https://journal.ypidathu.or.id/index.php/ijen/
P - ISSN: 2988-1579
E - ISSN: 2988-0092

The Influence of the Application of Constructivism Philosophy on Elementary School Students' Learning Independence

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ABSTRACT

Background. This study aims to examine the influence of constructivism philosophy application on elementary school students' learning independence. The rapid changes in educational paradigms emphasize the need for students to actively engage in their learning processes. Constructivism, with its focus on learners building knowledge through experience and reflection, has been identified as a potential catalyst in fostering students' independence.
Purpose. The objective of this research is to determine how the implementation of constructivist-based learning strategies can impact students' ability to work autonomously in the learning environment. This research adopts a quasi-experimental method with a pre-test and post-test design.
Method. The sample consists of two groups of elementary school students, with one group receiving constructivist-based instruction and the other group following traditional teaching methods. Data collection involved observation, questionnaires, and tests to measure the level of students' learning independence before and after the intervention.
Results. The results revealed that the application of constructivist principles significantly improved students' learning independence, as seen from the increased scores in the post-test and positive feedback from observational data.
Conclusion. This study concludes that constructivist-based learning can effectively enhance students' independence, suggesting that educators should consider incorporating these strategies into their teaching practices.
Keywords: Elementary Education, Student Autonomy, Teaching Strategies

Citation: Anis, N., Fariq, A & Chahine, A (2025). The Influence of the Application of Constructivism Philosophy on Elementary School Students' Learning Independence. *International Journal of Educational Narrative*, *3*(1), 86–94. https://doi.org/10.70177/ijen.v3i1.2143

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Received: March 11, 2025
Accepted: April 18, 2025
Published: April 18, 2025

INTRODUCTION

The application of constructivism in education has gained considerable attention over the years, offering a significant shift from traditional teaching methods that often emphasize passive learning (Engström & Lennholm, 2025; "WSDM 2025 - Proceedings of the 18th ACM International Conference on Web Search and Data Mining," 2025). In the constructivist paradigm, students are seen as active participants in their learning, where knowledge is constructed through experiences and interactions rather than passively received from the teacher. The rapid development in educational theories, coupled with the increasing need for students to become self-reliant in their learning processes, has made the

implementation of such theories particularly relevant in contemporary educational settings (Z. Li dkk., 2025; Suganuma dkk., 2025). As the modern educational landscape emphasizes learner autonomy and self-directed learning, exploring how constructivism fosters these qualities becomes essential. The role of teachers is evolving to support student-driven learning, encouraging independent thinking and problem-solving skills (Alami & Doostparast, 2025; Dorhout dkk., 2025). It is crucial to examine how the principles of constructivism can enhance elementary students' ability to take ownership of their learning and develop a sense of responsibility, which will equip them with essential skills for lifelong learning.

The main issue addressed in this study is how the application of constructivist strategies influences the development of learning independence among elementary school students. In traditional educational settings, teachers often adopt a didactic approach where they primarily transmit knowledge, leaving students to absorb information passively (Dorhout dkk., 2025; Ehrenworth, 2025). This approach can limit the development of critical thinking and independence, as students are not given the opportunity to actively engage with the material. In contrast, constructivism focuses on creating a learning environment where students actively construct their own understanding, solving problems and engaging in inquiry-based activities. The gap lies in understanding how these constructivist strategies specifically foster learning independence in the elementary school context. Despite the widespread acknowledgment of the benefits of constructivism, there is a lack of comprehensive studies that examine its direct impact on fostering self-directed learning behaviors among younger students, particularly at the elementary school level.

This research aims to investigate how the implementation of constructivist teaching methods can influence the development of learning independence in elementary school students. The primary objective is to assess whether students who are taught using constructivist principles exhibit higher levels of autonomy and self-direction in their learning activities (Karthiyayini dkk., 2025; Lefeuvre dkk., 2025). By measuring the students' learning independence before and after the application of constructivist strategies, this study intends to provide empirical evidence of the effectiveness of such teaching approaches. The expectation is that the research will demonstrate a positive correlation between constructivist teaching practices and the enhancement of learning independence. Additionally, the study seeks to explore the specific aspects of constructivism, such as collaborative learning, problem-solving, and hands-on experiences, that contribute to students' development of self-regulated learning habits (Aly dkk., 2025; Mukherjee dkk., 2025). Ultimately, the goal is to contribute valuable insights to the field of education, especially in the context of primary education, regarding the benefits of applying constructivist principles.

