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

Journal of Educational Management Research
Vol. 05 No. 05 (2026) : 6741-6752-
Available online at https://serambi.org/index.php/jemr

Navigating Infrastructure Limitations in Vocational Education: Teachers' Instructional Adaptations and Institutional Responses

Novalia Sabrina*, Ajeng Nur Matin, Alliyah Dwi Cahya, Mia Aulia, Mahliga Fitriansyah
Universitas Pamulang, Indonesia
Email : novasabrina77@gmail.com

DOI: https://doi.org/10.61987/jemr.v5i5.3306

Keywords:
Educational Facilities and Infrastructure; Learning Process; Vocational High School; Learning Resources

**Corresponding Author*

ABSTRACT

The availability of adequate educational facilities and infrastructure plays an essential role in supporting effective teaching and learning processes, particularly in Vocational High Schools (VHS), where practical learning requires appropriate equipment and learning resources. However, limited facilities and infrastructure may hinder the implementation of diverse and optimal learning activities. This study aims to analyze the limitations of educational facilities and infrastructure in supporting the learning process at the vocational high school level. This research employed a qualitative approach with a descriptive research design. Data were collected through direct observation and interviews with two informants, namely a supervising teacher and a subject teacher responsible for Communication and Network Technology and Fundamentals of Computer and Network Engineering. The findings reveal several limitations, including the absence of a computer laboratory, restricted access to laptops and projectors, and insufficient learning resources. These conditions reduce learning variations and require teachers to adapt their instructional strategies. To address these challenges, teachers utilize students' personal laptops, YouTube as an alternative learning resource, and gradual facility procurement based on priority needs and available budgets. This study implies that adequate planning, provision, and management of educational facilities and infrastructure are essential to improving the quality and effectiveness of vocational learning.

Article History:
Received: August 2026; Revised: September 2026; Accepted: October 2026

Please cite this article in APA style as:
Sabrina, N., Matin, A. N., Cahya, A. D., Aulia, M., & Fitriansyah, M. (2026). Navigating Infrastructure Limitations in Vocational Education: Teachers' Instructional Adaptations and Institutional Responses. *Journal of Educational Management Research*, *5*(5), 6741-6752.

INTRODUCTION

Education plays a fundamental role in developing human resources and preparing individuals to participate effectively in society. The quality of education is influenced not only by teachers and learning materials but also by

This journal is an open-access article under a CC BY-NC-SA 4.0 license. © 2026, the author(s)

the availability of adequate educational facilities and infrastructure. Appropriate learning environments enable students to access information, develop practical competencies, and achieve better learning outcomes. Espinosa Andrade et al. (2024) highlight the relationship between school infrastructure and learning outcomes, demonstrating the importance of physical learning environments in educational processes (Azizah & Octarina, 2025; Shabila et al., 2026; Widad & Suliyanto, 2025). Therefore, providing adequate educational facilities is not merely an institutional responsibility but also an important investment in improving educational quality and supporting students' future development.

Despite the importance of educational facilities, many schools continue to face challenges in providing infrastructure that meets their instructional needs. These challenges include limited learning equipment, inadequate practical facilities, insufficient technological resources, and constraints in facility management. Such conditions can restrict teachers' instructional strategies and reduce students' opportunities to gain meaningful learning experiences. In vocational education, these limitations become particularly significant because students require appropriate equipment and practical environments to develop occupational competencies. Fadhilah et al. (2023) emphasize the importance of educational facility management in vocational schools, while Cindy et al. (2022) identify factors affecting the optimization of vocational school facilities and infrastructure. These conditions highlight the need to examine facility availability in relation to actual learning requirements.

The phenomenon observed in vocational education indicates that the availability of facilities does not always correspond to the demands of classroom instruction and practical learning (Dewi et al., 2026; Hikmah, 2025; Sa'diyah et al., 2026). Similar challenges were identified at the vocational education level in this study, particularly in the teaching of Communication and Network Technology (TEKWAN) and Fundamentals of Computer and Network Engineering (DTKJ). The school does not yet have a computer laboratory, while access to laptops and projectors remains limited. Furthermore, several supporting learning resources are not yet available (Dermawan & Yusuf, 2026; Kuswanti et al., 2024; Susanti et al., 2025). To maintain learning activities, teachers encourage students to use their personal laptops and utilize YouTube as an alternative learning resource. These circumstances require teachers to adjust their instructional strategies according to the facilities available.

