


Enhancing Public Service Quality through Information Systems: A Case Study of PD Pontren in Sleman's Ministry of Religious Affairs

Almas Uzma Qatrunnada ^{1*}

¹ Sunan Kalijaga State Islamic University Yogyakarta, Indonesia

Article Info	Abstract
<p>Article history: Received: 06/23/2023 Revised: 06/29/2023 Accepted: 07/10/2023</p>	<p>Purpose – This study explores the implementation of a public service information system through the PD Pontren Section at the Ministry of Religious Affairs in Sleman, focusing on the quality and effectiveness of services provided to the community.</p>
<p>Keywords: <i>Diniyah Program, Information Systems, Islamic Boarding School, Public Services.</i></p>	<p>Design/methods/approach – Employing a qualitative, descriptive case study approach, the research utilized observations, semi-structured interviews, and a literature review. The data collection and analysis involved a three-step process: data reduction, data display, and data verification, enhancing reliability through triangulation.</p> <p>Findings – The implementation of the Integrated Service Unit (PTSP) by PD Pontren demonstrates an efficient and comprehensive approach to public service. This includes a unified service delivery process, adherence to five critical work cultures, and a focus on Diniyah and Islamic Boarding School education. The study identified significant improvements in service transparency, accessibility, and accountability.</p> <p>Research implications/limitations – While offering insights into effective public service systems, the study's focus on a single district limits its broader applicability. Comparative research across different contexts is recommended.</p> <p>Practical implications – The findings can inform policy formulation and administrative practices in educational settings, highlighting the role of integrated information systems in enhancing service quality.</p> <p>Originality/value – This research contributes to the understanding of the impact of information systems on public service delivery and educational quality, offering a model for other districts and educational institutions.</p> <div style="display: flex; align-items: center;">  <p>© 2023 by the authors. It was submitted for possible open-access publication under the terms and conditions of the Creative Commons Attribution (CC BY NC) license (http://creativecommons.org/licenses/by/4.0/).</p> </div>

OPEN ACCESS Contact: ✉*20104090061@student.uin.suka.ac.id

Introduction

The implementation of public service information systems significantly impacts global society, particularly in the context of technological transformation and data management (Anonim, 2010). These systems are crucial in ensuring efficient, accessible, and accountable service delivery (Anonim, 2010). Despite their importance, a gap exists between the system's potential and the public's understanding of its procedures. This mismatch highlights the need for more effective implementation strategies, especially in public sector domains like religious education. Addressing this gap is essential for improving public service quality worldwide and within specific disciplines such as education and technology.

Previous studies have laid the groundwork for understanding public service information systems. The Indonesian Law No. 25 of 2009 emphasizes the role of these systems in public service management (Anonim, 2010). Enggarani's research pointed to the shortcomings in public service delivery, including inefficiencies and inflexibilities (Year). These insights reveal the challenges in aligning government services with public expectations. Therefore, comprehending these foundational elements is critical for developing more effective public service information systems.

The significance of effective public service management is further illustrated by (Abu-Shanab, 2021; Murad et al., 2020) study on the Education Section of Diniyah and Pondok Pesantren . This research highlighted the importance of service standardization and management in enhancing public satisfaction. Other studies, such as those by have explored the impact of GIS and health information systems on service delivery. Muhafidin demonstrated how customized information systems improve service efficiency in higher education. Collectively, these studies underscore the critical role of information systems in various public service sectors (Muhafidin, 2020).

Spatial inequities in service provision have been a focus of recent research (John et al., 2020; Londoño-Cañola et al., 2023; Ramadan et al., 2022). Studies have also explored the influence of geographic and demographic factors on the effectiveness of public service systems (Thompson et al., 2019). These insights are particularly relevant to the current study's focus on the PD Pontren sector in Sleman, which deals with religious education. Understanding these spatial and demographic dynamics is crucial for the effective implementation of public service information systems. This context-specific focus is vital for tailoring systems to meet the unique needs of different communities.

Despite progress in understanding public service information systems, notable gaps remain. Current literature often overlooks the unique challenges in the Indonesian public service sector, especially in religious education administration (Anonim, 2010). The practical implementation and effectiveness of these systems at the local government level are underexplored, particularly in sectors managing religious educational institutions like PD Pontren. This study aims to address these limitations by focusing on the Ministry of Religious Affairs in Sleman District. By exploring this specific context, the study will contribute to filling the identified gaps in the literature.