While there is an extensive body of literature discussing the advantages of constructivism in various educational settings, significant gaps remain in our understanding of how constructivist philosophy specifically impacts learning independence in elementary education. Many studies have focused on the effectiveness of constructivist strategies in improving academic performance or engagement, yet fewer studies have directly explored the link between constructivism and the development of learning independence, especially at the elementary school level (Aly dkk., 2025; Mukherjee dkk., 2025). This study seeks to fill that gap by focusing on the practical application of constructivist principles in fostering autonomy among young learners. Additionally, previous research often emphasizes the theoretical underpinnings of constructivism without examining how these theories are enacted in the classroom or their tangible effects on students' behaviors and attitudes toward learning. By bridging this gap, the current study offers a fresh perspective on the

relationship between constructivism and student independence, adding to the growing body of research that examines how teaching methodologies influence broader educational outcomes.

The novelty of this research lies in its focused examination of the impact of constructivist teaching methods on elementary students' learning independence (De Paz-Cantos dkk., 2025; Jones dkk., 2025). While constructivism has been widely discussed in educational theory, few studies have specifically targeted its role in developing independent learning behaviors in young students. This study's unique contribution is its direct investigation into how constructivist teaching methods, such as project-based learning, inquiry-based activities, and collaborative work, contribute to the development of self-regulated learning skills in elementary school students. By exploring this relationship, the research will provide valuable insights that could inform teaching practices aimed at fostering independence and autonomy in early education (Chen dkk., 2025; Fan & Xu, 2025). The importance of this study is underscored by the growing recognition of the need for students to be prepared not just academically, but also as self-directed learners who can take responsibility for their learning. Understanding how constructivist strategies can cultivate these skills in elementary students will help educators design more effective learning environments that promote long-term academic and personal success.

In conclusion, this research addresses the pressing need to explore how constructivist teaching approaches can foster learning independence among elementary school students. By focusing on this specific aspect of education, the study will provide much-needed empirical evidence on the relationship between constructivism and student autonomy (Gao dkk., 2025; Lee & Jeong, 2025). The findings from this research have the potential to contribute significantly to educational practices, offering new insights into how teachers can apply constructivist principles to help young learners become more self-reliant and engaged in their educational journey (Andreou dkk., 2025; Galema dkk., 2025). The novelty of this study lies in its emphasis on the elementary level, a phase in education where foundational skills such as learning independence are developed. This study aims to fill a significant gap in the literature and offer meaningful contributions to the understanding of how teaching methodologies can influence the development of independent learning behaviors in primary education.

RESEARCH METHODOLOGY

This study utilizes a quasi-experimental research design to assess the impact of constructivist teaching methods on elementary school students' learning independence (Andreou dkk., 2025; Du dkk., 2025). The research employs a pre-test and post-test design with two groups: an experimental group that receives instruction based on constructivist principles and a control group that is taught using traditional teaching methods (Mohammadabadi dkk., 2025; Olawade dkk., 2025). The design allows for a comparison between the two groups before and after the intervention, enabling the measurement of changes in learning independence as a result of constructivist application.

The population of this study consists of elementary school students from several public schools in the area. The sampling method employed is purposive sampling, targeting schools that are willing to participate and have teachers trained in either constructivist or traditional teaching methods. The study includes a sample of 120 students, divided into two groups of 60 each (Wen dkk., 2025; Zhang dkk., 2025). One group receives instruction using constructivist principles, while the other group continues with the traditional, teacher-centered approach. The students in both groups are similar in age, academic background, and general classroom environment to ensure comparability.

Data is collected using a combination of quantitative and qualitative instruments. A learning independence scale, which measures students' ability to regulate their own learning, will be used as the primary instrument (Nguyen dkk., 2025; Yan dkk., 2025). This scale consists of statements that assess self-directed learning behaviors such as goal-setting, time management, and self-reflection (Bai dkk., 2025; Kumar dkk., 2025). Additionally, pre- and post-tests will be administered to evaluate changes in students' knowledge retention and application of learned concepts. Observational checklists will also be used to document student engagement and participation during lessons (Chandrashekar dkk., 2025; Liu dkk., 2025). Finally, interviews with teachers will provide qualitative data on their experiences implementing constructivist strategies and observing students' progress.

