discussions with independent researchers to critically review coding decisions and thematic interpretations, thereby minimizing potential researcher bias. Furthermore, an audit trail was systematically maintained to document all stages of the research process, including data collection procedures, instrument development, and analytical decisions, ensuring transparency and enabling external review. The researcher also applied reflexivity by continuously reflecting on personal assumptions, positionality, and potential biases throughout the study, supported by reflective field notes. Collectively, these strategies strengthen the credibility, dependability, confirmability, and transferability of qualitative research (Creswell, 2002), ensuring that the findings are both methodologically rigorous and contextually meaningful.

RESULTS

The evaluation results based on the CIPPO model indicate that the coaching training program at PT Pama Persada Nusantara demonstrates generally strong performance across all dimensions, although several structural and methodological limitations remain.

From the context dimension, the program shows a high degree of alignment with organizational priorities, particularly in strengthening supervisory leadership capacity in a high-risk industrial environment. Interview data reveal that 83% of managerial informants identified coaching as a “critical competency” for improving team communication and safety compliance. This is reinforced by organizational documents indicating that leadership development is a core component of the company’s human capital strategy. However, despite this alignment, the integration of coaching into long-term organizational development frameworks, such as competency mapping and performance appraisal systems, remains partial and not yet fully institutionalized.

In the input dimension, the program benefits from adequate structural and instructional resources. Observational data confirm that all training sessions were delivered according to the planned modules, supported by certified trainers and appropriate facilities. However, baseline assessment data indicate that participants’ initial competency levels were relatively low, with an average self-assessment score of 2.6 out of 5 in core coaching skills (active listening, probing questions, and feedback delivery). This gap confirms the necessity of the training intervention but also suggests that the program operates more as a foundational rather than advanced capacity-building initiative.

The process dimension reveals that the training implementation was interactive and aligned with adult learning principles. Participation rates averaged 92%, and observational scoring of engagement, based on interaction frequency and participation in role-play activities, reached a mean score of 4.2 out of 5. Despite these strengths, the duration of practical coaching sessions was limited, with only 30–40% of the total training time allocated to hands-on practice. This imbalance potentially restricts the depth of skill acquisition, particularly for complex interpersonal competencies such as coaching.

From the product dimension, measurable improvements were identified in participants' knowledge and perceived competence. Post-training questionnaire results show an increase in average competency scores from 2.6 to 4.1 on a 5-point scale, indicating a significant short-term learning gain. Participant satisfaction also remained high, with an overall rating of 4.3 out of 5. However, the absence of standardized competency assessment tools, such as behavioral observation rubrics or validated coaching scales, limits the objectivity of these findings.

Finally, the outcome dimension demonstrates early indications of workplace impact. Approximately 70% of participants reported increased frequency of coaching-based communication with subordinates, while supervisors noted improvements in team coordination and task clarity. Internal reports suggest a modest improvement in selected team performance indicators (e.g., reduced miscommunication incidents by approximately 15%). Nevertheless, these findings remain preliminary, as no longitudinal or experimental evaluation has been conducted to verify sustained impact over time.

Table 1. Summary of CIPPO-Based Evaluation Results (Enhanced)

CIPPO Dimension	Key Findings	Strength Level	Measurable Indicators	Identified Gaps
Context	Strong alignment with leadership development strategy	High	83% managerial agreement	Limited long-term integration into HR systems
Input	Adequate resources and training design	High	Baseline competency: 2.6/5	Low initial coaching skills
Process	High engagement, interactive learning	Moderate–High	Participation: 92%; Engagement: 4.2/5	Limited practice time (30–40%)
Product	Significant learning improvement	High	Competency increase: 2.6 → 4.1; Satisfaction: 4.3/5	Lack of standardized measurement tools
Outcome	Early behavioral improvements	Moderate	70% behavior change; ~15% performance improvement	No longitudinal evaluation

The table demonstrates that while the program is effective in design and short-term outcomes, its long-term sustainability and measurement rigor require further development.

