

Technology Mediation and the Formation of a Hybrid Learning Habitus in an Acehese Madrasah

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Abstract

Research on educational digitalization has frequently emphasized access, infrastructure, teacher readiness, and platform implementation, while paying less attention to changes in students' learning dispositions within religious educational institutions. This study examines how digital technology mediates students' learning habitus at MTsN 5 Pidie, a state Islamic junior secondary school in Aceh, Indonesia. It used a qualitative case study design involving five stakeholder groups: madrasah leaders, teachers, students participating in digital classes, students not yet participating in the program, and ICT staff. Data were collected through classroom observations, semi-structured interviews, and document analysis and interpreted using Bourdieu's concepts of habitus, capital, and field. Digital tools expanded students' access to materials and introduced new routines of information seeking, online assignment completion, and platform-based communication. These routines did not replace teacher guidance, handwritten note-taking, discipline, religious values, or *adab*. Instead, digital practices remained subject to teacher supervision, institutional rules, technical support, and moral expectations. Students also differed in device familiarity, platform access, account management, connectivity, and the assistance required to participate. The study interprets this pattern as a hybrid and regulated learning habitus. This case-based interpretation explains digitalization as a socially mediated institutional process rather than a straightforward transition from conventional to autonomous digital learning.

Keywords: *Technology Mediation; Hybrid Learning Habitus; Digital Capital; Madrasah Education; Islamic Education*

A. Introduction

Digital technology has become increasingly embedded in educational practice, particularly since the widespread adoption of online and hybrid learning during the COVID-19 pandemic. Digital resources can broaden access to instructional materials, support interaction, and offer greater flexibility in teaching and learning (Bates 2019; Timotheou et al. 2023). Nevertheless, the presence of devices and platforms does not necessarily produce sustained pedagogical change. Evidence from the post-pandemic period indicates that some practices introduced during emergency remote learning were reduced or

only partially retained when schools resumed regular operations (Pozo, Cabellos, and Pérez Echeverría 2024). Educational digitalization therefore involves more than providing technology; it also depends on how technology becomes incorporated into routine educational practice. Bibliometric evidence also documents the rapid growth of research on classroom digitalization over the past decade (Alam et al. 2025).

Research on educational technology has commonly examined infrastructure, teacher readiness, digital literacy, institutional support, and platform implementation. These studies show that technology integration is shaped by teachers' knowledge and beliefs, organizational culture, student readiness, institutional support, and the availability of appropriate facilities (Ertmer and Ottenbreit-Leftwich 2010; Hafifah and Sulistyono 2020; Jere and Mpeta 2024; Timotheou et al. 2023). Indonesian studies similarly identify uneven access, limited infrastructure, teacher competence, and differences in students' digital literacy as persistent challenges (Cahyani and Cahyono 2012; Nila, Abdiyah, and Prasjo 2021; Yuliana et al. 2024). Although this scholarship establishes the conditions that facilitate or constrain digital learning, it gives less attention to how repeated engagement with digital technology may reshape students' learning dispositions and their relationships with teachers, institutional expectations, and established classroom routines.

This question is particularly relevant in Indonesian Islamic educational institutions. Earlier research situates madrasah adaptation within broader technological and cultural change and documents continuing constraints on ICT use (Supriatna and Ratnaningsih 2017; Fauzan and Pimada 2018). Studies in related pesantren and Islamic higher-education settings further examine digital learning resources, teacher competence, learning innovation, and the alignment of technology with Islamic educational values (Basri and Asrori 2022; Ritonga, Sobhan, and Bambang 2022; Zakiyyah et al. 2024; Abidin et al. 2025). However, it has largely focused on technology use, management, readiness, and perceived instructional benefits. Less is known about how digital practices are negotiated within everyday learning environments in which teacher authority, discipline, religious values, and *adab*—ethically appropriate conduct toward teachers, peers, and the learning process—remain important. Examining this negotiation can clarify why digitalization does not necessarily replace established educational practices, even when students gain access to new platforms and resources.