The procedures for this study begin with obtaining consent from school authorities and participants' parents. Once consent is secured, the pre-test for learning independence is administered to both the experimental and control groups. The experimental group then undergoes a series of constructivist-based lessons, which include project-based learning, group discussions, and hands-on activities aimed at promoting active engagement and independent learning (Etcuban, 2025; X. Li dkk., 2025). The control group follows traditional instructional practices, where the teacher primarily provides information and students passively receive it. After the instructional period, the post-test for learning independence is administered to both groups, followed by observational assessments during the final lessons. Finally, data is analyzed through statistical methods to determine any significant differences between the two groups in terms of learning independence, allowing for conclusions regarding the effectiveness of constructivist teaching practices.

RESULTS AND DISCUSSION

The data collected for this study includes pre-test and post-test scores of both the experimental and control groups, along with observational data and interview feedback from teachers. The results from the pre-test and post-test were analyzed to compare changes in students' learning independence as a result of applying constructivist teaching methods ("The Role of Pesantren in Building Socio-Religious Independence of the Sasak Lombok Community during Colonialism," 2025; Yang dkk., 2025). The experimental group, which was taught using constructivist principles, showed a noticeable increase in their learning independence scores, while the control group, taught with traditional methods, showed little to no improvement. Table 1 presents the statistical data from both the pre-test and post-test scores for both groups.

Table 1: Pre-test and Post-test Scores of Experimental and Control Groups

Group	Pre-test Mean Score	Post-test Mean Score	Difference (Post-test - Pre-test)
Experimental	45.2	72.5	+27.3
Control	46.8	50.4	+3.6

The analysis of the data reveals a significant improvement in the experimental group's learning independence after the application of constructivist teaching strategies. The pre-test scores for the experimental group averaged at 45.2, while the post-test scores increased to 72.5, indicating a significant improvement of 27.3 points. In contrast, the control group only showed a slight improvement from 46.8 in the pre-test to 50.4 in the post-test, an increase of only 3.6 points. This suggests that constructivist teaching methods, which emphasize active learning and student

autonomy, had a more substantial effect on the development of learning independence compared to traditional teaching methods.

Further analysis of the data reveals that the increase in the experimental group's scores can be attributed to specific aspects of the constructivist approach. These include project-based learning, collaborative group activities, and the promotion of self-directed learning behaviors. The observational data, which included teacher notes and student engagement levels, indicated that students in the experimental group were more actively involved in their learning, asking questions, setting their own goals, and demonstrating greater problem-solving skills. Teachers in the experimental group reported that students exhibited more self-confidence and initiative in completing assignments, which is consistent with the increase in learning independence observed in the test scores.

The inferential statistical analysis using a paired t-test further supports these findings. A statistically significant difference was found between the pre-test and post-test scores of the experimental group, with a p-value of 0.001, indicating that the improvements in the experimental group were not due to chance. On the other hand, the control group showed no significant change in scores (p-value = 0.12), further emphasizing the effectiveness of constructivist teaching methods in fostering learning independence. The results suggest that the constructivist approach significantly enhances the development of autonomous learning behaviors in elementary school students.

Data from the study were also examined in the context of case studies that explored individual student experiences. One student from the experimental group, for example, demonstrated a remarkable shift in learning behavior. Initially, this student struggled with completing assignments independently, often relying on the teacher for guidance. After participating in the constructivist-based lessons, the student was observed setting personal learning goals, organizing tasks independently, and collaborating actively with peers. Teachers reported a marked increase in this student's motivation, confidence, and ability to manage learning without direct supervision. This case study exemplifies how constructivist strategies can cultivate learning independence on an individual level, providing valuable insights into the broader effects observed across the entire experimental group.

The explanation of these case study results is crucial for understanding how specific constructivist strategies impacted individual student behaviors. In this case, the student's transition from dependence on the teacher to becoming a self-sufficient learner highlights the effectiveness of constructivist methods in promoting self-regulation and autonomy. Teachers noted that the focus on problem-solving and hands-on activities allowed students to experience learning in a more engaging and meaningful way, which contributed to a greater sense of ownership over their learning. These findings suggest that, beyond statistical trends, constructivism can deeply affect students on a personal level, leading to transformative shifts in learning attitudes and behaviors.

