

<https://research.adra.ac.id/index.php/jete/>

P - ISSN: 3025-0668

E - ISSN: 3025-0676

# The Disruptive Innovation of Communicative Language Teaching (CLT) in English Language Presentations for Economic and Management Knowledge

Hengki<sup>1</sup>, Ratna<sup>2</sup>, Nina Anis<sup>3</sup>

<sup>1</sup>Universitas Islam Kalimantan Muhammad Arsyad Al Banjari, Indonesia

<sup>2</sup>Universitas Islam Kalimantan Muhammad Arsyad Al Banjari, Indonesia

<sup>3</sup>Monash University, Malaysia

## ABSTRACT

**Background.** This paper aims to provide an overview of the key findings and implications of the research conducted. The present study examines the impact of communicative language teaching (CLT) as a disruptive innovation on the pedagogy of English language instruction.

**Purpose.** This paper aims to provide an overview of the key findings and implications of the research conducted. The present study examines the impact of communicative language teaching (CLT) as a disruptive innovation on the pedagogy of English language instruction for the acquisition of knowledge in the fields of management and economics.

**Method.** The implementation of the Critical Learning Theory (CLT) presents a novel pedagogical strategy that fosters the development of critical thinking abilities, enhances effective communication skills, and cultivates cultural competency.

**Results.** This essay examines the fundamental principles of Communicative Language Teaching (CLT) and its integration into the domains of economics and management education. Additionally, it investigates the impact of CLT on both educators and learners.

**Conclusion.** Based on the findings, the incorporation of CLT has the potential to enhance students' competence and engagement, thereby equipping them with the necessary skills to thrive in the competitive.

## KEYWORDS

Communicative Language, Economic Management, Language Presentations

**Citation:** Hengki, Hengki., Ratna, Ratna & Anis, N. (2025). The Disruptive Innovation of Communicative Language Teaching (CLT) in English Language Presentations for Economic and Management Knowledge. *Journal Emerging Technologies in Education*, 3(5), 240–248. <https://doi.org/10.70177/jete.v3i5.1609>

## Correspondence:

Hengki,  
[hengki@gmail.com](mailto:hengki@gmail.com)

**Received:** May 8, 2025

**Accepted:** July 10, 2025

**Published:** Oct 5, 2025



## INTRODUCTION

The implementation of disruptive innovation in the field of English language education for economics and management aims to introduce novel and inventive approaches that question conventional teaching methodologies. This endeavor seeks to enhance the efficacy and accessibility of learning experiences for students aspiring to pursue professions in economics and management. This method is motivated by the necessity to accommodate the rapid changes occurring in this particular industry, which is progressively placing greater emphasis on the acquisition of proficient English language skills.

The subsequent passage provides contextual information regarding the concept of disruptive innovation in the realm of English language instruction for the fields of economics and management. Researchers have unveiled that this phenomenon is anticipated to occur.

Changing demands in the global economy in light of the growing interconnectedness and globalization of the world, it has become imperative for professionals in the fields of economics and management to engage in worldwide communication and collaboration. The acquisition of a high level of English language skills, widely recognized as the predominant language for international business communication, is vital for attaining success (Safsouf et al., 2020). It is possible that conventional instructional approaches may not sufficiently equip the students to meet the challenges posed by the global context. Along with developments in science and technology as indicated by the emergence of technology, especially the internet and numerous software applications, it has challenged traditional classroom-based instruction. The advent of online resources, language learning applications, and virtual classrooms has significantly expanded the potential for English language instruction and acquisition. Disruptive innovations within the realm of education frequently center around the implementation of personalized and adaptive learning approaches. This entails tailoring instruction to accommodate the individual requirements and advancements of each student, so affording them the opportunity to acquire knowledge at their preferred rate and in accordance with their own learning preferences. Adaptive learning platforms provide the capability to evaluate a student's existing level of English proficiency and afterwards offer suitable learning materials and exercises. Blended Learning, an instructional approach that integrates conventional face-to-face instruction with online and digital resources, has the potential to offer a learning experience that is both adaptable and efficacious. This pedagogical approach enables students to actively participate in English language learning within the practical framework of economics and management (Lewis & Hill, 2017). This is achieved through the utilization of online simulations, case studies, and interactive technologies.