Previous studies have examined the relationship between educational facilities, infrastructure management, and learning outcomes in vocational education. Simanjuntak et al. (2024) investigated the influence of educational facilities and infrastructure availability on vocational students' academic achievement. Similarly, Ramdani et al. (2025) examined the influence of practical

facilities and infrastructure in automotive workshops on student learning outcomes. Sugiyarto et al. (2024) also discussed the influence of computer laboratory facilities on learning outcomes in vocational schools. These studies provide evidence of the importance of adequate facilities in supporting students' academic and practical competencies. However, their research primarily emphasizes the relationship between facility availability and learning outcomes rather than describing teachers' experiences in dealing with infrastructure limitations during daily instructional activities.

Other studies have focused on the integration of digital technology and learning resources in secondary education. Msafiri et al. (2023) reviewed the implementation of information and communication technology in secondary education, while Sawiji (2024) examined factors influencing teachers' intentions to use web-based e-learning platforms in Indonesian vocational secondary schools. Lohr et al. (2024) discussed teachers' digital learning competencies and the use of personal devices in school learning environments. Although these studies provide valuable insights into educational technology integration, limited attention has been given to how teachers adapt their instructional practices when essential physical facilities, particularly computer laboratories and technological equipment, are unavailable. This gap is particularly relevant to vocational schools operating with limited resources.

This study offers a contextual contribution by examining educational facility limitations from the perspective of actual teaching and learning activities in a vocational school environment. Unlike studies that primarily evaluate infrastructure standards, facility management systems, or statistical relationships with academic achievement, this research focuses on the practical consequences of inadequate facilities and the adaptive strategies employed by teachers. Particular attention is given to the use of students' personal laptops, alternative digital learning resources, and gradual facility development according to institutional priorities and financial capacity. By connecting infrastructure conditions with teachers' instructional experiences, this study provides a more contextual understanding of how vocational learning can be maintained despite limitations in educational resources.

Based on these considerations, this study addresses three main questions: (1) What educational facilities and infrastructure are available to support vocational learning? (2) What limitations affect the implementation of teaching and learning activities? and (3) How do teachers and school management respond to these limitations? This study argues that limited educational facilities do not necessarily prevent learning activities from taking place, but they require teachers to develop adaptive instructional strategies and schools to establish appropriate facility development priorities. Accordingly, this research aims to

analyze the limitations of educational facilities and infrastructure, identify their implications for classroom learning, and describe the strategies implemented to address these challenges. The findings are expected to provide practical insights for improving educational facility planning and management in vocational schools.

RESEARCH METHODS

This study employed a qualitative descriptive research design to obtain an in-depth understanding of the limitations of educational facilities and infrastructure in supporting vocational learning. Qualitative descriptive design is appropriate for exploring phenomena and presenting participants' experiences through detailed descriptions without necessarily developing theoretical interpretations (Villamin et al., 2025). This design enables researchers to examine actual conditions, identify challenges, and understand teachers' experiences in utilizing available educational resources.

Data were collected through direct observation and semi-structured interviews. Observation and interviews are among the principal data collection techniques in qualitative research, enabling researchers to examine real-world conditions and explore participants' perspectives (Denny & Weckesser, 2022). Semi-structured interviews also provide flexibility for researchers to explore relevant information through open-ended questions and follow-up discussions (Buys et al., 2022).

Data analysis was conducted through four interconnected stages: data condensation, data display, data verification, and conclusion drawing. These stages involve selecting and organizing relevant information, presenting findings systematically, examining the consistency of evidence, and developing conclusions based on the collected data. Systematic data management and transparent analytical procedures are essential for establishing trustworthy qualitative findings (Bingham, 2023; Monaro et al., 2022).

RESULTS AND DISCUSSION

Results

Availability and Physical Conditions of Educational Facilities and Infrastructure

The observation findings revealed several limitations in the availability and physical conditions of educational facilities and infrastructure at the vocational high school. Some classrooms were still under construction, indicating that the provision of learning spaces had not been fully completed. In addition, supporting classroom facilities, particularly fans, were not adequately available. These conditions indicate that infrastructure limitations extended beyond specialized instructional equipment to include basic facilities supporting classroom activities.