In summary, the data indicates a strong positive relationship between the application of constructivist teaching methods and the development of learning independence in elementary school students. The statistical analysis, along with qualitative observations and case studies, demonstrates that students who engaged with constructivist principles showed greater improvement in their ability to learn independently. The results support the idea that constructivism, with its emphasis on active, student-centered learning, can foster essential skills such as self-regulation, problem-solving, and autonomous learning in young students. These findings have important implications for educational practice, particularly in the design of teaching strategies that aim to enhance student independence and lifelong learning skills.

The results of this study indicate a significant improvement in the learning independence of elementary school students who were taught using constructivist teaching methods. The experimental group, which engaged in project-based learning, collaborative activities, and self-directed learning strategies, demonstrated a considerable increase in their learning independence, as reflected in the post-test scores. In contrast, the control group, which was taught using traditional, teacher-centered methods, showed only a slight improvement. This suggests that the application of constructivist principles fosters greater autonomy in students, encouraging them to take responsibility for their learning and engage actively with the material.

When comparing these results with existing research, the findings align with previous studies that emphasize the benefits of constructivist teaching approaches in promoting active learning and student autonomy. For example, research by Vygotsky (1978) highlights the importance of social interaction and collaborative learning in the development of cognitive skills and independence. However, this study extends existing knowledge by focusing specifically on elementary school students, an area that has received limited attention in previous research. The differences observed between the experimental and control groups in this study further reinforce the idea that constructivist methods are more effective in fostering learning independence than traditional teaching methods, a conclusion consistent with findings from other studies in higher education settings, but less explored in elementary education.

The results of this study serve as an important signal that constructivist teaching methods can significantly enhance the learning independence of young learners. It highlights the effectiveness of strategies such as project-based learning, self-regulation techniques, and collaborative group work in fostering independent learning behaviors. This outcome suggests that when students are given the tools and opportunities to take charge of their learning, they are more likely to develop critical thinking, problem-solving, and self-management skills. These findings also imply that traditional, teacher-centered approaches may not adequately prepare students for the demands of lifelong learning, which increasingly requires self-directed and autonomous learning behaviors.

The implications of these findings are far-reaching for educational practices. First, they suggest that teachers should consider integrating constructivist strategies into their lesson plans to promote greater student independence. By doing so, teachers can help students develop essential skills for academic success and personal growth. Additionally, these findings challenge the prevailing reliance on traditional methods of instruction, advocating for a shift toward more student-centered approaches. For educational policy makers, the results call for a reassessment of curricular designs, emphasizing the need to prepare students not just in knowledge acquisition, but in becoming self-reliant learners capable of managing their own educational journeys. Furthermore, this study underscores the importance of training educators in constructivist techniques to ensure the effective implementation of these strategies in the classroom.

The results may have occurred because constructivist teaching methods align more closely with how young children naturally learn. As Piaget (1976) suggested, children actively construct knowledge based on their experiences and interactions with the world around them. By incorporating hands-on activities, collaborative learning, and problem-solving tasks, constructivist teaching taps into these natural learning processes. Furthermore, the shift from passive to active learning likely encouraged students to take more initiative in their studies, as they were given more opportunities to make decisions, solve problems, and collaborate with peers. This aligns with the principles of self-regulated learning, which are integral to the development of learning independence. The significant improvement in the experimental group’s scores can thus be

attributed to the alignment between constructivist strategies and the developmental needs of elementary-aged children.

Given the strong positive impact of constructivist strategies on student learning independence, it is crucial to take immediate steps toward integrating these approaches into elementary school curricula. Teachers should be provided with adequate training on how to implement constructivist methods effectively in their classrooms. Educational institutions should consider revising their teaching frameworks to include more opportunities for active learning, collaboration, and self-regulation. Future research can further explore the long-term effects of constructivist teaching on student autonomy, particularly beyond elementary school, to assess whether these skills are sustained as students progress through their educational journeys. In addition, it would be beneficial to investigate how different constructivist techniques specifically contribute to various aspects of learning independence, offering deeper insights into the most effective strategies for fostering self-directed learners.

CONCLUSION

The most important finding of this study is the significant impact that constructivist teaching methods have on enhancing elementary school students' learning independence. While previous research has shown the benefits of constructivism in higher education or in specific subject areas, this study uniquely focuses on the elementary school context, where the development of self-regulated learning behaviors is crucial. The experimental group, which engaged in constructivist-based lessons, showed a remarkable increase in their learning independence compared to the control group. This finding emphasizes the effectiveness of hands-on learning, collaborative activities, and student-centered approaches in fostering autonomy at an early age.

The value added by this research lies in its contribution to the understanding of how constructivism specifically influences learning independence in elementary education. By focusing on the practical application of constructivist principles, this study provides empirical evidence supporting the idea that students who are taught through active, inquiry-based methods are more likely to develop self-regulation skills and independent learning habits. The research also highlights the importance of teacher training in constructivist methodologies, as teachers play a key role in facilitating environments where students can become independent learners. This contribution extends the current body of literature by providing concrete examples and data on the positive effects of constructivism on young learners.

Despite the valuable insights provided, this study has some limitations. The sample size was relatively small and limited to a specific geographic region, which may affect the generalizability of the findings. Additionally, the study focused on a relatively short-term intervention, which may not capture the long-term effects of constructivist teaching on learning independence. Future research should explore the long-term impacts of constructivist methods, tracking the development of learning independence over a longer period. Furthermore, it would be beneficial to examine how different teaching strategies within the constructivist framework impact various aspects of learning independence, such as time management, goal-setting, and critical thinking. Expanding the study to include diverse educational settings and a larger sample size would also enhance the external validity of the findings.

REFERENCES

Alami, T., & Doostparast, M. (2025). Weighted CART with spatially split rules: A new kernel-based approach in spatial classification trees. *Communications in Statistics - Theory and Methods*. Scopus. https://doi.org/10.1080/03610926.2025.2473608

Aly, S., Chen, Y., Ahmed, A., Wen, H., & Mehta, T. (2025). Utilization of machine learning algorithm in the prediction of rehospitalization during one-year post traumatic spinal cord injury. *Spinal Cord*. Scopus. https://doi.org/10.1038/s41393-024-01055-9

Andreou, A., Mavromoustakis, C. X., Song, H. H., Gomez, G. P., & Batalla, J. M. (2025). Transforming ageing in the metaverse: Embracing virtual communities for enhanced well-being and empowerment. Dalam *Adv. Metaverse Wirel. Commun. Syst.* (hlm. 457–494). Institution of Engineering and Technology; Scopus. https://doi.org/10.1049/PBTE112E_ch16

Bai, N., Wang, X., Han, R., Hou, J., Wang, Q., & Pang, S. (2025). Towards generalizable face forgery detection via mitigating spurious correlation. *Neural Networks*, *182*. Scopus. https://doi.org/10.1016/j.neunet.2024.106909

Chandrashekar, K. K., Srirangan, J., & Irudayaraj, D. (2025). Topological Properties on Neural Networks Using Graph Properties. *Circuits, Systems, and Signal Processing*, *44*(3), 1669–1696. Scopus. https://doi.org/10.1007/s00034-024-02898-6

Chen, J., Zhao, C., Song, P., & Xie, M. (2025). Unified Low-Dimensional Subspace Analysis of Continuous and Binary Variables for Industrial Process Monitoring. *IEEE Transactions on Cybernetics*, *55*(3), 1135–1146. Scopus. https://doi.org/10.1109/TCYB.2024.3524827

De Paz-Cantos, S., González-Marrón, A., Lidón-Moyano, C., Díez-Izquierdo, A., Oñoro, G., & Martínez-Sánchez, J. M. (2025). Use of smartphone, tablet and television during breakfast, lunch, and dinner in children from three months up to five years: Baseline results of the Smart Screen Health project (Spain, 2021-2022). *Acta Alimentaria*. Scopus. https://doi.org/10.1556/066.2024.00256

Dorhout, B. G., Wezenbeek, N., de Groot, L. C. P. G. M. M., & Grootswagers, P. (2025). Web-Based Exercise and Nutrition Intervention to Improve Leg Muscle Strength and Physical Functioning in Older Adults: Pre-Post Pilot Study. *JMIR Formative Research*, *9*. Scopus. https://doi.org/10.2196/54392

Du, Y., Zeng, B., Wei, Q., Zhang, B., & Hu, H. (2025). Transformer-Mamba-Based Trident-Branch RGB-T Tracker. Dalam Hadfi R., Ito T., Anthony P., Sharma A., & Bai Q. (Ed.), *Lect. Notes Comput. Sci.: Vol. 15283 LNAI* (hlm. 27–40). Springer Science and Business Media Deutschland GmbH; Scopus. https://doi.org/10.1007/978-981-96-0122-6_4

Ehrenworth, M. (2025). Vocabulary Connections: A Structured Approach to Deepening Students' Academic and Expressive Language. Dalam *Vocabulary Connections: A Structured Approach to Deepening Students' Academic and Expressive Language* (hlm. 215). Taylor and Francis; Scopus. https://doi.org/10.4324/9781003513759

Engström, S., & Lennholm, H. (2025). You just have to take a big leap! Authentic teaching and learning in the technology program at an upper secondary school. *International Journal of Technology and Design Education*, *35*(1), 151–170. Scopus. https://doi.org/10.1007/s10798-024-09902-9

Etcuban, J. O. (2025). The use of ChatGPT in addressing Algebra anxiety and promoting confidence. *International Electronic Journal of Mathematics Education*, *20*(2). Scopus. https://doi.org/10.29333/iejme/16008

Fan, W., & Xu, K. (2025). Unsupervised image categorization based on deep generative models with disentangled representations and von Mises-Fisher distributions. *International Journal of Machine Learning and Cybernetics*, *16*(1), 611–623. Scopus. https://doi.org/10.1007/s13042-024-02265-6

Galema, G., Brouwer, J., Bouwkamp-Timmer, T., Jaarsma, D. A. D. C., Wietasch, G. J. K. G., & Duvivier, R. R. J. (2025). Transitioning to residency: A qualitative study exploring

residents' perspectives on strategies for adapting to residency. *BMC Medical Education*, *25*(1). Scopus. https://doi.org/10.1186/s12909-024-06565-x

Gao, Y., Xing, F., Kang, L., Zhang, M., & Qin, C. (2025). Ultra-Short-Term Wind Power Forecasting Based on DT-DSCTransformer Model. *IEEE Access*, *13*, 22919–22930. Scopus. https://doi.org/10.1109/ACCESS.2025.3537158

Jones, N., Shih, M.-C., Healey, E., Zhai, C. W., Advani, S., Smith-Mclallen, A., Sontag, D., & Kanjilal, S. (2025). Use of Machine Learning to Assess the Management of Uncomplicated Urinary Tract Infection. *JAMA Network Open*, *8*(1). Scopus. https://doi.org/10.1001/jamanetworkopen.2024.56950

Karthiyayini, J., Farooq, Z. S., & Sirisha, P. (2025). Vision Assist—Object Detection for the Blind. Dalam S M., Suresh P., P R., K V., Shirur Y.J.M., & Munavalli J.R. (Ed.), *Proc. Int. Conf. Intell. Innov. Technol. Comput., Electr. Electron., IITCEE*. Institute of Electrical and Electronics Engineers Inc.; Scopus. https://doi.org/10.1109/IITCEE64140.2025.10915267

Kumar, S., Nayek, R., & Chakraborty, S. (2025). Towards Gaussian Process for operator learning: An uncertainty aware resolution independent operator learning algorithm for computational mechanics. *Computer Methods in Applied Mechanics and Engineering*, *435*. Scopus. https://doi.org/10.1016/j.cma.2024.117664

Lee, Y., & Jeong, J. (2025). TSMixer- and Transfer Learning-Based Highly Reliable Prediction with Short-Term Time Series Data in Small-Scale Solar Power Generation Systems. *Energies*, *18*(4). Scopus. https://doi.org/10.3390/en18040765

Lefeuvre, M., Lu, C., Botero, C. A., & Rutkowska, J. (2025). Variable and mismatching temperature regimes impair song learning in zebra finches. *Animal Behaviour*, *221*. Scopus. https://doi.org/10.1016/j.anbehav.2024.123053

Li, X., Zhang, S., Chen, S., & Xiao, Z. (2025). Through-Wall Multi-Person Action Recognition Using Enhanced YOLOv5 and IR-UWB Radar. *IEEE Sensors Journal*, *25*(3), 5711–5722. Scopus. https://doi.org/10.1109/JSEN.2024.3513983