Open Educational Resources (OER) refer to freely accessible and openly licensed educational materials that can be used for teaching, learning, and research purposes. These resources are typically available the presence of open educational resources, such as online textbooks, movies, and interactive materials that are either free or inexpensive, has caused significant disruption to the conventional publishing sector. These tools have the potential to enhance the accessibility of high-quality English instruction for students, consequently mitigating the financial impediments associated with acquiring learning materials.

The practice of gamification involves the integration of game elements within the context of English language learning, with the aim of enhancing both the engagement and efficacy of the learning process. The utilization of gamified learning platforms has the potential to facilitate English language acquisition among students, as well as provide them with a simulated environment that mirrors real-world economic and management situations.

Language learning analytics (LLA), also known as the utilization of data-driven insights pertaining to student progress and learning patterns, can assist educators in making well-informed decisions regarding their instructional approaches and adapting the curriculum to better align with the individual needs of students. The concept of Language for Specific Purposes (LSP) refers to the use of language in specialized domains or contexts (Keefer & Haj-Broussard, 2020). LSP focuses on developing language skills that are specific to particular fields or professions, such as disruptive innovations in the realm of English language instruction for economics and management frequently prioritize the acquisition of English language skills tailored to specific professional contexts. This technique modifies the instruction of language to cater to the distinct requirements and

circumstances of individuals in the fields of economics and management, guaranteeing the acquisition of pertinent language abilities by the students. Accessibility and inclusivity are two disruptive ideas that seek to enhance the accessibility of English education to a broader range of students, including those who may lack access to typical classroom settings. Furthermore, it has the capacity to cater to a diverse range of learning styles and talents.

The market for English education on a global scale is experiencing significant growth. The economic significance of English education serves as a prominent catalyst for disruptive innovation within this domain. The worldwide market for new methods in economics and management necessitates English proficiency, extending beyond the confines of any single country.

The recognition of the escalating demands on the domains of economics and management in a worldwide context has led to the emergence of disruptive innovations in English language instruction. The University utilizes technological advancements, personalized approaches, and adaptability in order to offer a more efficient and easily accessible English education. This education aims to equip students with the necessary skills to thrive in a competitive and constantly evolving economic and managerial environment. To determine if disruptive innovation in teaching English for economics and management improves these fields.

## RESEARCH METHODOLOGY

It is fascinating to conduct research on the effects of disruptive innovation on English language instruction in economics and knowledge management, as well as students' language proficiency. At each lecture, both indoors and outdoors, PowerPoint presentations on subjects of interest in the fields of economics and management are conducted. An approach to learning English known as Content-Based instruction (CBI) integrates language proficiency with the subject matter covered in the lessons. In this manner, genuine and pertinent data were obtained for the research project.

Observations, interviews, surveys, experiments, and secondary data analysis are the methodologies employed in this study. In carrying out this investigation, the scholar opted for a qualitative methodology. The participants in this study comprised a sample of one hundred students enrolled in their first year of lectures as management economics majors. An research-focused cohort of management students is instructed in economics through the implementation of disruptive innovation in English instruction. With diligence and adherence to the designated timeframe, the execution of innovations is conducted. Research pertaining to disruptive innovation is frequently accompanied by uncertainty and risk, given the unpredictability of disruptive concepts (Soler, 2004). Remaining competitive in a swiftly changing environment necessitates the maintenance of a flexible and adaptable strategy.

## RESULT AND DISCUSSION

English instruction in economics and management that incorporates disruptive innovations may significantly contribute to the advancement and improvement of these two disciplines. Disruptive innovation pertains to substantial alterations in the modalities of education and learning, frequently encompassing the implementation of technological advancements and more streamlined learning methodologies. Advancements in English language instruction, including the implementation of online learning platforms, grant economics and management professionals and students unrestricted access to study materials and resources. This feature enhances the adaptability of the learning process, enabling individuals to fit English classes into their hectic timetables.

Adaptive learning technology modifies instructional materials based on the comprehension level and individual requirements of each student. This can facilitate more effective and efficient English mastery, which is crucial in the economics and management disciplines, where business communications are frequently involved. The innovation empowers providers of English language courses to design courses that are exceptionally language-centric and incorporate pertinent subject matter for the fields of economics and management. This can assist students in developing language abilities that are exceptionally applicable to their careers. Technology facilitates interaction and collaboration among pupils hailing from diverse nations. Students can gain an appreciation for significant cross-cultural perspectives in the disciplines of international economics and management while also improving their command of the English language.