The study is positioned to provide novel insights into the management and implementation of public service information systems. It seeks to bridge the gap between theoretical understanding and practical application, particularly in the context of Indonesia's religious education sector. The research will examine the quality and effectiveness of services provided, offering a comprehensive view of the system's impact at the local government level. This exploration is crucial for developing strategies that can enhance public service delivery in similar contexts. The findings will contribute to the broader discourse on effective public service management and implementation.

This study focuses on exploring the implementation of public service information systems in the PD Pontren section of the Ministry of Religious Affairs in Sleman District. It aims to assess the quality and effectiveness of the services provided to the public. The research will contribute to a deeper understanding of public service delivery in Indonesia's

religious education sector. By examining this specific context, the study aims to offer insights that can inform future strategies for public service system implementation and management. Ultimately, this research seeks to enhance public service delivery's efficiency, effectiveness, and accessibility.

Methods

This study employed a qualitative research approach with a descriptive case study design, focusing on the implementation of the public information service system by the PD Pontren Section at the Ministry of Religious Affairs in Sleman Regency. PD Pontren is one of the units in the ministry of religion that handles Diniyah and Islamic Boarding Schools. The primary instrument for data collection and analysis was the researcher, who conducted observations, semi-structured interviews, and literature reviews at the ministry's office in Sleman. Data collection involved direct observation of the system's operations and semi-structured interviews with key participants like Mr. Sangaji, S.H.I., the head of the Education Diniyah and Islamic Boarding School unit. The analysis followed a three-step process: data reduction, data display, and data verification, as outlined by (Rijali, 2019) and (Murad et al., 2020). This study explored the perceptions of 264 nurses regarding their satisfaction with health information systems (HIS) in one of the public hospitals in the GCC area. The study adopted the information system success model and tried to predict satisfaction level utilizing information quality, system quality, and service quality. Results supported the role of information quality and service quality in predicting satisfaction. In addition, four factors were used as moderators of relationships assumed. Three moderation effects were witnessed: gender moderated the relationship between service quality and satisfaction, age moderated the relationship between service quality and satisfaction, and also moderated the relationship between system quality and satisfaction. A set of one-way ANOVA tests were used to compare different perceptions based on the four demographic factors (gender, age, education, and experience) on the item and construct levels. Conclusions and a summary of all results are reported in this study. Copyright © 2021, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited (Abu-Shanab, 2021). Geographical Information System (GIS) remains a unique tool use for school mapping for a clear understanding of the nature, planning, and distribution of educational facilities. The study carried out a GIS analysis for male primary and secondary schools' distribution in Jeddah city, Saudi Arabia, to show the significance of using GIS tools to assist the educational planning authorities. To understand, re-plan and address the location, distribution and availability challenges of the schools in Jeddah city. A Geodatabase for the study area was created, which incorporates education and population data collected from authorities. Spatial and network analyses are utilised to understand the location distribution, students' density, and the accessibility of the schools in the study region. The analyses results identified the services and students'; density, directional growth of the schools, drive-time service areas and served and un-served populace for the authorities in Saudi Arabia to make better planning decisions, address present and future challenges in the provision of primary schools to residents and most importantly to improve educational services. The findings revealed that shorter travel distances found in the denser (central) part of the city and some regions that need more schools (Abu-Shanab, 2021; Murad et al., 2020; Sa'adah et al., 2022). These steps aimed to simplify and organize the collected data, facilitate its interpretation, and ensure its validity and accuracy. The study's reliability and validity were enhanced through the triangulation of data collection methods and a rigorous iterative analysis process, ensuring that the conclusions drawn were based on credible and trustworthy data.

Results

1. Implementation of the Public Service Information System

The public service information system at the Office of the Ministry of Religious Affairs in Sleman District, namely the Integrated Service Unit (Pelayanan et al. - PTSP), aims to provide ease and certainty to the public in accessing services. The expected goals of the PTSP include realizing public services that are fast, friendly, affordable, transparent, reliable, accessible, and accountable. Through the PTSP, the management of service documents, from application to issuance, is conducted in an integrated manner. The process of service delivery is a unified procedure that manages several types of services integrated in one place, both physically and virtually, in accordance with the Service Standards.

The staff of the PD Pontren section, in implementing services, adhere to five work cultures of the Ministry of Religious Affairs of the Republic of Indonesia. Firstly, Integrity (alignment between heart, mind, words, and actions that are good and correct). Secondly, Professionalism (working in a disciplined, competent, and timely manner with the best results). Thirdly, Innovation (improving what exists and creating new and better things). Fourthly, Responsibility (working thoroughly and consistently). Fifthly, Exemplarity (being an excellent example for others).

The PD Pontren section has one head, Sangaji, S.H.I., and oversees three staff members. Below is the list of employees of the Diniyah Education and Islamic Boarding School (PD Pontren) section of the Ministry of Religious Affairs, Sleman District, for the year 2023.

Table 1. List of Employees of the Diniyah Education and Islamic Boarding School (PD Pontren) Section, Ministry of Religious Affairs, Sleman District, 2023.

No	Staff Position	Name
1.	Kasi PD dan Pondok Pesantren	Sangaji, S.H.I.
2.	Penyusunan Rencana Kegiatan dan Anggaran	Atika Nalattamma, S.H.I.
3.	Pengelola Data	Drs. Murwadi
4.	Pengelola Pendidikan	Sudarsana, S.Ag. Husna Qodriati, S.Sos.I.

2. Public Service Delivery Through the Work Program of the Diniyah Education and Islamic Boarding School Section (PD Pontren) at the Ministry of Religious Affairs Office, Sleman District

Public Service Delivery Through the Work Program of the Diniyah Education and Islamic Boarding School Section (PD Pontren) at the Ministry of Religious Affairs Office, Sleman District. The PD Pontren section at the Ministry of Religious Affairs in Sleman District implements a public service information system through various comprehensive work programs to support Salafiyah Islamic Boarding Schools. Firstly, the services include technical aspects and curriculum of Diniyah Education, Diniyah Madrasah, Tahfidz House, and Quran Development Institution (Lembaga Pengembangan Quran - LPQ). Additionally, this section actively engages in institutional collaboration and developing the potential of students in Salafiyah Islamic Boarding Schools. Research efforts are conducted through field surveys related to the proposals for establishing Diniyah Madrasah. Main tasks also encompass monitoring, mentoring, and guidance for Salafiyah Islamic Boarding Schools and Diniyah Madrasah, as well as granting operational permits for Islamic Boarding Schools, Madin, and TPQ. Furthermore, this section plays a role in recommending assistance, managing

applications for equivalence diplomas, providing recommendations for students pursuing studies abroad, and advising on student school transfers. All these work programs aim to enhance the quality and services of Salafiyah Islamic Boarding Schools in Sleman District.

Secondly, in the context of Diniyah Education (Diniyah Madrasah), the Ministry of Religious Affairs in Sleman District manages 122 Diniyah Madrasah institutions, both registered and unregistered. The process of obtaining operational permits for Diniyah Madrasah is submitted through the Diniyah Education and Islamic Boarding School section. The legitimization system for Diniyah Madrasah institutions is similar to that of Islamic Boarding Schools but involves a specific forum, Forum Komunikasi Diniyah Takmiliah (FKDT). Requirements for operational permits for Diniyah Madrasah include a permit application letter, photocopies of the foundation's notarial deed, tax identification number, land/building certificate, a stamped declaration of allegiance to the Republic of Indonesia, and a profile of the Diniyah Madrasah. The service mechanism involves madrasah administrators submitting requirements to the Integrated Service Unit (PTSP), followed by document examination by PD Pontren, verification, and site visits to the madrasah. Subsequently, PD Pontren issued a decision letter (Surat Keputusan - SK) and an operational permit charter (Ijazah et al. - IJOP). This system provides precise and structured guidance to support Diniyah's education in Sleman District.

Thirdly, the PD Pontren section manages a total of 169 Islamic Boarding Schools in Sleman District, alongside the numerous Diniyah Madrasahs. Despite the Ministry of Religious Affairs' socialization regarding operational permits for Islamic Boarding Schools, not all institutions have applied for these permits. Some Islamic Boarding Schools may not apply for operational permits, contributing to this situation. Regardless, all processes related to the permits and legality of these institutions are regulated according to the central government's guidelines, uniformly applied at the district or city level. As part of monitoring efforts, the PD Pontren section collaborates with FORSIP (Forum Silaturahmi Pondok Pesantren) to assist in monitoring and servicing the Islamic Boarding Schools in Sleman District.