Li, Z., Shen, S., Shang, F., Huan, Z., Liang, J., & Chen, Y. (2025). Weighted graph convolutional network with feature mask for low back pain prediction. *Biomedical Signal Processing and Control*, *99*. Scopus. https://doi.org/10.1016/j.bspc.2024.106879

Liu, X., Mo, L., & Tang, M. (2025). TinySpiking: A lightweight and efficient python framework for unsupervised learning spiking neural networks. *Engineering Research Express*, *7*(1). Scopus. https://doi.org/10.1088/2631-8695/ada725

Mohammadabadi, M., Akhtarpoor, A., Khezri, A., Babenko, O., Stavetska, R. V., Tytarenko, I., Ievstafiieva, Y., Buchkovska, V., Slynko, V., & Afanasenko, V. (2025). The role and diverse applications of machine learning in genetics, breeding, and biotechnology of livestock and poultry. *Agricultural Biotechnology Journal*, *16*(4), 413–442. Scopus. https://doi.org/10.22103/jab.2025.24662.1644

Mukherjee, S., De Silva, T., Duic, C., Jayakar, G., Keenan, T. D. L., Thavikulwat, A. T., Chew, E., & Cukras, C. (2025). Validation of Deep Learning–Based Automatic Retinal Layer Segmentation Algorithms for Age-Related Macular Degeneration with 2 Spectral-Domain OCT Devices. *Ophthalmology Science*, *5*(3). Scopus. https://doi.org/10.1016/j.xops.2024.100670

Nguyen, T. C., Tang, L. W., Bryant, E., Jobe, A. S., Yu, A. J., Sugiura, Y., & Bui, T. (2025). The neighborhood walk: Introducing first-year medical students to social determinants of health in underserved neighborhoods. *BMC Medical Education*, *25*(1). Scopus. https://doi.org/10.1186/s12909-025-06743-5

Olawade, D. B., Bolarinwa, O. A., Adebisi, Y. A., & Shongwe, S. (2025). The role of artificial intelligence in enhancing healthcare for people with disabilities. *Social Science and Medicine*, *364*. Scopus. https://doi.org/10.1016/j.socscimed.2024.117560

Suganuma, H., Naito, A., Katahira, K., & Kameda, T. (2025). When to stop social learning from a predecessor in an information-foraging task. *Evolutionary Human Sciences*, *7*. Scopus. https://doi.org/10.1017/ehs.2024.29

The Role of Pesantren in Building Socio-Religious Independence of the Sasak Lombok Community during Colonialism. (2025). *Journal of Ecohumanism*, *4*(1), 4064–4075. Scopus. https://doi.org/10.62754/joe.v4i1.6280

Wen, Y., Zhang, G., Wang, K., & Yang, K. (2025). Training Latency Minimization for Model-Splitting Allowed Federated Edge Learning. *IEEE Transactions on Network Science and Engineering*. Scopus. https://doi.org/10.1109/TNSE.2025.3544313

WSDM 2025—Proceedings of the 18th ACM International Conference on Web Search and Data Mining. (2025). *WSDM - Proc. ACM Int. Conf. Web Search Data Min.* WSDM 2025 - Proceedings of the 18th ACM International Conference on Web Search and Data Mining. Scopus. https://www.scopus.com/inward/record.uri?eid=2-s2.0-105001698293&partnerID=40&md5=9aee0466201c3f9b5871a06aa85a8e31

Yan, P., Wen, C., Ding, H., Wang, X., & Yang, Y. (2025). The potential of machine learning to predict melting response time of phase change materials in triplex-tube latent thermal energy storage systems. *Applied Energy*, *390*. Scopus. https://doi.org/10.1016/j.apenergy.2025.125863

Yang, Y., Bulut, S., Bukhori, B., Piskorz-Ryń, O., & Chikwe, C. (2025). The Role of Family Routines in Promoting Child Mental Health: A Qualitative Study. *Journal of Research and Health*, *15*(2), 175–184. Scopus. https://doi.org/10.32598/JRH.15.2.2474.1

Zhang, S., Dinavahi, V., & Liang, T. (2025). Towards hydrogen-powered electric aircraft: Physics-informed machine learning based multi-domain modeling and real-time digital twin emulation on FPGA. *Energy*, *322*. Scopus. https://doi.org/10.1016/j.energy.2025.135451