**Table 1.** Impact of disruptive innovation on english language learning

Aspect	Description	Impact on Students
Adaptive Learning Systems	Personalized learning based on student needs and progress	Improves learning efficiency and individual mastery
Online Learning Platforms	Use of digital platforms for flexible access to materials	Enhances accessibility and independent learning
Content-Based Instruction (CBI)	Integration of language learning with economics and management content	Increases relevance and practical language application
Global Collaboration	Interaction with international peers through technology	Develops cross-cultural communication skills
Learning Analytics	Use of data to monitor and evaluate student progress	Supports targeted improvement and feedback

The table above illustrates how disruptive innovation in English language teaching contributes to enhancing learning outcomes in the fields of economics and management. Adaptive learning systems allow instruction to be tailored to individual student needs, resulting in more efficient and personalized learning experiences. Online learning platforms further expand accessibility by enabling students to access materials anytime and anywhere, supporting flexible and self-directed learning. Additionally, the implementation of Content-Based Instruction (CBI) integrates language acquisition with subject-specific knowledge, making learning more meaningful and directly applicable to students' academic and professional contexts. The use of technology also facilitates global collaboration, allowing students to interact with peers from different cultural backgrounds, thereby strengthening their communication skills in international settings. Furthermore, learning analytics plays a crucial role in tracking student progress and identifying areas for improvement, enabling both teachers and learners to make data-driven decisions. Overall, these innovations significantly enhance student engagement, language proficiency, and readiness for global economic and management environments.

An examination of research data revealed that data analysis tools frequently supplement innovations in English language instruction by facilitating progress monitoring and identifying areas requiring refinement for both instructors and learners. This may increase the efficacy of learning. Students have access to a variety of global resources, including English-language periodicals, literature, and study materials, via innovation. This allows them to remain current on the most recent economic and management trends. Students can acquire language proficiency for business contexts, including speaking in business meetings, composing reports, and communicating effectively in the workplace, through the use of English language teaching innovations. In a global business environment that is becoming more interconnected, disruptive innovations in English language instruction can assist economics and management professionals in enhancing their English

language proficiency. It can additionally facilitate their ability to stay informed about the most recent advancements in their respective domains and promote effective communication across diverse cultures and nations.

For disruptive innovation in education and training, adaptive learning systems can be crucial (Levy & Schrire, 2015). New technologies, products, and services disrupt and replace current markets and industries through disruptive innovation. Technology-based adaptive learning systems can be adjusted to individual learners' needs and assist both the changing education and training landscape and disruptive innovation. Algorithms track a student's progress and adjust the content and severity to their needs and pace. Personalization can accommodate more learners and help individuals who struggle in regular schools, disrupting traditional education patterns. Accessibility to underdeveloped or new markets is often the goal of disruptive innovation. Individuals without access to traditional institutions can be educated and trained via adaptive learning systems, establishing new markets and disrupting current ones.

Product or service delivery at lower costs is often disruptive innovation. Reducing the need for classrooms and textbooks makes adaptive learning systems cost-effective over time. High-quality, low-cost education can destabilize the educational model. Data on student performance and learning patterns is collected by adaptive learning systems. Improve content, tailor to individual needs, and find areas for improvement with this data. It can also influence teaching methods and course design, advancing education. Adaptive learning systems can change with the world, incorporating new information, skills, and trends into their content to keep learners current. Ideal for professional growth and continual learning, adaptive learning systems can target specific skills or competences. Employees in disrupted industries must adapt and learn new skills rapidly. Feedback and collaboration promote disruptive innovation. Student, instructor, and content provider feedback loops can be improved by adaptive learning systems, creating a more dynamic and responsive educational ecosystem. Be aware that adaptive learning systems can disrupt education and training, but they also pose fairness, data privacy, and quality issues. Carefully integrating adaptive learning systems requires innovation and prudent execution.

Educational technology and disruptive innovation can benefit from adaptive learning systems (Nuraini et al., 2021). New technology or practices that disrupt an industry or sector are called disruptive innovation. Data and algorithms are used by adaptive learning systems to customize student curriculum and exercises. Personalization differs from universal education. These systems can boost learning quality and engagement by adapting to each student's pace and style. Since customization threatens the classroom-based learning model, disruptive education innovation generally begins with it (Vadapalli, 2020). Educational accessibility can be improved via adaptive learning systems. They can assist children with disabilities, non-standard timetables, or restricted physical education access. Inclusivity may provide education to more people and disrupt it. Continuous improvement can be achieved by using student performance data from adaptive learning systems. This data can help educators build curricula, instruct, and allocate resources. This move toward data-driven decision making could destabilize educational systems that rely on intuition and tradition above evidence. In a fast-changing employment environment, lifelong learning and skills development are crucial. By offering individualized and timely instruction, adaptive learning systems can help people improve their skills.