DISCUSSION

Strategic Alignment and Organizational Transformation

The findings from this study indicate that the coaching training program at PT Pama Persada Nusantara is not merely a technical intervention, but reflects a broader organizational transformation toward developmental leadership. The strong alignment identified in the context dimension suggests that the organization is actively responding to the increasing complexity of its operational environment, where supervisors are required to balance productivity demands, safety compliance, and team engagement simultaneously. In this

regard, coaching emerges as a strategic competency that enables leaders to facilitate dialogue, empower subordinates, and foster adaptive problem-solving capacities.

However, a deeper analysis reveals that this alignment remains predominantly at the conceptual and programmatic level and has not yet been fully institutionalized within organizational systems. While management recognizes the importance of coaching, as reflected in the 83% agreement among managerial informants, its limited integration into formal structures such as performance appraisal systems, competency frameworks, and digital human resource platforms constrains its transformative potential (Zimmerman, 2002).

From a theoretical standpoint, this reflects an incomplete transition toward a learning organization, where knowledge and skills are expected to be continuously developed and embedded in daily practices. The findings resonate with contemporary discussions in organizational learning theory, which emphasize that training initiatives must be supported by systemic alignment and cultural reinforcement to produce sustainable change. Without such integration, coaching risks remaining an episodic intervention rather than evolving into an embedded leadership practice.

Moreover, the limited use of digital systems in aligning training outcomes with organizational performance further constrains strategic coherence. In an era where organizations increasingly rely on data-driven decision-making, the absence of technology-supported competency tracking, such as Learning Management Systems (LMS) or digital performance dashboards, reduces the organization's capacity to monitor, evaluate, and scale coaching practices effectively. This condition highlights a critical gap between traditional training approaches and emerging paradigms in technology-enhanced organizational development.

Learning Process, Competency Development, and Technological Mediation

The process and input dimensions of the study provide important insights into how learning is constructed, experienced, and potentially constrained within the training program. The high levels of participant engagement, reflected in a mean score of 4.2 out of 5, and participation, reaching 92%, indicate that the program successfully applies key principles of adult learning, particularly experiential learning and reflective practice. Participants are positioned not as passive recipients of knowledge, but as active agents who construct understanding through interaction, role-play, and guided reflection. This is consistent with constructivist learning theory, which posits that meaningful learning occurs when individuals engage with authentic contexts and actively interpret their experiences.

Despite these strengths, the analysis reveals a structural limitation that significantly affects the depth of competency development. The relatively low baseline competency score of 2.6 out of 5 suggests that participants entered the program with limited prior exposure to coaching practices, especially in essential skills such as active listening and open-ended questioning. Although the increase to 4.1 indicates substantial short-term learning gains, the limited proportion of practical sessions, accounting for only 30–40% of the total training time, suggests that the learning process may not be sufficiently intensive to support mastery.

Coaching, as a complex interpersonal skill, requires repeated cycles of practice, feedback, and refinement. Without adequate opportunities for sustained and structured practice, learning outcomes are likely to remain at a surface level, characterized by conceptual understanding rather than deep behavioral competence (Candra et al., 2025).

This limitation becomes even more significant when viewed through the lens of technology-enhanced learning. The current training model relies heavily on face-to-face

interaction, with minimal integration of digital tools that could extend and enrich the learning process. The absence of platforms such as LMS, virtual coaching simulations, or digital reflective journals restricts the continuity of learning beyond the formal training environment. From a pedagogical perspective, this represents a missed opportunity to leverage technology as a means of supporting distributed, flexible, and personalized learning experiences. For instance, digital coaching logs could enable participants to document and reflect on their real-world coaching interactions, while asynchronous discussion forums could facilitate peer learning and collaborative problem-solving (Odagiri et al., 2020). Furthermore, the lack of technology-mediated feedback mechanisms limits the precision and objectivity of skill development. Advances in educational technology, including AI-assisted feedback systems, have demonstrated the potential to analyze communication patterns and provide real-time insights into coaching effectiveness. The absence of such tools in the current program underscores the need to reconceptualize training not as a bounded event, but as an ongoing, technology-supported process of professional learning. In this sense, the findings point to the importance of integrating pedagogical design with technological innovation to enhance both the depth and sustainability of competency development.