More specifically, limitations were identified in the provision of practical learning facilities for the Computer and Network Engineering (TKJ) program. The school did not yet have a dedicated computer laboratory to accommodate students' practical learning activities. Furthermore, the availability of computers, laptops, textbooks, and other instructional media remained limited. These findings indicate that the existing facilities had not fully accommodated the requirements of both theoretical instruction and practical learning, particularly in a vocational program that requires access to technological equipment.

Utilization of Available Facilities and Teachers' Adaptive Strategies

Interview findings indicated that teachers continued to conduct instructional activities by utilizing the facilities and resources available at the school. According to Bu Aima, the learning process involved the use of whiteboards, markers, books, and laptops. Projectors were also used on certain occasions to support the presentation of learning materials. The use of these facilities demonstrates that teachers adjusted their instructional activities according to the resources accessible to them, particularly when technological equipment was not consistently available.

In addition to conventional instructional facilities, teachers utilized digital resources as alternative learning materials. Bu Aima explained that YouTube videos were used to help students understand the subjects being taught. This approach provided an additional source of instructional content when other learning resources were limited. The use of digital materials therefore formed part of the teachers' efforts to maintain access to learning information despite the constraints in available school facilities.

A related strategy emerged from the interview with Pak Donny, who identified the absence of a computer laboratory as one of the limitations affecting practical learning activities. To accommodate these activities, students who owned laptops were encouraged to bring their devices to school for use in group learning. This arrangement allowed available personal devices to be utilized as supplementary resources for classroom activities. Taken together, these findings demonstrate two main forms of instructional adaptation: the use of alternative digital learning resources and the utilization of students' personal technological devices.

Infrastructure-Related Constraints in the Learning Process

The findings revealed that infrastructure limitations were particularly evident in practical learning activities within the Computer and Network Engineering program. The absence of a dedicated computer laboratory meant that students could not rely on a specialized school facility for practical

instruction. Instead, learning activities involving technological equipment had to be adjusted according to the devices available. The use of students' personal laptops in group activities illustrates how access to practical learning resources was facilitated through alternatives outside the school's existing equipment.

Limitations in instructional media also influenced the resources available for delivering learning materials. Teachers utilized YouTube videos, books, and other available media to support the presentation of subject content. The findings show that instructional activities relied on a combination of conventional and digital resources rather than on a fully equipped school-based learning environment. This situation reflects the adjustments required to accommodate the limited availability of instructional facilities.

The physical condition of classrooms represented another aspect of the identified constraints. Classrooms that were still under construction and the limited availability of supporting facilities, particularly fans, indicated that the physical learning environment was not yet fully equipped. Thus, the infrastructure-related constraints identified in this study encompassed three interconnected aspects: access to practical learning equipment, availability of instructional media, and provision of supporting classroom facilities. However, the study did not directly measure students' comfort levels, academic achievement, or learning effectiveness.

Institutional and Instructional Responses to Infrastructure Limitations

The interview findings indicated that the school addressed infrastructure limitations through the gradual provision of educational facilities. Facility procurement was adjusted according to institutional priorities and available financial resources. Rather than fulfilling all infrastructure requirements simultaneously, the school prioritized facility needs and planned their provision incrementally in accordance with its budgetary capacity. This approach reflects the institution's efforts to address existing infrastructure requirements within its available financial resources.

At the instructional level, teachers responded to these limitations by utilizing existing facilities and alternative learning resources. The use of students' personal laptops, group learning activities, and YouTube videos represented practical adjustments to the limited availability of school-provided equipment. These strategies enabled teachers to continue organizing learning activities using the resources accessible within the school environment.

Overall, the findings identify two complementary responses to infrastructure limitations. At the institutional level, the school pursued gradual facility provision based on identified priorities and budgetary capacity. At the instructional level, teachers adapted their teaching practices through the

utilization of alternative resources and available technological equipment. These findings demonstrate that the continuation of vocational learning activities involved both institutional efforts to improve facilities and teachers' adjustments to existing resource conditions.

Discussion

The findings of this study demonstrate that limitations in educational facilities and infrastructure influence how vocational learning activities are organized and implemented. The absence of a dedicated computer laboratory, limited technological equipment, and inadequate classroom supporting facilities indicate that the available infrastructure has not fully accommodated instructional requirements. These findings are consistent with Espinosa Andrade et al. (2024), who examined the relationship between school infrastructure and learning outcomes, emphasizing the relevance of physical learning environments in educational processes. Similarly, Belina et al. (2025) highlighted the importance of infrastructure in improving school quality. However, the present study extends this perspective by examining how infrastructure limitations are experienced in everyday vocational teaching activities, particularly from the perspectives of teachers rather than focusing primarily on broader school quality indicators.