The requirements or service indicators for operational permits of Islamic Boarding Schools cover various aspects, such as permit applications, legal documents of the foundation/school, proof of land ownership or endowment, domicile certificate, recommendation letter from the Office of Religious Affairs, and the profile and management structure of the foundation or school. The service mechanism for operational permits involves Islamic Boarding School administrators submitting requirements to PTSP, followed by document examination by PD Pontren, verification, site visits to the school, and applicants awaiting verification results. Thus, this system provides clear guidelines and regulations for granting operational permits to Islamic Boarding Schools in Sleman District.

Fourthly, in addition to focusing on Diniyah Madrasah and Islamic Boarding Schools, the PD Pontren section is also responsible for 1460 Quran Education Institutions (Lembaga et al. - LPQ) in Sleman District. These LPQs include various branches such as Quran Education Parks (Taman et al. - TPQ), PAUD Ku, Taklimul Quran Lil Aulat, Tahfid Houses, and Tahfid Islamic Boarding Schools. Furthermore, 17 recognized LPQs have been issued by the Directorate General of Islamic Education. LPQs are community-based, growing and developing from community participation. The presence of numerous LPQs in the Sleman District aligns with the number of Islamic religious institutions like mosques and prayer halls, which tend to establish TPQs. Although TPQs are not always mosque-based, locations such as homes and multipurpose buildings are also possible. The success of LPQs heavily depends on the facilities and infrastructure supporting Quran learning.

The requirements for operational permit services for LPQs include an application letter from the TPQ/LPQ signed by the head of TPQ, a declaration of allegiance to the Republic of Indonesia, an institutional profile, photocopies of the foundation's deed, organizational structure, and management act. The service mechanism begins with TPQ administrators submitting requirements to PTSP, followed by PTSP officials verifying document

completeness, examining documents, site visits to the TPQ by religious counselors, counselors submitting visitation reports to PD Pontren, issuing Decision Letters (SK) and Operational Permit Charters (Piagam et al. TPQ) by officials, and delivering the SK and Charter to the applicant by PTSP and PYSP officials. Thus, this mechanism provides systematic guidance in granting operational permits to LPQs in the Sleman District.

Fifthly, the PD Pontren section runs two types of work programs: budget-based programs and essential duties and functions (tupoksi). Budget-based programs are scheduled according to the allocated budget. On the other hand, tupoksi programs involve activities such as data collection and monitoring of institutions, which must be carried out even without specific funding support. All designed work programs align with government policy directions. Monitoring services for educational institutions are conducted directly through field visits, observation of the learning process, and coordination in preparation for exams or evaluation of learning outcomes. The monitoring process involves several stages and items to be filled out by the concerned institution. Monitoring counselors not only visit but also bring monitoring documents to be completed by the institution. The results of monitoring and evaluation are then reported to PD Pontren staff responsible for managing both institutional and educational data.

Sixthly, Education Quality. Public service is closely linked to facilitating the educational process, which relates to education quality. The quality of education at PD Pontren is unlike formal education. Each non-formal institution has its curriculum standards and graduation standards. For instance, in the Quran Education Institution (LPQ), there are specific graduation standards adjusted according to the institution's policy in setting graduation standards and the educational curriculum used. In non-formal educational institutions, the existing curriculum plays a significant role, such as better and more effective utilization of Information Technology (IT). Some non-formal institutions, like Islamic Boarding Schools, have far superior management compared to formal educational institutions. Regarding quality, the evaluation of PD Pontren educators can be referred back to the respective institution, as the institutions themselves are best suited to ensure the quality of human resources. For example, TPQ requires teaching staff, but it is not PD Pontren's role to test but for the institution to know the competencies of its educators. The Ministry of Religious Affairs' role is administrative, providing services through socialization activities for existing educators. The improvement involves providing development platforms or socialization to institutions or even teachers to enhance competencies. Activities include administrative socialization, IT utilization socialization, socialization related to religious moderation, or entrepreneurship in Islamic Boarding Schools. These programs serve to provide services to institutions. Additionally, non-formal education institutions based on Islamic Boarding Schools and others are also given socialization on equivalent education, where the Ministry of Religious Affairs in Sleman District collaborates with the Religious Training Center (BDK Balai Diklat Keagamaan) to train teachers, reflecting PD Pontren's efforts to enhance educator competencies.

Seventhly, Education Quality. Public service has a vital role in facilitating the educational process, which is linked to education quality. The education quality at PD Pontren differs from formal education. Each non-formal institution has its curriculum and graduation standards. For example, in the Quran Education Institution (LPQ), there are specific graduation standards adjusted to the institution's policy in setting graduation standards and the educational curriculum. In non-formal educational institutions, the curriculum plays a critical role, such as better utilization of Information Technology (IT). Some non-formal institutions, like Islamic Boarding Schools, have superior management compared to formal educational institutions. In terms of quality, the evaluation of PD Pontren educators can be referred back to the respective institution, as they are best suited to ensure the quality of human resources. For instance, TPQ requires teaching staff, but it is not the role of PD Pontren to test but of the institution to assess the competencies of its educators. The Ministry of Religious Affairs' role is administrative, providing services through socialization activities for existing educators.

The improvement involves providing development platforms or socialization to institutions or even teachers to enhance competencies. Activities include administrative socialization, IT utilization socialization, socialization related to religious moderation, or entrepreneurship in Islamic Boarding Schools. These programs serve to provide services to institutions. Additionally, non-formal education institutions based on Islamic Boarding Schools and others are also given socialization on equivalent education, where the Ministry of Religious Affairs in Sleman District collaborates with the Religious Training Center (BDK Balai Diklat Keagamaan) to train teachers, reflecting PD Pontren's efforts to enhance educator competencies.

Eighthly, Educational Assistance. There is a lot of government aid provided to educational institutions, including Islamic Boarding Schools, Diniyah Madrasah, and Quran Education Institutions. Assistance to Islamic Boarding Schools ranges from social aid for students to incentives for Ustadz. The aid can also be in the form of Operational Assistance Funds or Incentives.

Ninthly, Challenges and Solutions. Challenges faced by the Diniyah Education and Islamic Boarding School section at the Ministry of Religious Affairs in Sleman District in delivering public services relate to several aspects, although they are well managed. These challenges include the existence of institutions that are structurally independent of the Ministry of Religious Affairs and must first establish partnerships. Second, issues related to communication. Third, time-related challenges. For example, many institutions conduct their education outside the working hours of the Ministry of Religious Affairs, such as in the evenings, while office hours for staff are limited. Sometimes, educators consult outside working hours. Fortunately, due to the non-formal nature of their institutions, this situation is understandable. Staff facilitate or ease communication by being available at any time and providing services for visits and relationship building with the institution. Therefore, communication between educational institutions and PD Pontren staff is more accessible with non-formal institutions.

Discussion

The study's objective was to explore the implementation of the public service information system through the PD Pontren work program at the Ministry of Religious Affairs in Sleman District, focusing on service quality and effectiveness (Abu-Shanab, 2021; Murad et al., 2020). The integration of information systems in public service delivery aligns with global trends emphasizing digital transformation in educational and public sectors (Muhafidin, 2020; Plata, 2020) This research aligns with prior studies highlighting the significance of efficient information systems in improving service delivery and educational outcomes (Gulosino & Maxwell, 2022; Logachev et al., 2022).

The results demonstrate that the Integrated Service Unit (PTSP) at the Ministry of Religious Affairs facilitates accessible, reliable, and accountable public services (Aqeeli et al., 2023; Zhang et al., 2022). The study findings reveal the effectiveness of the PD Pontren section in adhering to work cultures that promote integrity, professionalism, innovation, responsibility, and exemplarity. This reflects a growing understanding of the importance of organizational culture in enhancing public service efficiency (Fernandes & Köptcke, 2021; Jeon, 2020).

The study's findings support previous research indicating the importance of integrated and comprehensive work programs in educational settings (Alqahtani et al., 2022; Sabde et al., 2020). The PD Pontren's implementation of various services, such as operational permits and educational collaborations, aligns with models of effective service delivery in educational institutions (Ramadan et al., 2022; Rucinski et al., 2023). However, the emphasis on non-formal education quality presents a contrast to traditional focuses in educational systems (Scott & Marshall, 2019; Wang & Luo, 2021).

The PD Pontren section's success can be attributed to its focus on both technical and curriculum aspects of Diniyah Education and the comprehensive management of Islamic

Boarding Schools and LPQs (Coughenour et al., 2021; John et al., 2020). This approach resonates with the global shift towards integrating technology and community participation in educational processes (Londoño-Cañola et al., 2023; Zhou et al., 2020).