This article addresses that issue through a qualitative case study at MTsN 5 Pidie, a state Islamic junior secondary school in Aceh, Indonesia. The madrasah has introduced digital learning through the Jelajah Ilmu (Jeli) application, digital textbooks, Google-based resources, online assignments, discussion forums, computers, and related facilities. This setting provides an opportunity to examine digitalization as an institutional and social process rather than solely as the

adoption of instructional tools. The analysis focuses on how students incorporate digital resources into their learning routines, how established norms are negotiated in digitally mediated activities, and how teachers and institutional actors manage access, conduct, and technical constraints.

The study draws on Bourdieu's concepts of habitus, capital, and field. Habitus refers to durable but adaptable dispositions formed through repeated experience and interaction with structured social conditions (Bourdieu 1977). In an educational setting, these dispositions may be expressed through routine ways of attending to instruction, using learning materials, communicating with teachers, completing assignments, and observing institutional expectations. The concept of digital capital extends Bourdieu's account of unequally distributed and convertible resources to digital environments (Bourdieu 2002; Ragnedda 2018). It encompasses both access to digital technologies and the competencies needed to use them, and it has been operationalized through measures combining digital resources and digital competence (Ragnedda, Ruiiu, and Addeo 2020). Recent research also examines how digital capital is accumulated and connected to social position (Rodríguez-Camacho et al. 2024). In the present study, digital capital provides a complementary lens for examining differences in the resources and competencies that enable students to participate in digital learning. This perspective avoids treating physical access as equivalent to meaningful participation and recognizes that digital inequalities may persist within a technologically supported school environment (Hargittai 2005; Warschauer 2004; van de Werfhorst, Kessenich, and Geven 2022).

Against this background, the study examines how digital technology mediates students' learning habitus at MTsN 5 Pidie. It addresses three questions: How does digital technology shape students' learning routines and dispositions? What tensions emerge when digitally mediated practices encounter established norms of learning, discipline, and *adab*? How does the madrasah manage this process through teacher involvement, infrastructure, technical assistance, and ethical regulation? Rather than claiming that digital technology replaces an established learning habitus, the study investigates how digital and established practices coexist and are negotiated within a particular institutional field. Its contribution is therefore contextual and analytical: it applies the concepts of habitus and digital capital to explain the mediated character of digitalization in an Acehese madrasah.

B. Methods

This study used a qualitative case study design to examine how digital technology mediated students' learning practices in a madrasah setting. The research was conducted at MTsN 5 Pidie, a state Islamic junior secondary school in Aceh, Indonesia. The site was selected because it had implemented digital

learning through the Jelajah Ilmu (Jeli) application, digital textbooks, Google-based resources, online assignments, discussion forums, computers, and related facilities. Treating the madrasah as a bounded institutional setting allowed digital learning to be examined in relation to classroom routines, teacher authority, institutional rules, technical infrastructure, and religious educational values (Yin 2018).

Participants were selected purposively based on their direct involvement in, or knowledge of, the digital classroom program. They represented five stakeholder groups: madrasah leaders responsible for institutional policy, teachers involved in digital classes, students participating in digital classes, students who had not yet participated in the program, and educational staff or ICT team members responsible for technical support. Including these groups enabled the study to examine institutional policy, classroom practice, student experience, differences in program participation, and the technical management of digital learning.

Data were collected through classroom observations, semi-structured interviews, and document analysis. Classroom observations were conducted in January 2026, and interviews were conducted from January to February 2026. Observations focused on how teachers and students used digital tools during learning activities. Interviews explored participants' experiences of digital access, changes in learning routines, teacher supervision, *adab* in digital interaction, digital distraction, technical constraints, and institutional support. The documents examined included the madrasah profile, information about its facilities, learning materials, curriculum-related documents, and institutional records concerning the digital classroom program.