The absence of a dedicated computer laboratory represents a significant finding because vocational education requires facilities that support both theoretical instruction and practical competency development. This finding is consistent with Fadhilah et al. (2023), who discussed the importance of educational facility management in vocational schools, and Cindy et al. (2022), who examined factors affecting the optimization of vocational school facilities and infrastructure. Furthermore, Sugiyarto et al. (2024) and Ramdani et al. (2025) examined the relationship between practical facilities and student learning outcomes in vocational education. While these studies emphasize the importance of adequate practical facilities, the present research provides a different perspective by illustrating how the absence of specialized facilities requires teachers and students to adjust practical learning activities using available technological resources.

Another important finding concerns teachers' adaptation to limited instructional resources. The use of available classroom equipment, digital learning materials, and students' personal laptops illustrates how teachers maintain learning activities despite infrastructure constraints. This finding corresponds with Lohr et al. (2024), who discussed teachers' digital learning competencies and the use of personal devices in school environments. Similarly, Heine et al. (2023) identified digital resources as an important dimension of

teachers' professional digital competence. However, the present study highlights a contextual distinction: students' personal laptops are not merely additional technological resources but also become practical alternatives when school-owned equipment and specialized learning facilities are insufficient.

The utilization of YouTube as an alternative learning resource also demonstrates the role of digital technology in addressing limitations in conventional instructional facilities. This finding is related to Msafiri et al. (2023), who reviewed the integration of information and communication technology in secondary education, and Sawiji (2024), who examined factors influencing teachers' intentions to use web-based e-learning platforms in Indonesian vocational secondary schools. These studies emphasize the relevance of digital technology in supporting teaching and learning. The present findings complement this literature by showing how digital resources are used as practical alternatives in a school environment with limited physical infrastructure. Nevertheless, the use of digital resources does not eliminate the need for appropriate computer laboratories and other facilities required for practical vocational instruction.

The findings also indicate that infrastructure limitations require adjustments in instructional organization, particularly through group learning and the shared use of students' personal laptops. This situation is relevant to Nettey et al. (2024), who examined challenges faced by teachers in integrating information and communication technology into teaching and learning activities. Zhao (2024) also discussed the relationship between digital divides and teachers' ICT competencies in rural and urban secondary schools. Although these studies address different educational contexts, they reinforce the importance of considering technological access when examining educational practices. The present study adds a school-level perspective by identifying how limited access to technological equipment is addressed through collective resource utilization. However, the available findings do not establish whether these arrangements produce equivalent practical learning experiences for all students.

An important contribution of this study lies in connecting three dimensions that are often examined separately: the availability of educational infrastructure, teachers' instructional adaptations, and institutional responses to facility limitations. Previous research has addressed infrastructure management, practical learning facilities, digital technology integration, and the relationship between educational resources and learning outcomes (Fadhilah et al., 2023; Simanjuntak et al., 2024; Msafiri et al., 2023). In contrast, this study brings these dimensions together within a qualitative examination of vocational learning in an Islamic boarding school environment. Its contribution is therefore contextual and descriptive, providing insights into how teachers maintain instructional activities while the school gradually addresses infrastructure needs according to institutional priorities and budgetary capacity.

The novelty of this study lies in its examination of infrastructure limitations not only as a problem of facility availability but also as a condition that shapes instructional adaptation and institutional decision-making. By focusing on teachers' experiences in vocational learning, particularly in Communication and Network Technology and Fundamentals of Computer and Network Engineering, the study provides a contextual understanding of how learning activities are maintained when specialized facilities are unavailable. The findings suggest that improving vocational education requires a complementary approach involving gradual infrastructure development, appropriate facility prioritization, and adaptive instructional practices. These insights may inform school managers and educational stakeholders in planning facilities that correspond to actual vocational learning requirements. Nevertheless, because this study involves two informants in one school, its findings should be interpreted within the specific context examined rather than generalized to all vocational schools.

CONCLUSION

This study concludes that limitations in educational facilities and infrastructure are not merely related to the availability of physical resources but also influence how vocational learning activities are organized and implemented. The most significant finding is that teachers' adaptive strategies, including the use of students' personal laptops, digital learning resources, and group activities, help maintain instructional continuity despite inadequate facilities. The implications of this study highlight the importance of aligning infrastructure development with actual vocational learning requirements, particularly the provision of computer laboratories and practical learning equipment. Scientifically, this research contributes to the understanding of the relationship between infrastructure limitations, teachers' instructional adaptations, and institutional responses within vocational education in an Islamic boarding school context. However, this study is limited to one school and two informants, which restricts the transferability of its findings to other educational settings. Future research should involve a broader range of informants and multiple vocational schools to explore variations in infrastructure conditions, instructional adaptation strategies, and their implications for students' practical learning experiences.

REFERENCES

Azizah, L. N., & Octarina, S. (2025). Beyond the Domestic Sphere: Navigating Shifting Gender Roles through the Lens of Islamic Jurisprudence. Al-Fiqh: Journal of Contemporary Islamic Law, 1(2), 49–63. https://doi.org/10.61987/fiqh.v1i2.996

Belina, D., Geleta, A., Beyene, D., & Tafesse, M. (2025). Enhancing School Quality: Insights into Infrastructure, Financial Practices, and Community Engagement in Secondary Schools of Oromia Regional State, Ethiopia. Humanities and Social Sciences Communications, 12, Article 1275. https://doi.org/10.1057/s41599-025-05118-x

Bingham, A. J. (2023). From data management to actionable findings: A five-phase process of qualitative data analysis. *International Journal of Qualitative Methods, 22*. https://doi.org/10.1177/16094069231183620

Buys, T., Casteleijn, D., Heyns, T., & Untiedt, H. (2022). A reflexive lens on preparing and conducting semi-structured interviews with academic colleagues. *Qualitative Health Research, 32*(13), 2030–2039. https://doi.org/10.1177/10497323221130832

Cindy, A. H., Sugiyono, S., Usman, H., & Herwin. (2022). Factors That Affect the Optimisation of Vocational High School Facilities and Infrastructure. Cypriot Journal of Educational Sciences, 17(2), 586–600. https://doi.org/10.18844/cjes.v17i2.6847

Denny, E., & Weckesser, A. (2022). How to do qualitative research? *BJOG: An International Journal of Obstetrics & Gynaecology, 129*(7), 1166–1167. https://doi.org/10.1111/1471-0528.17150

Dermawan, O., & Yusuf, T. K. (2026). Toward Holistic Curriculum Management in Islamic Early Childhood Education: A Framework for Integrated Learning Development. Early Childhood Development Gazette, 3(1), 11–22. https://doi.org/10.61987/gazette.v3i1.1789

Dewi, A. T. A., Qodriah, L., & Hermayana, A. N. (2026). Cultivating Emotional Intelligence in the Screen Age: A Case Study of ECE Leadership Strategies. Journal of Early Childhood Learning Innovations, 1(1), 1–13.

Espinosa Andrade, A., Padilla, L., & Carrington, S. J. (2024). Educational Spaces: The Relation Between School Infrastructure and Learning Outcomes. Heliyon, 10(19), Article e38361. https://doi.org/10.1016/j.heliyon.2024.e38361

Fadhilah, U. N., Alim, N., & Erdiyanti. (2023). Manajemen Sarana dan Prasarana Pendidikan di Sekolah Menengah Kejuruan pada Pondok Pesantren. Al-Ta'dib: Jurnal Kajian Ilmu Kependidikan, 16(1), 1–11. https://doi.org/10.31332/atdbwv16i1.6774

Heine, S., Krepf, M., & König, J. (2023). Digital Resources as an Aspect of Teacher Professional Digital Competence: One Term, Different Definitions – A Systematic Review. Education and Information Technologies, 28, 3711–3738. https://doi.org/10.1007/s10639-022-11321-z

Hikmah, R. (2025). Microtrauma in Adolescent Social Relationships within Contemporary Interaction Spaces. MindScape: Journal of Psychology, 1(3), 131–142.

Kuswanti, E., Arifin, I., & Pramono, P. (2024). Oral Motor Development in Children Aged 0–12 Months: A Review of Functional and Therapeutic Aspects. Early Childhood Development Gazette, 1(1), 1–11. https://doi.org/10.61987/gazette.v1i1.617

Lohr, A., Sailer, M., Stadler, M., & Fischer, F. (2024). Digital Learning in Schools: Which Skills Do Teachers Need, and Who Should Bring Their Own Devices? Teaching and Teacher Education, 152, Article 104788. https://doi.org/10.1016/j.tate.2024.104788

Monaro, S., Gullick, J., & West, S. (2022). Qualitative data analysis for health research: A step-by-step example of phenomenological interpretation. *The Qualitative Report, 27*(4), 1040–1057. https://doi.org/10.46743/2160-3715/2022.5249

Msafiri, M. M., Kangwa, D., & Cai, L. (2023). A Systematic Literature Review of ICT Integration in Secondary Education: What Works, What Does Not, and What Next? Discover Education, 2, Article 44. https://doi.org/10.1007/s44217-023-00070-x

Nettey, J. N. A., Mensah, R. O., Asafo-Adjei, R., & Babahe, P. A. (2024). Analyzing the Challenges Basic School Teachers Face in Integrating Information and Communication Technology into Teaching and Learning Activities in a Developing Country. Cogent Education, 11(1), Article 2364544. https://doi.org/10.1080/2331186X.2024.2364544

Ramdani, M. I., Supriyatna, D., & Putra, A. Y. W. (2025). The Influence of TKRO Workshop Practical Facilities and Infrastructure on Student Learning Outcomes. Journal of Vocational and Career Education, 10(1), 56–63. https://doi.org/10.15294/jvce.v10i1.30407

Sa'diyah, H., Prahasti, D. P., Qodriah, L., & Adzani, D. A. (2026). Quality Culture-Based SPMI Construction: Transforming Learning Supervision from Compliance-Based to Self-Regulated Learning. Cendikia Journal of Management and Innovation, 1(1), 34–48.

Sawiji, H. (2024). Determining Factors Influencing Teachers' Intention to Use Web-Based E-Learning Platforms in Vocational Secondary Schools in Indonesia. Cogent Education, 11(1), Article 2355830. https://doi.org/10.1080/2331186X.2024.2355830

Shabila, A. N. W., Putri, A. T., & Denona, O. F. M. (2026). Between Revelation and Reality: Reforming Islamic Law Amidst Global Challenges. Al-Fiqh: Journal of Contemporary Islamic Law, 2(2), 73–85. https://doi.org/10.61987/fiqh.v2i2.997

Simanjuntak, K., Tambunan, A. M., & Gultom, R. A. T. (2024). Pengaruh Ketersediaan Sarana dan Prasarana Pendidikan terhadap Prestasi Belajar Siswa Kelas X TKR SMK Negeri 2 Siatas Barita Tahun Ajaran 2023/2024. Satya Sastraharing, 8(1), 16–24. https://doi.org/10.33363/satya-sastraharing.v8i1.1274

Sugiyarto, B., Mayasari, R., Handayani, S., & Rohmatul, M. (2024). The Influence of Facilities and Infrastructure in Computer Laboratories on Student Learning Outcomes at SMK. In Proceedings of the 6th Vocational Education International Conference (VEIC 2024) (pp. 151–156). Atlantis Press. https://doi.org/10.2991/978-2-38476-342-9_20

Susanti, D., Safitri, S. D., Faizin, F., & Lateh, M. (2025). Eradicating Bullying, Creating a Safe and Comfortable Learning Environment through Child-Friendly Schools. Early Childhood Development Gazette, 2(1), 38–48. https://doi.org/10.61987/gazette.v2i1.608

Villamin, P., Lopez, V., Thapa, D. K., & Cleary, M. (2025). A worked example of qualitative descriptive design: A step-by-step guide for novice and early career researchers. *Journal of Advanced Nursing, 81*(8), 5181–5195. https://doi.org/10.1111/jan.16481

Widad, S., & Suliyanto, S. (2025). The Digital Transformation and Economic Independence in Islamic Boarding Schools: Building a Sharia-Compliant Startup Ecosystem. Al-Fiqh: Journal of Contemporary Islamic Law, 1(2), 101–109. https://doi.org/10.61987/fiqh.v1i2.1323

Zhao, W. (2024). A Study of the Impact of the New Digital Divide on the ICT Competences of Rural and Urban Secondary School Teachers in China. Heliyon, 10(7), Article e29186. https://doi.org/10.1016/j.heliyon.2024.e29186