ISSN : 2962-9195 E-ISSN : 2963-8992

Journal of Educational Management Research
Vol. 04 No. 01 (2025) : 308-321
Available online at https://serambi.org/index.php/jemr

Transforming Educational Leadership: The Role of School Principals in Implementing Deep Learning-Based Curricula

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DOI: https://doi.org/10.61987/jemr.v4i1.875

Keywords:
Deep Learning Curriculum, Educational Leadership, Resource Management

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ABSTRACT

Modern learning technology encourages the need for adaptive leadership in the school environment. This study aims to examine the role of the principal in implementing a Deep Learning-based curriculum, as well as the challenges and opportunities in resource management and teacher professional development. The research employs a qualitative case study approach, utilizing data collection techniques such as interviews, observations, and documentation. Data analysis will be carried out by condensing, reducing, displaying, and verifying data to identify key patterns related to leadership roles, challenges, and opportunities. The results reveal that the principal possesses a strategic vision of the importance of technology in education yet faces challenges such as general teacher training and limited funding. The implications of these findings highlight the need for more targeted and sustainable professional development programs and more effective resource management strategies to support the successful implementation of the Deep Learning curriculum. This study contributes to the literature on educational leadership and technology integration, offering recommendations for future research to explore these issues in broader school contexts, focusing on cross-regional or cross-level comparisons.

Article History:
Received: January 2025; Revised: March 2025; Accepted: April 2025

Please cite this article in APA style as:
Halim, M. F. (2025). Transforming Educational Leadership: The Role of School Principals in Implementing Deep Learning-Based Curricula. *Journal of Educational Management Research*, *4*(1), 308-321.

INTRODUCTION

Education plays an important role in shaping superior-quality human resources. In an era of rapidly developing technology, education must adapt to the needs of the times, including the application of technology-based learning methods (Bruggeman et al., 2019; Calnin et al., 2018; Croy, 2018). One approach increasingly gaining attention is Deep Learning, which offers the potential to significantly improve the learning process. By integrating this technology into the curriculum, schools can provide a more interactive and relevant learning experience to developments in the world of work (Davis & Davis, 2018; Ferreira-Pires et al., 2020; Fox & Sease, 2019). This research is important because it can provide new insights for policymakers and related parties in education to better understand the role of school principals in leading changes towards a more

technology-oriented curriculum, which will shape a generation ready to face global challenges.

Today's society faces a significant challenge in creating an education system that is adaptive to technological developments. In many schools, especially in areas that do not have direct access to advanced technology, implementing a technology-based curriculum is still limited. This is due to various factors, such as the lack of understanding and readiness of school leaders to implement technology and the limited resources owned by the school (Garza, 2020; Goodyear et al., 2021; Harte & McGlade, 2018). In this context, this study aims to identify the role of the principal in leading the change towards the implementation of the Deep Learning curriculum at SMP Plus Melati Samarinda, with the hope that it can be a model for other schools in Indonesia.

The phenomenon in the field shows that although technology has developed rapidly, implementing technology-based curricula, such as Deep Learning, in schools is still not optimal. Despite having adequate facilities, some schools have not fully utilized the technology in the learning process. Although SMP Plus Melati Samarinda intends to implement new technology, the principal's ability to lead the change is the biggest challenge. Many principals still rely on traditional methods and do not fully understand how technology, such as Deep Learning, can be integrated into the curriculum effectively (Hero & Lindfors, 2019; Hobson et al., 2020). This study will examine the factors that influence the role of the principal in implementing the curriculum, as well as its impact on the quality of education in the school.

Previous studies have shown that the role of the principal is vital in implementing curriculum innovation in schools. Several studies have stated that principals who are proactive in developing and supporting the use of technology can improve the quality of learning and facilitate more effective change (Huchting & Bickett, 2021; Jarrett & Baumber, 2020; Kensler & Uline, 2019; Law & Liang, 2019). However, although there have been many studies examining the application of technology in education, there are still few that specifically highlight the role of the principal in the context of implementing a Deep Learning-based curriculum. Most studies focus more on technical and pedagogical aspects without looking at how school leadership factors influence the success of implementing this technology. Therefore, this study is important to fill the gap in knowledge regarding how the principal at SMP Plus, Melati Samarinda, leads the implementation of the Deep Learning curriculum.

Previous studies have also shown obstacles to implementing technology in schools, such as a lack of teacher training and support from school

management. Often, principals lack a deep understanding of the technology to be implemented, making it challenging to lead significant changes in the curriculum. Several studies have also shown that despite good intentions to implement technology, there is no precise mechanism to support teachers and students in utilizing technology optimally (Mukherjee, 2019). This study will identify how principals can overcome these obstacles, as well as how their roles can contribute to the success of implementing Deep Learning in schools.

The novelty of this study lies in the emphasis on the role of the principal in leading the implementation of the Deep Learning curriculum, which has not been widely discussed in previous literature. This study also highlights how the principal at SMP Plus, Melati Samarinda, faces challenges and opportunities in leading these changes and the strategies they use to overcome existing obstacles. This is important to resolve because today's education must integrate technology into learning so students can be better prepared to face future challenges. Therefore, this study has the potential to significantly contribute to developing an effective educational leadership model in implementing a technology-based curriculum.

The main problem in this study is how the principal at this school, leads and manages the implementation of a Deep Learning-based curriculum to improve the quality of education. This study aims to explore the factors that influence the principal's leadership in this process and its impact on student learning outcomes and technological developments in schools. By knowing the role of the principal in facing these challenges and opportunities, it is hoped that solutions can be found that can be applied in other schools facing similar problems. The temporary argument in this study is that the role of the principal is vital in implementing a Deep Learning-based curriculum, especially in overcoming the challenges faced by schools related to the readiness of human resources and technology. Principals with a clear vision of the importance of technology integration in the curriculum will be better able to lead the changes needed to achieve better educational goals. This study is expected to contribute to developing more effective leadership strategies in education in the digital era.

RESEARCH METHOD

This research method uses a qualitative approach with a case study design to understand the role of the principal in implementing a Deep Learning-based curriculum at SMP Plus Melati Samarinda. Case studies are chosen because they allow researchers to explore phenomena in depth in a specific context and gain insight into the challenges faced in implementing technology in the curriculum

(Byrne, 2022; Campbell et al., 2021; Kiger & Varpio, 2020). This approach provides an opportunity to understand the dynamics of leadership and how principals manage changes related to the use of technology in education.

This research was conducted at SMP Plus Melati Samarinda because this school is trying to implement a Deep Learning-based curriculum but faces challenges regarding the readiness of the principal and human resources. SMP Plus Melati was chosen as the research location because it has great potential to adopt educational technology but still needs guidance in implementing the curriculum. This location provides a relevant picture of the challenges faced by many schools in the area that want to introduce technology in learning but are not fully ready regarding leadership and resources.

The data collection techniques used in this study are in-depth interviews, observations, and documentation studies (Cole, 2024; Scharp, 2021; Tasci et al., 2020). Interviews were conducted with principals, teachers, and students who were directly involved in the implementation of the Deep Learning curriculum. Direct observations will be conducted to see how technology is applied in daily learning. In addition, documentation studies will analyze relevant documents, such as the curriculum and principal policies related to technology implementation. Data analysis will be carried out by condensing, reducing, displaying, and verifying data to identify key themes related to the role of the principal in implementing the Deep Learning-based curriculum, as well as its impact on the quality of education in schools.

RESULT AND DISCUSSION

Result

This section presents the study's findings on implementing the Deep Learning curriculum at SMP Plus Melati, focusing on three main aspects: the principal's strategic vision and leadership, resource and infrastructure management, and teacher professional development. The analysis was conducted through in-depth interviews with the principal and teachers and direct observation of implementation practices in the field. Each aspect is presented systematically to show the relationship between visionary leadership, the readiness of facilities and infrastructure, and educators' capacity to support the success of a technology-based curriculum. This discussion not only describes the successes and challenges faced but also highlights key patterns emerging from the data, which can be the basis for future technology-based education policies and practices.

Strategic Vision and Leadership in Deep Learning Curriculum

Strategic vision and leadership in implementing the Deep Learning curriculum refers to the principal's ability to formulate and communicate educational goals involving advanced technology and lead the school in realizing these changes. This vision is not only limited to an understanding of technology but also to how the principal can motivate all parties in the school to adapt and adopt a Deep Learning-based curriculum. Strategic leadership includes allocating resources effectively, developing policies that support the implementation of technology, and maintaining a balance between innovation and achievement of learning outcomes.

The results of in-depth interviews with the Principal of SMP Plus Melati and teachers in the school environment showed that the principal's strategic vision and leadership played a central role in implementing the Deep Learning-based curriculum. The principal, Dian Arif Noor Pratama, emphasized that he wanted to create students who were not only academically capable but also adaptive to future technological developments. He said, "We want students to be ready to face a highly competitive and technology-based world of work. Therefore, the Deep Learning curriculum is an important part of the direction of school development." He added that this vision must be fully understood by all school members, especially teachers so that it does not just stop at the document but is implemented in real terms in the classroom.

A subject teacher, Muhammad Sayid Salam, stated that initially, he felt doubtful about the Deep Learning implementation policy due to his limited understanding and experience in using advanced learning technology. However, according to him, intensive communication and structured explanations from the principal have been important triggers for changing teachers' attitudes. "Mr. Dian often holds informal discussions and small trainings that help us understand the essence of Deep Learning. It makes us more confident and feel supported," he said. This testimony shows that the principal's strategic leadership is not only administrative but also a motivational bridge for teachers in adopting digital transformation in learning.

Data from the researcher's observations supports this statement. The principal attends regular teacher discussion forums, participates in curriculum evaluation meetings, and encourages teachers to take digital training. School documentation shows that the principal also initiated workshops on using AI-based technology and interactive learning applications. In addition, the principal allocates school operational funds specifically for procuring supporting devices and improving teachers' digital competence. This practice shows that the vision proclaimed by the principal is not just a normative statement but is followed up

through concrete policies and resource allocations that support successful implementation.

Interpretation of these findings shows that the vision and strategic leadership possessed by the principal at SMP Plus Melati are visionary, participatory, and oriented towards fundamental transformation. The principal formulates policy directions and builds a collaborative ecosystem in the school environment that encourages teachers to be part of the change. The success of pioneering the Deep Learning curriculum in this school lies in the alignment between the principal's long-term vision and technical implementation in the field. By involving teachers in the technology transition process and providing policy support and training, the principal acts as an agent of change who ensures that the adaptation process takes place gradually, structured, and sustainably.

Resource and Infrastructure Management

Resource and infrastructure management in the context of implementing the Deep Learning curriculum in schools include the principal's efforts to ensure the availability and management of hardware, software, and human resources that support the technology implementation. This includes procuring computers, adequate internet networks, teacher training, and funding to support technology-based learning. Good infrastructure facilitates an effective and efficient learning process, allowing students and teachers to access learning materials optimally.

The principal of SMP Plus, Melati, explained that one of the main challenges in implementing the Deep Learning curriculum is the management of limited resources, especially related to technology facilities. Although the school has committed to providing adequate infrastructure, such as computers and internet networks, a limited budget often hinders the process. The principal also emphasized the importance of sustainable funding to ensure that the technology used remains up-to-date and can be optimally utilized by all parties. From this interview, despite efforts to manage infrastructure, funding issues are the main obstacle to the maximum implementation of technology in schools.

The Information and Communication Technology (ICT) subject teacher at SMP Plus Melati added that although the principal had made great efforts to provide the necessary devices, there were still shortcomings regarding teacher training and the availability of sufficient devices. This teacher revealed that not all teachers felt comfortable using new technologies due to the lack of specific training related to Deep Learning and the software used. This shows that although the physical infrastructure is sufficient, human resource management still requires more attention, especially regarding training. From this interview, human resource management, especially teacher training, is important in successfully implementing a technology-based curriculum.

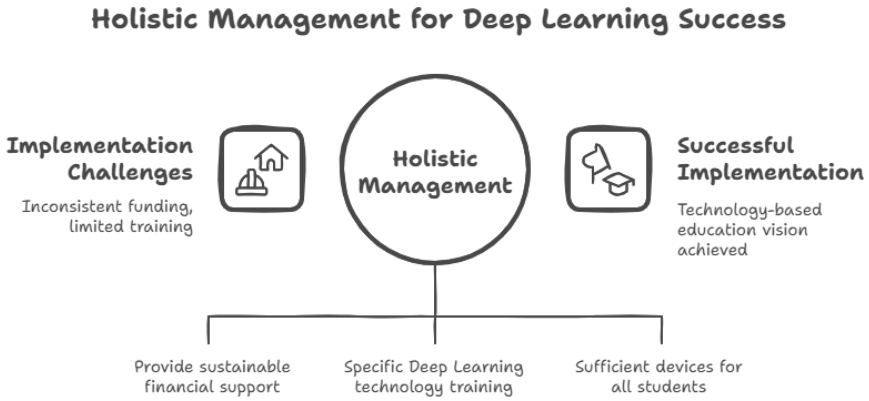

Figure 1. Resource and Infrastructure Management

Based on the interviews and observations described in Figure 1 above, it can be concluded that managing resources and infrastructure in implementing the Deep Learning curriculum at SMP Plus Melati Samarinda faces several challenges. Although the principal has provided basic infrastructure such as computers and the internet, there are still shortcomings regarding teacher training and funding to ensure that technology can be utilized optimally. These limitations hinder the spread of technology to all classes and affect the quality of implementing the Deep Learning-based curriculum.

The pattern seen from the data above shows that although the physical infrastructure needed to implement the Deep Learning curriculum is available, human resource management, especially regarding teacher training, is a key factor that needs improvement. Good management of technological devices, proper training for teachers, and sustainable funding for the maintenance and development of devices will significantly determine the success of the implementation of this curriculum. This pattern shows that holistic management, including physical and non-physical aspects, is needed to achieve optimal technology-based education goals.

Professional Development for Teachers

Professional development for teachers in the context of implementing the Deep Learning curriculum refers to the efforts of schools and principals to improve teachers' capacity and skills in using advanced learning technologies. This includes training, workshops, and ongoing learning activities that enable teachers to understand and master the use of software and hardware used in Deep Learning-based learning. Professional development also includes aspects of collaboration between teachers and improving pedagogical competence in integrating technology into teaching to achieve maximum results.

The researcher also conducted direct observations at the school and noted that although technology was used in learning, many teachers still relied on

traditional teaching methods. Some teachers seemed hesitant to use the newly introduced hardware or software. In addition, the researcher noted that the training that had been carried out focused more on a general introduction to technology. At the same time, the use of Deep Learning in teaching was still minimal. This suggests that although training had been provided, teachers still needed more in-depth guidance to integrate technology more effectively into the curriculum.

Table 2. Evidence of Findings: Teacher Professional Development

Data Source	Key Quote/Finding	Interpretation
Interview with Principal	"We have conducted training for teachers on technology, but not all of them were able to follow it effectively."	Training efforts have been made, but participation and outcomes vary among teachers.
Interview with Math Teacher	"The training didn't focus on practical Deep Learning strategies. I'm still confused about how to use it in class."	Teachers need more targeted and practical training on how to implement Deep Learning in daily instruction.
Research Observation	Many teachers still rely on conventional methods; the use of technological devices appears inconsistent.	Technology adoption is still limited; teachers lack confidence and need further support and guidance.
Research Observation	The training conducted focused on general technology introduction, not on specific Deep Learning implementation.	Training content does not fully address the actual classroom needs for Deep Learning-based instruction.

Table 2 shows that although there are training initiatives for teachers, the training content is not yet in-depth and does not meet the practical needs of deep-learning teaching. This gap causes teachers to feel unprepared and rely on traditional methods. More focused and ongoing professional development is needed so that teachers can optimise technology-based learning. However, the training provided is still general and not in-depth, especially regarding the practical aspects of implementing Deep Learning in learning. Many teachers feel unprepared to implement the technology in the teaching and learning process, which indicates the need for more intensive and specific training to facilitate more effective professional development.

The pattern seen from the data above shows that although there are efforts to develop teacher professionalism through training and workshops, there is a gap between the training provided and the practical needs teachers face in implementing Deep Learning technology. More in-depth and specific training on using this technology in everyday learning is needed to improve teacher skills and facilitate the use of technology in teaching. This pattern indicates the

importance of ongoing professional development tailored to concrete needs in the field so that teachers can be more confident and effective in integrating technology into their curriculum.

Discussion

The discussion of the results of this study will compare the findings in the field with existing literature and explain their theoretical and practical implications. Based on the findings in the field, the principal at SMP Plus Melati has a vital role in leading the implementation of the Deep Learning-based curriculum. This aligns with the literature stating that the principal is the prominent leader in curriculum innovation and school educational change (Bachmann et al., 2022; Huang et al., 2021; Mozaffar et al., 2022). The principal is responsible for setting a vision, providing resources, and managing the changes needed to implement technology in education. However, the difference in this study is that although the principal has a clear vision, the biggest challenge lies in limited resources, especially regarding teacher training and adequate funding. This shows a gap between theory and implementation in the field.

This finding also aligns with previous research, which shows that good resource management is critical in implementing a technology-based curriculum. Resources, including infrastructure and training for teachers, are key to the success of technology implementation (Kim et al., 2021; Pan et al., 2022; Wang et al., 2022). However, the findings of this study reveal that although basic infrastructure, such as computers and the internet, is available, the management of teacher training is still limited to a general introduction to technology, without any in-depth training on the use of Deep Learning in learning. This significantly differs from the theory that expects more intensive practice-based training (Picart et al., 2022). Previous studies also show that although principals provide support in professional development for teachers, more focused and continuous training is needed so teachers can optimally utilise technology.

In the context of theoretical implications, these findings provide a new contribution to the literature on the role of principals in implementing technology-based curricula. Many previous studies emphasize the importance of transformational school leadership in directing technology-based educational change (Rodrigues & de Sousa, 2021; Tabuenca et al., 2019; Taslimi et al., 2020). However, this study highlights that although principal leadership is critical, better management of teacher professional development and more adequate resources are determining factors for successful technology implementation in schools. Therefore, this study adds insight that, in addition to vision and leadership, aspects of resource management and professional development must be integral to principal policies in implementing technology.

The practical implication of these findings is that schools must focus on improving more specific and in-depth teacher training to successfully implement a Deep Learning-based curriculum. Schools must also find ways to increase funding and adequate resource allocation to ensure that technology remains relevant and accessible to all teachers and students (Toure & Dorsey, 2018; Ward et al., 2019; Yaakob et al., 2020). Principals need to identify more detailed training needs for teachers and create more structured professional development programs that include basic introductions and practical applications in everyday learning.

Overall, this study shows that despite significant efforts by principals in managing resource procurement and training for teachers, the challenges faced in managing and implementing Deep Learning-based technology still need more attention. Therefore, schools must develop a more holistic and sustainable approach to teacher training and ensure sufficient funding to support technology-based curriculum changes. These findings enrich our understanding of the application of technology in education and provide direction for principals to focus more on managing human resources and infrastructure to achieve it.

CONCLUSION

This study's most important finding is the principal's vital role in implementing the Deep Learning-based curriculum, especially in providing vision, direction, and support for teachers and school infrastructure. This study shows that although the principal clearly understands the importance of technology in education, the biggest challenge faced is limited resources, especially in terms of specific training for teachers and adequate funding. The wisdom gained from this study is the importance of better resource management, focusing on deeper professional development for teachers so that technology can be optimally applied in the learning process. The strength of this paper lies in its contribution to the science of educational leadership and technology in education. This study provides new insights into the importance of human resource management and infrastructure in implementing technology-based curricula, especially Deep Learning. However, this study has limitations regarding location coverage, which is limited to one school and may not fully reflect the conditions of other schools in other areas. For further research, it is recommended to expand the scope of the study to various schools with different backgrounds to generalize these findings and dig deeper into the challenges and solutions in implementing technology in education.

REFERENCES

Bachmann, N., Tripathi, S., Brunner, M., & Jodlbauer, H. (2022). The Contribution of Data-Driven Technologies in Achieving the Sustainable Development Goals. In *Sustainability (Switzerland)* (Vol. 14, Issue 5). https://doi.org/10.3390/su14052497

Bruggeman, B., Tondeur, J., Pynoo, B., & Struyven, K. (2019). Experts' Insights about Blended Learning Implementation: What Teacher Attributes are Relevant? In *Proceedings of the European Conference on e-Learning, ECEL* (Vols. 2019-November, pp. 639–647). https://doi.org/10.34190/EEL.19.050

Byrne, D. (2022). A Worked Example of Braun and Clarke's Approach to Reflexive Thematic Analysis. *Quality and Quantity*, *56*(3), 1391–1412. https://doi.org/10.1007/s11135-021-01182-y

Calnin, G., Waterson, M., Richards, S., & Fisher, D. (2018). Developing Leaders for International Baccalaureate World Schools. *Journal of Research in International Education*, *17*(2), 99–115. https://doi.org/10.1177/1475240918790703

Campbell, K. A., & Jack, S. M. (2021). Reflexive Thematic Analysis for Applied Qualitative Health Research. *The Qualitative Report*, *26*(6), 2011–2028.

Cole, R. (2024). Inter-rater reliability Methods in Qualitative Case Study Research. *Sociological Methods & Research*, *53*(4), 1944–1975.

Croy, S. R. (2018). Development of A Group Work Assessment Pedagogy using Constructive Alignment Theory. In *Nurse Education Today* (Vol. 61, pp. 49–53). https://doi.org/10.1016/j.nedt.2017.11.006

Davis, M. C., & Davis, D. M. (2018). Innovative Education Technologies: Optimizing Future Information Comprehension Capabilities. In the *2018 Fall Simulation Innovation Workshop: Leveraging the Power of Simulation, SIW 2018*. https://www.scopus.com.85093833925

Ferreira-Pires, O., J. C., & Fernández-Veiga, M. (2020). Studying Relationships Between Network Structure in Educational Forums and Students' Performance. In *Communications in Computer and Information Science* (Vol. 1220, pp. 128–154). https://doi.org/10.1007/978-3-030-58459-7_7

Fox, L. M., & Sease, J. M. (2019). Impact of Co-curricular Involvement on Academic Success of Pharmacy Students. *Currents in Pharmacy Teaching and Learning*, *11*(5), 461–468. https://doi.org/10.1016/j.cptl.2019.02.004

Garza, E. (2020). Exploring the Praxis of Collective and Reciprocal Mentorship: Leadership Preparation through the Urban School Leaders Collaborative. *Mentoring and Tutoring: Partnership in Learning*, 459–479. https://doi.org/10.1080/13611267.2020.1793082

Goodyear, P., Carvalho, L., & Yeoman, P. (2021). Activity-Centred Analysis and Design (ACAD): Core Purposes, Distinctive Qualities and Current Developments. *Educational Technology Research and Development*, *69*(2), 445–464. https://doi.org/10.1007/s11423-020-09926-7

Harte, S., & McGlade, K. (2018). Developing Excellent Leaders - The Role of Executive Coaching for GP Specialty Trainees. *Education for Primary Care*, *29*(5), 286–292. https://doi.org/10.1080/14739879.2018.1501770

Hero, L. M., & Lindfors, E. (2019). Students' Learning Experience in a Multidisciplinary Innovation Project. *Education and Training*, *61*(4), 500–522. https://doi.org/10.1108/ET-06-2018-0138

Hobson, L., Carramolino, B., Bagiati, A., Haldi, T. C., & Roy, A. (2020). Teaching and Learning Technical and Managerial Leadership Skills through Scenario-Based Learning. In *SEFI 48th Annual Conference Engaging Engineering Education, Proceedings* (pp. 815–822).

Huang, Z., Shen, Y., Li, J., Fey, M., & Brecher, C. (2021). A Survey on AI-driven Digital Twins in Industry 4.0: Smart Manufacturing and Advanced Robotics. In *Sensors* (Vol. 21, Issue 19). https://doi.org/10.3390/s21196340

Huchting, K., & Bickett, J. (2021). The Need for Career-Long Professional Learning for Social Justice Leaders in Affluent School Contexts. *Professional Development in Education*, *47*(1), 50–62. https://doi.org/10.1080/19415257.2020.1787194

Jarrett, K., & Baumber, J. (2020). Leading Complex Educational Systems. In *The Practice of Leadership in Higher Education: Real-world Perspectives on Becoming, Being and Leaving* (pp. 87–101). https://doi.org/10.4324/9780367823849-76

Kensler, L. A. W., & Uline, C. L. (2019). Educational Restoration: A Foundational Model Inspired by Ecological Restoration. *International Journal of Educational Management*, *33*(6), 1198–1218. https://doi.org/10.1108/IJEM-03-2018-0095

Kiger, M. E., & Varpio, L. (2020). Thematic Analysis of Qualitative Data: AMEE Guide No. 131. *Medical Teacher*, *42*(8), 846–854. https://doi.org/10.1080/0142159X.2020.1755030

Kim, K., Sim, M., Lim, S. H., Kim, D., Lee, D., Shin, K., Moon, C., Choi, J. W., & Jang, J. E. (2021). Tactile Avatar: Tactile Sensing System Mimicking Human Tactile Cognition. *Advanced Science*, *8*(7). https://doi.org/10.1002/advs.202002362

Law, N., & Liang, L. (2019). Sociotechnical Co-evolution of an E-Learning Innovation Network. *British Journal of Educational Technology*, *50*(3), 1340–1353. https://doi.org/10.1111/bjet.12768

Mozaffar, M., Liao, S., Xie, X., Saha, S., J., Liu, W. K., & Gan, Z. (2022). Mechanistic Artificial Intelligence (Mechanistic-AI) for Modeling, Design, and Control of Advanced Manufacturing Processes: Current state and perspectives. In *Journal of Materials Processing Technology* (Vol. 302). https://doi.org/10.1016/j.jmatprotec.2021.117485

Mukherjee, S. (2019). Whither Wisdom? Exploration into Alternative Sources and Methods of Learning. *Purushartha*, *12*(2), 61–73. https://doi.org/10.21844/16201912205

Pan, Y., Braun, A., Brilakis, I., & Borrmann, A. (2022). Enriching Geometric Digital Twins of Buildings with Small Objects by Fusing Laser Scanning and AI-based Image Recognition. *Automation in Construction*, *140*. https://doi.org/10.1016/j.autcon.2022.104375

Picart, G., Pouhaër, M., Dautel, A., Pérard, M., & Le Clerc, J. (2022). Dental Students' Observations about Teaching of Endodontic Access Cavities in a French Dental School. *European Journal of Dental Education*, *26*(3), 499–505. https://doi.org/10.1111/eje.12726

Rodrigues, J. L., & de Sousa, M. (2021). Making Waves through Education: A Method for Addressing Security Grand Challenges in Educational Contexts. In *Advanced Sciences and Technologies for Security Applications* (pp. 487–498). https://doi.org/10.1007/978-3-030-42523-4_33

Scharp, K. M. (2021). Thematic Co-occurrence Analysis: Advancing a Theory and Qualitative Method to Illuminate Ambivalent Experiences. *Journal of Communication*, *71*(4), 545–571.

Tabuenca, B., Kalz, M., & Löhr, A. (2019). Massive Open Online Education for Environmental Activism: The Worldwide Problem of Marine Litter. *Sustainability (Switzerland)*, *11*(10). https://doi.org/10.3390/su11102860

Tasci, A. D. A., Wei, W., & Milman, A. (2020). Uses and Misuses of the Case Study Method. *Annals of Tourism Research*, *82*(4), 102815.

Taslimi, M., Farastkhah, M., & Hassanmoradi, N. (2020). Role of Health-Oriented Programs in Improving the School's Organizational Culture. *Iranian Journal of Health Education and Health Promotion*, *8*(1), 45–56. https://doi.org/10.29252/ijhehp.8.1.45

Toure, J., & Dorsey, D. N. T. (2018). Stereotypes, Images, and Inclination to Discriminatory Action: The White Racial Frame in the Practice of School Leadership. *Teachers College Record*, *120*(2). https://doi.org/10.1177/016146811812000207

Wang, H., Xie, S., Lin, L., & Tong, R. (2022). Mixed Transformer U-Net for Medical Image Segmentation. In *ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings* (Vols. 2022-May, pp. 2390–2394). https://doi.org/10.1109/ICASSP43922.2022.9746172

Ward, M., Ní Shé, É., De Brún, K., Smith, A., Watson, A., & McAuliffe, E. (2019). The Co-design, Implementation and Evaluation of a Serious Board Game "PlayDecide patient safety" to Educate Junior Doctors about Patient Safety and the Importance of Reporting Safety Concerns. *BMC Medical Education*, *19*(1). https://doi.org/10.1186/s12909-019-1655-2

Yaakob, M. F. M., Hashim, & Bing, K. W. (2020). Critical Success Factors of Sustainable Leadership: Evidence from High-Achievement Schools. *Universal Journal of Educational Research*, *8*(5), 1665–1675. https://doi.org/10.13189/ujer.2020.080502