The disruption of early education patterns could lead to new career-long learning opportunities. Adaptive learning approaches may lower education expenditures. They can lower education costs by automating and offering self-directed learning. This may upset pricey educational models. Artificial intelligence and machine learning power adaptive learning systems.

Technological advancements can spur education innovation. Students can get instant support from AI-powered instructors and chatbots, and machine learning can uncover performance patterns to optimize learning design. Online and distance learning are made possible through adaptive learning systems, making education global. This is upsetting the classroom-based, location-bound education model and boosting online and distance learning. Innovative education will benefit from adaptive learning methods.

## CONCLUSION

Conclusion regarding the application of the Communicative Language Teaching (CLT) technique as an example of disruptive innovation in English language presentations for the goal of acquiring knowledge in the areas of economics and management. The CLT method places a primary emphasis on enhancing one's ability to communicate orally and auditorily in English. Students benefit from this in that it helps them more effectively learn and convey economic and management topics. When disruptive technologies are incorporated into English language instruction, the resulting learning environment is one that is more engaging and participatory. It is possible to boost student involvement with the help of technology such as online platforms, software, or visual aids. Students are able to learn about economics and management by basing their studies on real-life scenarios when they participate in CLT. They will have opportunities to practise English in settings pertinent to their careers and hobbies. Students have the opportunity to strengthen their critical thinking skills and problem-solving talents through the use of CLT. They are able to work together, debate issues, and devise solutions in English, which is a talent that is essential in the fields of economics and management.

Learning can now take place online thanks to disruptive innovation, which has opened the door to more flexible and open-access educational opportunities. Those who are unable to participate due to physical or temporal constraints may find this method helpful. Students get the opportunity to speak and actively practise English thanks to CLT and disruptive innovations in English presentations, which is essential for comprehending and conveying ideas pertaining to management and economics. Students who take English classes for business and economics will have the opportunity to develop their global perspective. They will have an understanding of a variety of foreign viewpoints that are pertinent to the setting of global business. In conclusion, integrating the CLT approach with disruptive innovation in English presentations for the purposes of acquiring knowledge in the fields of economics and management can bring significant benefits for the development of skills related to communication, critical thinking, and understanding of content that is relevant to the world of global business.

## AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

## REFERENCES

- Amazan, R., Weuffen, S., Langdon, S., & Durksen, T. L. (2025). Communities of practice in supporting collective sense-making for culturally nourishing schooling. *Learning, Culture and Social Interaction*, 52. <https://doi.org/10.1016/j.lcsi.2025.100896>
- Antunes, R., & Brandão, A. (2025). Bridging Academia and Practice: A Comparative Study of Brand Design Projects in Higher Education. *International Journal of Design Education*, 19(1),