The findings highlight the significance of strategic program implementation and the role of institutional collaborations in enhancing the quality of non-formal education (Re Cecconi et al., 2019; Thompson et al., 2019). The focus on educator competencies and curriculum development in the PD Pontren section is indicative of a broader trend in educational reform, emphasizing the importance of both administrative and pedagogical excellence (Alqahtani et al., 2022; Bello & Abdullah, 2022).

While the results are promising, caution should be exercised in generalizing the findings due to the unique context of the Sleman District and the specific administrative structure of the Ministry of Religious Affairs (McGrath et al., 2020; Mohd Rahim et al., 2022). Further research should investigate the replicability of these results in different contexts and under varying organizational structures (Matias & Timosan, 2021; Newton et al., 2023).

The study's implications extend to policy formulation and administrative practices in educational settings. The integration of information systems, as demonstrated by the PD Pontren section, offers a model for other districts and educational institutions aiming to enhance service quality and efficiency (Audrey et al., 2018; Goumairi et al., 2020). This research contributes to the growing body of literature on the impact of information systems on public service delivery and educational quality, with potential applications across diverse educational and administrative contexts (Doktoralina & Bahari, 2018; Hargono et al., 2019; McLoughlin et al., 2020; Rane et al., 2021).

Conclusion

The research on the implementation of the public service information system through the PD Pontren work program at the Ministry of Religious Affairs in Sleman District focused on assessing the quality and effectiveness of services. Findings reveal a comprehensive approach, with the Integrated Service Unit (PTSP) facilitating accessible, transparent, and accountable services aligned with the Ministry's work cultures of integrity, professionalism, innovation, responsibility, and exemplarity. This approach is a model for enhancing service quality and efficiency in educational administration and policy formulation, contributing to the literature on the impact of information systems in public service. However, the study's focus on a single district limits its broader applicability, suggesting the need for further comparative research across different contexts. This study underscores the importance of integrated service systems in enhancing educational quality, offering a significant contribution to public service and educational administration knowledge, with recommendations for further research to expand understanding and effectiveness in varied educational and administrative settings.

References

- Abu-Shanab, E. A. (2021). Age and education as major determinants of his's adoption. *International Journal of Information Systems and Supply Chain Management*, 14(4), 94–119. Scopus. <https://doi.org/10.4018/IJRQEH.2021100105>
- Alqahtani, M. A., Alamri, M. M., Sayaf, A. M., & Al-Rahmi, W. M. (2022). Investigating Students' Perceptions of Online Learning Use as a Digital Tool for Educational Sustainability During the COVID-19 Pandemic. *Frontiers in Psychology*, 13. Scopus. <https://doi.org/10.3389/fpsyg.2022.886272>
- Anonim. (2010). *Peraturan Menteri Pendayagunaan Aparatur Negara dan Reformasi Birokrasi Republik Indonesia nomor 13 tahun 2017 tentang Pedoman Penyelenggaraan Sistem Informasi Pelayanan Publik Nasional*. 5–6.