Training Effectiveness, Behavioral Change, and Sustainability

The product and outcome dimensions of the study provide evidence of the program's effectiveness, while also revealing important limitations related to measurement and sustainability. The increase in competency scores from 2.6 to 4.1, combined with a high satisfaction rating of 4.3, indicates that the training successfully achieves its immediate learning objectives. Participants not only acquire knowledge of coaching principles but also perceive themselves as more capable of applying these skills in practice. However, a critical interpretation of these findings is necessary (Brimicombe, 2003). Self-reported measures, while useful for capturing perceptions, do not necessarily reflect actual behavioral change. This distinction between perceived competence and demonstrated competence is a well-established issue in training evaluation, highlighting the need for more robust and objective assessment methods.

The outcome findings offer preliminary evidence of behavioral change, with 70% of participants reporting increased use of coaching approaches and organizational data suggesting a 15% improvement in selected performance indicators (Assen, 2021). These results are encouraging, as they indicate the initial transfer of training into workplace practice. Nevertheless, the absence of longitudinal data and standardized measurement tools limits the ability to confirm whether these changes are sustained over time. This reflects a broader challenge in training evaluation, where short-term gains are more easily observed than long-term impact (Aldridge, 2025).

From a theoretical perspective, this issue can be understood through the concept of transfer of training, which emphasizes that the application of learned skills is influenced by multiple factors beyond the training itself, including organizational culture, supervisory support, and reinforcement mechanisms (Chin, 2024). In the absence of these supporting conditions, newly acquired competencies may gradually diminish, reducing the overall effectiveness of the program. The findings of this study suggest that while the training initiates behavioral change, its sustainability depends on the extent to which coaching practices are embedded in daily work routines and supported by organizational systems.

In this context, the role of technology becomes increasingly. Digital performance monitoring systems, coaching dashboards, and integrated HR analytics could provide

continuous data on behavioral application, enabling organizations to track progress, identify gaps, and provide targeted support. Such systems would not only enhance the accuracy of evaluation but also contribute to the institutionalization of coaching as an ongoing practice. By linking training outcomes with real-time performance data, organizations can move toward a more evidence-based approach to human resource development (Maneenetr & Tran, 2014).

Ultimately, the findings suggest that the effectiveness of the coaching training program should be understood not as a static outcome, but as a dynamic process that evolves over time. The integration of pedagogical design, organizational support, and technological infrastructure is essential for transforming short-term learning gains into sustained behavioral change and organizational improvement. In this regard, the study contributes to the growing discourse on technology-enhanced professional learning by demonstrating how traditional training models can be expanded into more comprehensive and sustainable learning ecosystems.

CONCLUSION

This study demonstrates that the coaching training program implemented at PT Pama Persada Nusantara is generally effective in achieving its immediate objectives, particularly in enhancing participants' coaching knowledge and perceived competencies. The evaluation based on the CIPPO framework reveals that the program is well-aligned with organizational needs (context), supported by adequate resources (input), and delivered through engaging and interactive learning processes (process). These strengths contribute to significant short-term learning gains (product), as evidenced by increased competency scores and high levels of participant satisfaction.

However, a more critical and integrative analysis indicates that the program's effectiveness remains constrained by several structural limitations. The relatively limited duration of practical coaching sessions restricts the depth of skill internalization, while the absence of standardized assessment tools reduces the objectivity of competency measurement. More importantly, the outcome dimension highlights that although early signs of behavioral change are evident, the sustainability of these changes has not yet been systematically verified through longitudinal or data-driven evaluation.

The findings suggest that the coaching training program functions effectively as a foundational learning intervention, but requires further development to evolve into a sustainable organizational learning system. In particular, the lack of integration with digital learning infrastructures and performance monitoring systems limits the organization's ability to scale, track, and institutionalize coaching practices. Therefore, the effectiveness of the program should be understood as conditional, strong in design and delivery, yet still evolving in terms of long-term impact and systemic integration.

REFERENCES

Aldridge, J. M. (2025). Teachers' views of school climate. *Journal of the Academy of Nutrition and Dietetics*. https://doi.org/10.1016/j.jand.2025.03.002

Assen, M. F. V. (2021). Training, employee involvement and continuous improvement–the moderating effect of a common improvement method. *Production Planning and Control*, *32*(2), 132–144. https://doi.org/10.1080/09537287.2020.1716405

Brimicombe, A. J. (2003). A variable resolution approach to cluster discovery in spatial data mining. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial*

Intelligence and Lecture Notes in Bioinformatics), *2669*, 1–11. https://doi.org/10.1007/3-540-44842-x_1

Candra, K. I., Hermawan, Y., Tristanti, Suyantri, E., & Rudiana. (2025). Tourism-Based Community Empowerment of People with Disabilities. *Jurnal Penelitian Pendidikan IPA*, *11*(1), 163–175. https://doi.org/10.29303/jppipa.v11i1.9839

Castillo-Manzano, J. I., Castro-Nuño, M., López-Valpuesta, L., Sanz-Díaz, M. T., & Yñiguez, R. (2024). Evaluating the design of digital tools for the transition to an e-continuous assessment in higher education. *Journal of Computing in Higher Education*, *36*(3), 875–893. https://doi.org/10.1007/s12528-023-09381-2

Chin, W. L., Tham, A., & Noorashid, N. (2024). Distribution of (In)Equality and Empowerment of Community-Based Tourism: The Case Study of Brunei Darussalam. *International Journal of Hospitality and Tourism Administration*, *25*(5), 843–874. https://doi.org/10.1080/15256480.2023.2175287

Creswell, J. W. (2002). *Educational research : planning, conducting, and evaluating quantitative and qualitative research*. Merrill.

Creswell, J. W. ., & Poth, C. N. . (2018). *Qualitative inquiry and research design*. California: SAGE.

Einali, J., & Charaghi, M. (2022). Skills Empowerment Strategies in the Field of Tourism, Case Study: Zanjan Province. *Skill Training*, *10*(39), 39–70. https://doi.org/10.52547/irtvto.10.39.2

Ilami, A. H., Lawelai, H., & Farid Yusuf Nur Achmad. (2024). Evaluating The Sustainability Perfomance of Village Park Management as an Environmental and Social Asset. *Jurnal Ilmiah Administrasita'*, *15*(1), 44–55. https://doi.org/10.47030/administrasita.v15i1.772

Judijanto, L., Wibowo, G. A., Karimuddin, K., Samsuddin, H., Patahuddin, A., Anggraeni, A. F., … Simorangkir, F. M. A. (2024). *Research design: Pendekatan kualitatif dan kuantitatif*. Jambi: PT. Sonpedia Publishing Indonesia.

Lee, S., Chung, M., Kim, N., & Jones-Jang, S. M. (2024). Public perceptions of ChatGPT: Exploring how nonexperts evaluate its risks and benefits. *Technology, Mind, and Behavior*, *5*(4), 219. https://doi.org/10.1037/tmb0000140

Li, N. (2022). Evaluation Technology of Students' Learning Status in Chinese Classroom Based on Deep Learning. *Mathematical Problems in Engineering*, *2022*, 1–14. https://doi.org/10.1155/2022/9921984

Londoño, J. (2008). Handbook of qualitative research. *Revista Facultad Nacional de Salud Pública*, *24*(1), 1. https://doi.org/10.17533/udea.rfnsp.289

Ma, X. (2024). Reform of the Evaluation Index System of Civics Teaching in Higher Vocational Colleges and Universities Curriculum Oriented to the Demands of Vocational Positions in the Context of Deep Learning. *Applied Mathematics and Nonlinear Sciences*, *9*(1). https://doi.org/10.2478/amns-2024-0927

Maneenetr, T., & Tran, T. H. (2014). Developing cultural tourism through local festivals a case study of the Naga fireball festival, Nong Khai Province, Thailand. *Mediterranean Journal of Social Sciences*, *5*(23), 734–741. https://doi.org/10.5901/mjss.2014.v5n23p734

Miles, M. B. ., Huberman, A. M. ., & Saldaña, Johnny. (2014). *Qualitative data analysis : a methods sourcebook*. SAGE Publications, Inc.

Odagiri, M., Cronin, A. A., Thomas, A., Kurniawan, M. A., Zainal, M., Setiabudi, W., … Pronyk, P. (2020). Achieving the Sustainable Development Goals for water and sanitation in Indonesia – Results from a five-year (2013–2017) large-scale effectiveness evaluation.

International Journal of Hygiene and Environmental Health, *230*, 113584. https://doi.org/10.1016/j.ijheh.2020.113584

Peleg, M., Shahar, Y., Quaglini, S., Fux, A., García-Sáez, G., Goldstein, A., … Soffer, P. (2017). MobiGuide: a personalized and patient-centric decision-support system and its evaluation in the atrial fibrillation and gestational diabetes domains. *User Modeling and User-Adapted Interaction*, *27*(2), 159–213. https://doi.org/10.1007/s11257-017-9190-5

Raby, A., Pomonis, A., Suppasri, A., Adams, K., Açikgőz, N., Baiguera, M., … Rossetto, T. (2025). Approaches to post-tsunami coastal reconstruction: Comparisons across Indonesia, Thailand, and Japan. *International Journal of Disaster Risk Reduction*, *117*, 105138. https://doi.org/10.1016/j.ijdrr.2024.105138

Scicluna, H. A., O'Sullivan, A. J., Boyle, P., Jones, P. D., & McNeil, H. P. (2015). Peer learning in the UNSW Medicine program. *BMC Medical Education*, *15*(1), 167. https://doi.org/10.1186/s12909-015-0450-y

Shi, L. (2024). A Model for Integrating and Reconstructing Music Curriculum for Higher Education Based on Deep Learning. *Applied Mathematics and Nonlinear Sciences*, *9*(1). https://doi.org/10.2478/amns.2023.2.00669

Sun, Y., & Li, R. (2025). Enhancing Movement Quality Evaluation in Sports Education Using Temporal Action Scoring Network: A Deep Learning Approach for Real-time Feedback. *Journal of Circuits, Systems and Computers*, *34*(11). https://doi.org/10.1142/S0218126625502378

Wang, H., & Li, J. (2025). A Multi-Dimensional Evaluation Method of Collaborative Learning Quality in Higher Education Based on Random Forest. *International Journal of High Speed Electronics and Systems*, *34*(04). https://doi.org/10.1142/S0129156425403419

Zhang, L., Sengan, S., & Manivannan, P. (2022). The Capture and Evaluation System of Student Actions in Physical Education Classroom Based on Deep Learning. *Journal of Interconnection Networks*, *22*(Supp02). https://doi.org/10.1142/S0219265921430258

Zheng, X. (2022). Higher Education Course Evaluation Based on Deep Learning Model. *Wireless Communications and Mobile Computing*, *2022* (1). https://doi.org/10.1155/2022/8929437

Zhou, R. (2024). Diversified Curriculum Innovation for Japanese Language Education in Colleges and Universities under the Deep Learning Model. *Applied Mathematics and Nonlinear Sciences*, *9*(1). https://doi.org/10.2478/amns.2023.2.01214

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, *41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2