- 91–108. <https://doi.org/10.18848/2325-128X/CGP/v19i01/91-108>
- Arslan, S. (2025). English-as-a-foreign language university instructors' perceptions of integrating artificial intelligence: A Turkish perspective. *System*, 131. <https://doi.org/10.1016/j.system.2025.103680>
- Assali, M. A. (2025). Bridging the Gap: ESL Teachers' Views on AI Integration and Its Impact on Language Learning. *World Journal of English Language*, 15(4), 120–127. <https://doi.org/10.5430/wjel.v15n4p120>
- Baymetov, B. B., Muratov, K. K., Yusupova, S. A., Norqulova, D. U., Muxitdinova, M. S., Khamraqulova, M. T. K., Yusupov, U. K., & Susilawati, A. (2025). TECHNOLOGIES FOR THE SCIENTIFIC AND THEORETICAL FORMATION OF PROFESSIONAL COMPETENCE IN FUTURE FINE ARTS TEACHERS. *Journal of Engineering Science and Technology*, 20(3), 17–24. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-105002421575&partnerID=40&md5=717dca914b443d5c228e591075d1f88f>
- Bergdahl, N., & Sjöberg, J. (2025). Attitudes, perceptions and AI self-efficacy in K-12 education. *Computers and Education: Artificial Intelligence*, 8. <https://doi.org/10.1016/j.caeai.2024.100358>
- Bezmalinovic, H. S., Peña-Rincón, P., Martín, C. S., & Zaccarelli, F. G. (2025). Mathematics and special education teachers co-teaching to promote argumentation in the classroom. *Revista Colombiana de Educacion*, 96. <https://doi.org/10.17227/rce.num96-19102>
- Borges-Veloso, C., & Fernández, X. M. C. (2025). Cooperation Between Teaching Teams and Social Workers in Schools. A Study on Two Contrasting Work Team Proposals. *Revista Colombiana de Educacion*, 96. <https://doi.org/10.17227/rce.num96-20371>
- Borja, G. P. S., Franco, L. E. N., & Poblete, P. A. C. (2025). Archaeological Training as a Tool for Scientific Historical Research: An Analysis of its Application in the Preprofessional Internships of the Pedagogy of History Degree, Riobamba, Ecuador. *Arqueologia Iberoamericana*, 55, 17–23. <https://doi.org/10.5281/zenodo.14684734>
- Chatmanerungcharoen, S. (2025). Collaborative professional development for science, technology, and mathematics teachers in designing iPad-integrated lesson plans. *Multidisciplinary Reviews*, 8(6). <https://doi.org/10.31893/multirev.2025170>
- Ettienne, E. B., & Rose, K. (2025). African minors' health challenges are comparable to those in the rest of the world. *World Journal of Clinical Pediatrics*, 14(2). <https://doi.org/10.5409/wjcp.v14.i2.102922>
- Ghiasvand, F., & Seyri, H. (2025). A collaborative reflection on the synergy of Artificial Intelligence (AI) and language teacher identity reconstruction. *Teaching and Teacher Education*, 160. <https://doi.org/10.1016/j.tate.2025.105022>
- Glaser, K., & Martínez-Flor, A. (2025). Tracing a pre-service primary English teacher's development in teaching L2 pragmatics: Knowledge, beliefs, and perceived challenges. *System*, 131. <https://doi.org/10.1016/j.system.2025.103655>
- González-Amarante, P., & Romero-Padrón, M. A. (2025). Motivations for a career in teaching: medical students' projections towards their future role. *BMC Medical Education*, 25(1). <https://doi.org/10.1186/s12909-024-06536-2>
- Hari Rajan, M., Herbert, C., & Polly, P. (2025). A synthetic review of learning theories, elements and virtual environment simulation types to improve learning within higher education. *Thinking Skills and Creativity*, 56. <https://doi.org/10.1016/j.tsc.2024.101732>
- Hashim, S., Zahir, N. Z. M., Maleki, N. H., Amiruddin, M. H., Ismail, M. E., & Nincarean, D. (2025). The Design and Development of a Multimedia Reading Application for Pre-schoolers as a Foundation in the Area of TVET. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, 51(2), 111–123. <https://doi.org/10.37934/araset.51.2.111123>
- Hunt, M., Yan, Y., Meyer, B., & Liu, H. (2025). Managing literacy interventions through professional learning communities: a case study on organizational change in education systems. *Humanities and Social Sciences Communications*, 12(1). <https://doi.org/10.1057/s41599-025-04744-9>