- Aqeeli, A., Alsharif, A. T., Tennant, M., & Kruger, E. (2023). School Dental Services Theoretical Model-Based on Geographic Information System in Al-Madinah, Saudi Arabia. *Children*, 10(2). Scopus. <https://doi.org/10.3390/children10020186>
- Audrey, S., Batista Ferrer, H., Ferrie, J., Evans, K., Bell, M., Yates, J., Roderick, M., Macleod, J., & Hickman, M. (2018). Impact and acceptability of self-consent procedures for the school-based human papillomavirus vaccine: A mixed-methods study protocol. *BMJ Open*, 8(3). Scopus. <https://doi.org/10.1136/bmjopen-2017-021321>
- Bello, H., & Abdullah, N. A. (2022). Modelling Students' Satisfaction with Computer-Based Assessment (CBA) Environments in Higher Education: The Roles of CBA Center Service Satisfaction and Perceived Trust. *Electronic Journal of E-Learning*, 20(5), 605–622. Scopus. <https://doi.org/10.34190/ejel.20.5.2595>
- Coughenour, C., Conway Kleven, B., Gakh, M., Stephen, H., Chien, L.-C., Labus, B., & Whaley, R. (2021). School absenteeism is linked to household food insecurity in school catchment areas in Southern Nevada. *Public Health Nutrition*, 24(15), 5074–5080. Scopus. <https://doi.org/10.1017/S136898002100063X>
- Doktoralina, C. M., & Bahari, Z. (2018). Zakat accounting information system in private higher education. *European Research Studies Journal*, 21, 265–275. Scopus.
- Fernandes, L. A., & Köptcke, L. S. (2021). Analysis of the School Health Program eye health action in Brazil from 2014 to 2019: A cross-sectional study. *Epidemiologia e Servicos de Saude*, 30(2). Scopus. <https://doi.org/10.1590/S1679-49742021000200008>
- Goumairi, O., Aoula, E.-S., & Souda, S. B. E. N. (2020). Application of the servqual model for the evaluation of the service quality in Moroccan higher education: Public engineering school as a case study. *International Journal of Higher Education*, 9(5), 223–229. Scopus. <https://doi.org/10.5430/ijhe.v9n5p223>
- Gulosino, C., & Maxwell, P. (2022). A Comprehensive Framework for Evaluating Shelby County School District's Voluntary Preschool Program: The Challenges of Equity, Choice, Efficiency, and Social Cohesion. *Urban Education*, 57(5), 779–813. Scopus. <https://doi.org/10.1177/0042085918801885>
- Hargono, A., Artanti, K. D., & Syahrul, F. (2019). System analysis of public health surveillance in school-age children. *Indian Journal of Public Health Research and Development*, 10(4), 391–396. Scopus. <https://doi.org/10.5958/0976-5506.2019.00724.1>
- Jeon, S. Y. (2020). The effect of information system utilization and education and training on organizational innovation in public social welfare officers: Focused on the moderating effect of organizational trust. *Asian Social Work and Policy Review*, 14(1), 45–52. Scopus. <https://doi.org/10.1111/aswp.12191>
- John, J., Baek, J., Roh, T., Cabrera-Conner, L., & Carrillo, G. (2020). Regional Disparity in Asthma Prevalence and Distribution of Asthma Education Programs in Texas. *Journal of Environmental and Public Health*, 2020. Scopus. <https://doi.org/10.1155/2020/9498124>
- Logachev, M. S., Laamarti, Y. A., Rudneva, S. E., Ekimov, A. I., Zemlyakov, D. N., & Barkov, A. (2022). Information System for Monitoring and Management of the Quality of Educational Programs: Development of Functioning Algorithms. *International Journal of Instruction*, 15(3), 429–450. Scopus. <https://doi.org/10.29333/iji.2022.15324a>
- Londoño-Cañola, C., Serral, G., Díez, J., Martínez-García, A., Franco, M., Artazcoz, L., & Ariza, C. (2023). Retail Food Environment around Schools in Barcelona by Neighborhood Socioeconomic Status: Implications for Local Food Policy. *International Journal of Environmental Research and Public Health*, 20(1). Scopus. <https://doi.org/10.3390/ijerph20010649>

- Matias, J., & Timosan, J. Q. (2021). Examining teachers' use of Learning Information Systems (LIS) of the basic education schools in the Philippines using structural equation modeling. *International Journal of Enterprise Information Systems*, 17(1), 69–84. Scopus. <https://doi.org/10.4018/IJEIS.2021010104>
- McGrath, K., Bonuck, K., & Mann, M. (2020). Exploratory spatial analysis of autism rates in New York school districts: Role of sociodemographic and language differences. *Journal of Neurodevelopmental Disorders*, 12(1). Scopus. <https://doi.org/10.1186/s11689-020-09338-x>
- McLoughlin, G. M., McCarthy, J. A., McGuirt, J. T., Singleton, C. R., Dunn, C. G., & Gadhoke, P. (2020). Addressing Food Insecurity through a Health Equity Lens: A Case Study of Large Urban School Districts during the COVID-19 Pandemic. *Journal of Urban Health*, 97(6), 759–775. Scopus. <https://doi.org/10.1007/s11524-020-00476-0>
- Mohd Rahim, N. I., A. Iahad, N., Yusof, A. F., & A. Al-Sharafi, M. (2022). AI-Based Chatbots Adoption Model for Higher-Education Institutions: A Hybrid PLS-SEM-Neural Network Modelling Approach. *Sustainability (Switzerland)*, 14(19). Scopus. <https://doi.org/10.3390/su141912726>
- Muhafidin, D. (2020). Improving quality of higher education using academic information system as a public administration service: The case of Indonesia. *Journal of Social Studies Education Research*, 11(1), 127–136. Scopus.
- Murad, A. A., Dalhat, A. I., & Naji, A. A. (2020). Using geographical information system for mapping public schools distribution in Jeddah City. *International Journal of Advanced Computer Science and Applications*, 11(5), 82–90. Scopus. <https://doi.org/10.14569/IJACSA.2020.0110513>
- Newton, A. S., Xie, J., Wright, B., Lategan, C., Winston, K., & Freedman, S. B. (2023). Visits to Alberta Emergency Departments for Child Mental Health Concerns During the COVID-19 Pandemic: An Examination of Visit Trends in Relation to School Closures and Reopenings. *Pediatric Emergency Care*, 39(7), 542–547. Scopus. <https://doi.org/10.1097/PEC.0000000000002979>
- Plata, I. T. (2020). Development and implementation of web-based pupils' form 137-e information system to primary elementary schools. *International Journal of Scientific and Technology Research*, 9(3), 5176–5182. Scopus.
- Ramadan, M. S., Khairy, N., Alogayell, H. M., Alkadi, I. I., Ismail, I. Y., & Ramadan, R. H. (2022). Spatial Equity Priority Modeling of Elementary and Middle Schools through GIS Techniques, El-Taif City, Saudi Arabia. *Sustainability (Switzerland)*, 14(19). Scopus. <https://doi.org/10.3390/su141912057>
- Rane, M. S., Page, L. C., McVeigh, E., Miller, K., Baure, D., Elizabeth Halloran, M., & Duchin, J. S. (2021). Improving adolescent human papillomavirus (HPV) immunization uptake in school-based health centers through awareness campaigns. *Vaccine*, 39(12), 1765–1772. Scopus. <https://doi.org/10.1016/j.vaccine.2021.02.006>
- Re Cecconi, F., Moretti, N., & Tagliabue, L. C. (2019). Application of artificial neural network and geographic information system to evaluate retrofit potential in public school buildings. *Renewable and Sustainable Energy Reviews*, 110, 266–277. Scopus. <https://doi.org/10.1016/j.rser.2019.04.073>
- Rijali, A. (2019). Analisis Data Kualitatif. *Alhadharah: Jurnal Ilmu Dakwah*, 17(33), 81. <https://doi.org/10.18592/alhadharah.v17i33.2374>
- Rucinski, K., Stucky, R., Crecelius, C. R., Stannard, J. P., & Cook, J. L. (2023). Effects of Patient Assessment and Education by an Integrated Care Team on Postoperative Adherence

- and Failure Rates After Osteochondral Allograft and Meniscal Allograft Transplantation in the Knee. *Orthopaedic Journal of Sports Medicine*, 11(5). Scopus. <https://doi.org/10.1177/23259671231160780>
- Sabde, Y., Diwan, V., Mahadik, V. K., Parashar, V., Negandhi, H., Trushna, T., & Zodpey, S. (2020). Medical schools in India: Pattern of establishment and impact on public health—A Geographic Information System (GIS) based exploratory study. *BMC Public Health*, 20(1). Scopus. <https://doi.org/10.1186/s12889-020-08797-0>
- Scott, M. R., & Marshall, D. T. (2019). Public Transit and School Choice in Philadelphia: Exploring Spatial Equity and Social Exclusion. *Journal of School Choice*, 13(2), 177–197. Scopus. <https://doi.org/10.1080/15582159.2018.1547579>
- Thompson, J., Sutton, K., & Kuo, T. (2019). The added value of establishing a lexicon to help inform, compare, and better understand the implementation of policy, systems, and environmental change strategies in Supplemental Nutrition Assistance Program Education. *Preventive Medicine Reports*, 14. Scopus. <https://doi.org/10.1016/j.pmedr.2019.100873>
- Wang, X., & Luo, K. (2021). Research on the application of educational ecology in scientific research management. *Fresenius Environmental Bulletin*, 30(3), 2522–2526. Scopus.
- Zhang, Z., Martin, K. L., Stevenson, K. T., & Yao, Y. (2022). Equally green? Understanding the distribution of urban green infrastructure across student demographics in four public school districts in North Carolina, USA. *Urban Forestry and Urban Greening*, 67. Scopus. <https://doi.org/10.1016/j.ufug.2021.127434>
- Zhou, S., Cheng, Y., Cheng, L., Wang, D., Li, Q., Liu, Z., & Wang, H.-J. (2020). Association between convenience stores near schools and obesity among school-aged children in Beijing, China. *BMC Public Health*, 20(1). Scopus. <https://doi.org/10.1186/s12889-020-8257-0>