Data were analyzed using the interactive model of data condensation, data display, and conclusion drawing and verification (Miles, Huberman, and Saldaña 2014). Interview transcripts, observation notes, and institutional documents were organized according to the research questions and coded around recurring categories, including access to learning resources, changes in learning routines, teacher supervision, *adab* in digital interaction, distraction, technical infrastructure, institutional support, and differences in students' participation. Relationships among these categories were subsequently interpreted through Bourdieu's concepts of habitus, capital, and field (Bourdieu 1977). The formulation of a hybrid and regulated learning habitus was treated as an interpretive outcome rather than a predetermined coding category.

Credibility was supported through source triangulation across students, teachers, madrasah leaders, ICT staff, and institutional documents, as well as methodological triangulation across interviews, observations, and documents. Key interpretations were also confirmed with relevant informants or institutional representatives through member checking (Lincoln and Guba 1985). In reporting

the findings, participants are identified only by institutional role and interview month; no personal names are disclosed.

C. Results and Discussion

1. Results

1) Digital Technology and Changes in Learning Routines

Digital technology expanded the ways students at MTsN 5 Pidie accessed learning materials and completed classroom tasks. Before participating in the digital classroom, their learning activities relied primarily on printed textbooks, handwritten notes, teacher explanations, and face-to-face interaction. The digital classroom supplemented these practices with the Jeli application, digital textbooks, Google-based searches, online assignments, discussion forums, computers, and other digital devices. Students therefore gained additional routes for locating materials and were no longer entirely dependent on printed resources or direct teacher explanation.

Students most clearly experienced this change when searching for information and completing assignments. Digital platforms allowed them to retrieve materials, revisit textbooks, search for additional explanations, and submit assignments through online channels. Several students considered this arrangement helpful because it made learning materials easier to access and reduced their dependence on physical books (Digital-class student interviews, February 2026). Classroom observations also showed students opening applications, reading from screens, and following instructions delivered through digital platforms (Classroom observation, January 2026).

These new routines did not make students fully independent of teachers or institutional support. Teachers continued to select materials, explain instructions, organize assignments, and monitor whether devices were being used for learning. Students' participation also depended on device availability, internet stability, account access, and assistance from the ICT team (Digital-class teacher interviews, January 2026). Digital access therefore supplemented rather than eliminated teacher-directed classroom practices.

A related change concerned note-taking. Some students relied less on handwritten notes because materials remained available digitally. Although this made access more convenient, teachers and students expressed concern that reduced note-taking could leave students without a personal record for review and examination preparation (Student and teacher interviews, January–February 2026). These accounts represent participants' concerns; the study did not directly measure whether reduced note-taking affected retention or examination performance.

2) Negotiating *Adab*, Attention, and the Use of Digital Resources

Teachers described digital learning as requiring the translation of existing expectations concerning *adab*, discipline, respect, and proper conduct into digitally mediated activities. They regulated how students communicated through platforms, used devices during lessons, and followed classroom rules in online or platform-based interaction (Teacher interviews, January 2026). Digital participation was thus incorporated into the madrasah's existing moral and pedagogical expectations.

Attention and self-control were recurring concerns. The devices used to access learning materials could also provide access to social media, entertainment applications, games, and non-academic content. Teachers therefore considered continued supervision necessary because educational and noneducational use could occur through the same devices (Digital-class teacher interviews, January 2026). The data show that the madrasah managed digital learning as a supervised classroom practice rather than as unrestricted individual access.

Teachers also raised concerns about search engines and artificial intelligence tools. They acknowledged that such tools could make information easier to obtain, but questioned whether students might use them to obtain immediate answers without sufficient independent effort or critical engagement. Their accounts did not call for the complete rejection of AI-based tools. Instead, they emphasized the need for clearer rules governing acceptable use (Teacher interviews, January 2026). These findings document teachers' perceptions and concerns; they do not establish that students had engaged in systematic AI-assisted misconduct.

3) Unequal Participation and Institutional Support

Students did not encounter the digital classroom under identical conditions. Some were more familiar with devices and platforms and adapted more readily to online tasks. Others required assistance with accounts, platform navigation, connectivity, or other technical procedures (Student and ICT staff interviews, January–February 2026). Although the madrasah provided devices, internet access, platform access, and technical assistance, differences in familiarity and access continued to affect how students participated.

Participation also differed between students enrolled in digital classes and those who had not yet joined the program. One nonparticipating student stated that she had not joined a digital class because she had not received permission from the school (Non-digital-class student interview, February 2026). A single account cannot explain the circumstances of all nonparticipating students. It nevertheless indicates that participation was affected by institutional arrangements and program expansion, not solely by students' preferences or technical abilities.

Technical infrastructure shaped the continuity of digital learning. Students and ICT staff reported network interruptions, device limitations, account problems, and disruptions in platform access (ICT staff and student interviews, January–February 2026). Digital learning consequently required the management of connectivity, device maintenance, account security, platform access, and technical assistance alongside conventional instructional planning.

The madrasah responded by providing facilities and internet access, offering technical assistance, regulating account security, restricting access when necessary, and educating students and teachers about digital safety. A madrasah representative reported that account security was managed through password changes, access restrictions, and guidance concerning digital security (Madrasah representative interview, January 2026). Teachers also provided alternative assignments when technical problems occurred, assisted students who had difficulty using platforms, monitored device use, and reminded students about *adab* and academic honesty. These practices show that implementation depended on coordination among teachers, administrators, students, and the ICT team.

2. Discussion

The findings indicate that digital technology at MTsN 5 Pidie became embedded in existing learning practices rather than replacing them. Students gained new ways to access materials, search for information, and submit assignments, but these activities remained connected to teacher direction, classroom rules, technical infrastructure, and institutional support. This pattern is consistent with research showing that educational technology is shaped by teachers' beliefs, organizational culture, and institutional capacity rather than by access to devices alone (Ertmer and Ottenbreit-Leftwich 2010; Timotheou et al. 2023). It also supports the critical view that technology acquires meaning through the social settings and practices in which it is used (Grimes and Feenberg 2013).

Bourdieu's concept of habitus helps explain why the introduction of digital platforms did not result in an abrupt transition from conventional to autonomous digital learning. Students incorporated digital books, online searches, platform-based assignments, and discussion forums into routines already organized around teacher explanation, handwritten notes, discipline, and respect for teachers. Because habitus is formed through repeated practice while remaining responsive to changing conditions, the coexistence of these routines can be understood as an adjustment of learning dispositions rather than the displacement of one habitus by another (Bourdieu 1977). The term "hybrid learning habitus" is used here to describe this coexistence within the case studied; it is not presented as a universally applicable model.

Teacher mediation was especially important because technology use in the madrasah was evaluated through both pedagogical and moral expectations.

Teachers guided platform use, monitored attention, regulated communication, and connected digital activities with *adab*, discipline, and academic honesty. Related Indonesian studies have also found that technology integration in Islamic educational settings depends on teacher guidance, institutional management, infrastructure, and alignment with Islamic values (Fauzan and Pimada 2018; Zakiyyah et al. 2024; Abidin et al. 2025). The present case adds a closer account of how these considerations entered everyday classroom routines. Evidence from *pesantren* offers a related, though institutionally distinct, comparison with the present madrasah case (Abidin et al. 2025).

Concerns about distraction, reduced note-taking, and immediate answers should be interpreted cautiously. Fried's (2008) study provides evidence that in-class laptop use can be associated with distraction and lower learning outcomes, but its university context differs from that of an Acehnese madrasah. Similarly, Gazadinda et al. (2026) examined academic dishonesty among first-year Indonesian university students. It supports the broader relevance of academic-integrity concerns in the AI era but does not demonstrate that the students in this study misused AI. The present findings are limited to teachers' perceptions that AI-based tools could allow students to bypass intellectual effort if their use were not guided. Claims of actual misconduct would require direct evidence of students' practices.

Differences in students' access, familiarity, platform navigation, account management, and need for assistance can be interpreted through digital capital. Digital capital includes both access to technological resources and the competencies needed to derive benefits from digital environments (Ragnedda 2018). The MTsN 5 Pidie case suggests that institutional provision reduced some access barriers but did not remove all differences in participation. This is consistent with research distinguishing physical connectivity from effective and meaningful technology use (Hargittai 2005; Warschauer 2004; van de Werfhorst, Kessenich, and Geven 2022). However, because the study did not systematically measure students' digital skills or socioeconomic resources, it can identify differences associated with digital capital but cannot determine their prevalence or magnitude.

The combination of digital routines, teacher supervision, institutional rules, technical assistance, and moral expectations is described in this article as a hybrid and regulated learning habitus. "Regulated" does not imply that digitalization was unsuccessful; it indicates that digital practices were incorporated into an institutional field with established pedagogical and ethical expectations. The contribution is therefore bounded: the study explains how one Acehnese madrasah negotiated digital learning without treating technology as either a neutral instrument or an autonomous force of change. Practically, the findings suggest that madrasah digitalization requires coordinated attention to

infrastructure, platform support, teacher preparation, student assistance, digital ethics, and equitable participation. These implications should be treated as case-based considerations rather than general prescriptions for all madrasahs.

D. Conclusion

Digital technology at MTsN 5 Pidie expanded students' access to learning materials and introduced new routines of searching for information, using digital textbooks, completing online assignments, and communicating through platforms. These routines did not replace established practices centered on teacher guidance, handwritten notes, classroom discipline, religious values, and *adab*. The study therefore characterizes the emerging pattern as a hybrid learning habitus in which digital and established learning practices coexist.

This habitus was also regulated and uneven. Teachers, institutional rules, technical procedures, and moral expectations shaped how students used digital resources. At the same time, differences in device familiarity, platform access, account management, connectivity, and digital literacy affected students' capacity to participate. These findings explain digitalization at the study site as a socially mediated institutional process rather than a straightforward transition from conventional to autonomous digital learning. The formulation of a hybrid and regulated learning habitus is a contextual interpretation of the MTsN 5 Pidie case, not a claim that all madrasahs experience digitalization in the same way.

The study is limited by its focus on a single madrasah and by the absence of systematic measurement of students' digital capital or learning outcomes. Its interview findings also reflect participants' reported experiences and concerns, including concerns about AI use, rather than direct evidence of academic misconduct. Comparative studies across madrasahs with different infrastructures and institutional arrangements could test the transferability of the interpretation developed here. Further research could also examine students' digital practices directly and investigate how teacher guidance, digital access, and ethical regulation interact over time.

References

- Abidin, Zainal, Ahmad Qusairi, Nur Hanifansyah, and Fadhel Mubarak. 2025. "Learning Innovation in Islamic Boarding Schools in East Java: Technology's Role in Enhancing Teaching Effectiveness." *TARBIYA: Journal of Education in Muslim Society* 12(1):63–76. <https://doi.org/10.15408/tjems.v12i1.45642>
- Alam, T. M., G. A. Stoica, K. Sharma, and Ö. Özgöbek. 2025. "Digital Technologies in the Classrooms in the Last Decade (2014–2023): A

- Bibliometric Analysis." *Frontiers in Education* 10:1533588.
<https://doi.org/10.3389/feduc.2025.1533588>
- Basri, Husen Hasan, and Saifudin Asrori. 2022. "Digital Learning Resource at Ma'had 'Aly Idrisiyyah Tasikmalaya: Availability, Attitude, and Utilization." *Mimbar Agama Budaya* 38(2):117-32.
<https://doi.org/10.15408/mimbar.v38i2.25168>
- Bates, A. W. 2019. *Teaching in a Digital Age: Guidelines for Designing Teaching and Learning*. 2nd ed. Vancouver, BC: Tony Bates Associates Ltd.
<https://pressbooks.bccampus.ca/teachinginadigitalagev2/>
- Bourdieu, Pierre. 1977. *Outline of a Theory of Practice*. Translated by Richard Nice. Cambridge, England: Cambridge University Press.
- Bourdieu, Pierre. 2002. "The Forms of Capital." Pp. 280-91 in *Readings in Economic Sociology*, edited by Nicole Woolsey Biggart. Malden, MA: Blackwell Publishers. <https://doi.org/10.1002/9780470755679.ch15>
- Cahyani, H., and B. Cahyono. 2012. "Teachers' Attitudes and Technology Use in Indonesian EFL Classrooms." *TEFLIN Journal* 23(2):130-48.
<https://journal.teflin.org/index.php/journal/article/view/143>
- Ertmer, Peggy A., and Anne T. Ottenbreit-Leftwich. 2010. "Teacher Technology Change: How Knowledge, Confidence, Beliefs, and Culture Intersect." *Journal of Research on Technology in Education* 42(3):255-84.
<https://doi.org/10.1080/15391523.2010.10782551>
- Fauzan, Umar, and Luluk Humairo Pimada. 2018. "ICT-Based Teaching of English at Madrasah Aliyah in Kalimantan." *TARBIYA: Journal of Education in Muslim Society* 5(2):193-211. <https://doi.org/10.15408/tjems.v5i2.10414>
- Fried, Carrie B. 2008. "In-Class Laptop Use and Its Effects on Student Learning." *Computers & Education* 50(3):906-14.
<https://doi.org/10.1016/j.compedu.2006.09.006>
- Gazadinda, R., A. Qonita, Z. Nuraisyah, A. T. Maulana, S. Yudhistira, G. I. R. Medellu, A. A. Rangkuti, and J. H. Fauzia. 2026. "Academic Dishonesty and Its Contributing Factors among Indonesian First-Year College Students in the AI Era." *Jurnal Ilmiah Psikologi Terapan* 14(1):43-52.
<https://doi.org/10.22219/jipt.v14i1.42082>
- Grimes, Sara M., and Andrew Feenberg. 2013. "Critical Theory of Technology." Pp. 121-29 in *The SAGE Handbook of Digital Technology Research*, edited by Sara Price, Carey Jewitt, and Barry Brown. London, England: SAGE Publications. <https://doi.org/10.4135/9781446282229.n9>
- Hafifah, Gusti Nur, and Gunadi Harry Sulistyo. 2020. "Teachers' ICT Literacy and ICT Integration in ELT in the Indonesian Higher Education Setting." *Turkish Online Journal of Distance Education* 21(3):186-98.
<https://doi.org/10.17718/tojde.762050>
- Hargittai, Eszter. 2005. "Survey Measures of Web-Oriented Digital Literacy." *Social Science Computer Review* 23(3):371-79.

<https://doi.org/10.1177/0894439305275911>

- Jere, S., and M. Mpeta. 2024. "Effects of Facilitating Condition, Social Influence and Self-Efficacy on Science Teachers' Integration of Digital Technology in South Africa: A Regression-Based Approach." *International Journal of Learning, Teaching and Educational Research* 23(4):354-75. <https://doi.org/10.26803/ijlter.23.4.19>
- Lincoln, Yvonna S., and Egon G. Guba. 1985. *Naturalistic Inquiry*. Beverly Hills, CA: SAGE Publications.
- Miles, Matthew B., A. Michael Huberman, and Johnny Saldaña. 2014. *Qualitative Data Analysis: A Methods Sourcebook*. 3rd ed. Thousand Oaks, CA: SAGE Publications.
- Nila, N., L. Abdiyah, and A. D. Prasajo. 2021. "Analisis Problematika Guru dalam Pembelajaran Daring pada Pembelajaran Tematik di SD/MI." *FONDATIA* 5(2):210-19. <https://doi.org/10.36088/fondatia.v5i2.1394>
- Pozo, Juan Ignacio, Beatriz Cabellos, and María del Puy Pérez Echeverría. 2024. "Has the Educational Use of Digital Technologies Changed after the Pandemic? A Longitudinal Study." *PLOS ONE* 19(12):e0311695. <https://doi.org/10.1371/journal.pone.0311695>.
- Ragnedda, Massimo. 2018. "Conceptualizing Digital Capital." *Telematics and Informatics* 35(8):2366-75. <https://doi.org/10.1016/j.tele.2018.10.006>
- Ragnedda, Massimo, Maria Laura Ruiú, and Felice Addeo. 2020. "Measuring Digital Capital: An Empirical Investigation." *New Media & Society* 22(5):793-816. <https://doi.org/10.1177/1461444819869604>
- Ritonga, Mahyudin, Sobhan, and Bambang. 2022. "Utilizing Technology to Improve the Quality of Learning in Indonesia: Challenges and Consequences for Arabic Teachers." *Arabiyat: Jurnal Pendidikan Bahasa Arab dan Kebahasaaraban* 9(1):56-68. <https://doi.org/10.15408/a.v9i1.24516>
- Rodríguez-Camacho, J. A., M. Linder, D. Jütte, and T. Hennig-Thurau. 2024. "Digital Capital: Importance for Social Status in Contemporary Society and Antecedents of Its Accumulation." *Computers in Human Behavior* 159:108316. <https://doi.org/10.1016/j.chb.2024.108316>
- Supriatna, R. Dedy, and Sita Ratnaningsih. 2017. "Indonesian Madrasah in the Era of Globalization." *TARBIYA: Journal of Education in Muslim Society* 4(1):89-103. <https://doi.org/10.15408/tjems.v4i1.5908>
- Timotheou, S., O. Miliou, Y. Dimitriadis, S. V. Sobrino, N. Giannoutsou, R. Cachia, A. M. Monés, and A. Ioannou. 2023. "Impacts of Digital Technologies on Education and Factors Influencing Schools' Digital Capacity and Transformation: A Literature Review." *Education and Information Technologies* 28(6):6695-6726. <https://doi.org/10.1007/s10639-022-11431-8>
- van de Werfhorst, Herman G., Emma Kessenich, and Sara Geven. 2022. "The Digital Divide in Online Education: Inequality in Digital Readiness of

- Students and Schools." *Computers and Education Open* 3:100100. <https://doi.org/10.1016/j.caeo.2022.100100>
- Warschauer, Mark. 2004. *Technology and Social Inclusion: Rethinking the Digital Divide*. Cambridge, MA: MIT Press.
- Yin, Robert K. 2018. *Case Study Research and Applications: Design and Methods*. 6th ed. Thousand Oaks, CA: SAGE Publications.
- Yuliana, Cut Putroe, Nurhayati Ali Hasan, T. Ade Vidyan Maqvirah, and Viona Febiyola Bakkara. 2024. "Analisis Literasi Digital pada Siswa di SMA Teuku Nyak Arif Fatih Bilingual School." *Jurnal Adabiya* 26(1):70-78. <https://doi.org/10.22373/adabiya.v26i1.22236>
- Zakiyyah, Intan, Suparto, Imron Azhari Karo-Karo, and Muhammad Nur Ahsan Zakir. 2024. "Digital Technology and Socio-Dynamic Aspects of Indonesian Islamic Religious Education: A Total Quality Management Perspective." *Jurnal Indo-Islamika* 14(2):328-43. <https://doi.org/10.15408/jii.v14i2.43760>