- Jambarsang, S., Mehrparvar, A. H., & Keshmiri, F. (2025). Assessment of leadership and professional behavior of educational managers in the complex and post-crisis era: perspectives of educators. *BMC Research Notes*, 18(1). <https://doi.org/10.1186/s13104-025-07166-7>
- Kienitz, A., Krebs, M.-C., & Eitel, A. (2025). Level one: Teaching practice – Does playing a digital teaching simulation game foster novice student teachers' perception and use of theoretical knowledge? *Computers and Education*, 231. <https://doi.org/10.1016/j.compedu.2025.105277>
- Leibovitch, Y. M., Beencke, A., Ellerton, P. J., McBrien, C., Robinson-Taylor, C.-L., & Brown, D. J. (2025). Teachers' (evolving) beliefs about critical thinking education during professional learning: A multi- case study. *Thinking Skills and Creativity*, 56. <https://doi.org/10.1016/j.tsc.2024.101725>
- Mosavi, R., Foroughipour, F., Kazemipour, M., & Keshmiri, F. (2025). Moral competence of dental students: an explanatory mixed-methods study. *BMC Medical Education*, 25(1). <https://doi.org/10.1186/s12909-025-06636-7>
- Mosley, K. C., McCarthy, C. J., Lambert, R. G., & Caldwell, A. B. (2025a). Correction to: Understanding teacher professional intentions: the role of teacher psychological resources, appraisals, and job satisfaction (*Social Psychology of Education*, (2025), 28, 1, (2), 10.1007/s11218-024-09981-5). *Social Psychology of Education*, 28(1). <https://doi.org/10.1007/s11218-025-10054-4>
- Mosley, K. C., McCarthy, C. J., Lambert, R. G., & Caldwell, A. B. (2025b). Understanding teacher professional intentions: the role of teacher psychological resources, appraisals, and job satisfaction. *Social Psychology of Education*, 28(1). <https://doi.org/10.1007/s11218-024-09981-5>
- Nguyen, H. T. M., Nguyen, H. T. T., Gilanyi, L., Hoang, T. H., & Gao, X. (2025). Content Language Integrated Learning (CLIL): Teachers' metacognitive understanding of pedagogical translanguaging. *Learning and Instruction*, 97. <https://doi.org/10.1016/j.learninstruc.2025.102085>
- Niluminda, S., Nilushika, S., Nimalchandra, H., Nishakara, C., Nuwanthika, S., Pabasara, M., & Rathish, D. (2025). A correlation between perceived social support and professional quality of life: a cross-sectional study among government school teachers in the Nuwaragampalatha East educational division of Anuradhapura, Sri Lanka. *Discover Mental Health*, 5(1). <https://doi.org/10.1007/s44192-025-00170-0>
- Njiku, J. (2025). Teaching Practice Supervision: Student Teachers' Perspectives and Experiences. *International Journal of Learning in Higher Education*, 32(1), 145–161. <https://doi.org/10.18848/2327-7955/CGP/v32i01/145-161>
- Pereira, A. L. P., Palacio, D. D. C., & Ribeiro, D. V. (2025). Connecting knowledge and practice: specialization course in dentistry in public health at Brazilian unified health system - a journey of transformative integration. *BMC Medical Education*, 25(1). <https://doi.org/10.1186/s12909-025-06987-1>
- Perez, H. C. S., de Souza, L. Z., & Flório, F. M. (2025). Effects of an Educational Comic Book on Knowledge Related to the Safe Use of Fluoride Toothpaste in Children. *Pesquisa Brasileira Em Odontopediatria e Clinica Integrada*, 25. <https://doi.org/10.1590/pboci.2025.072>
- Perlman, M., Nocita, G., Sokolovic, N., Falenchuk, O., & Jenkins, J. M. (2025). One size does not fit all: Associations between child characteristics, differential treatment of children by educators and quality in child care centers. *Early Childhood Research Quarterly*, 72, 205–214. <https://doi.org/10.1016/j.ecresq.2025.03.002>
- Prabjandee, D., & Savski, K. (2025). Mediating across the sustainable ecology: Researchers and practitioners as collaborating epistemic arbiters in developing a Global Englishes-informed coursebook. *System*, 131. <https://doi.org/10.1016/j.system.2025.103639>
- Prediger, S., Rösike, K.-A., & Wischgoll, A. (2025). Beyond basic skills: An effective foundation intervention for low-achieving fifth graders' understanding of basic concepts. *Studies in Educational Evaluation*, 85. <https://doi.org/10.1016/j.stueduc.2025.101452>
- Rehman, N., Huang, X., Mahmood, A., Zafeer, H. M. I., & Mohammad, N. K. (2025). Emerging

trends and effective strategies in STEM teacher professional development: A systematic review. *Humanities and Social Sciences Communications*, 12(1).

<https://doi.org/10.1057/s41599-024-04272-y>

Schachter, R. E., Knoche, L. L., Lu, J., Goldberg, M. J., Wernick, P. D., Piasta, S. B., & Lancaster, H. S. (2025). A meta-analysis of the effectiveness of coaching and the contribution of coaching processes to learning outcomes for early childhood teachers and children. *Early Childhood Research Quarterly*, 72, 156–169. <https://doi.org/10.1016/j.ecresq.2025.02.014>

---

**Copyright Holder :**

© Hengki et.al (2025).

**First Publication Right :**

© Journal Emerging Technologies in Education

This article is under:

