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Data Privacy Knowledge, Digital Footprint Awareness and Data Safeguarding Practices of Student's Data Among Academic Librarians

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Abstract: This study examined the data privacy knowledge, digital footprint awareness, and data safeguarding practices of academic librarians in managing students' data. Specifically, it assessed librarians' level of knowledge in terms of privacy laws and institutional policies, data handling and management, and digital tools and technical measures; their level of awareness of digital footprints in terms of conceptual understanding and associated risks; and their data safeguarding practices in terms of access control, student privacy protection, and ethical and legal compliance. The study also investigated the relationships among these variables and determined the predictive influence of data privacy knowledge and digital footprint awareness on data safeguarding practices. Moreover, quantitative research design using a descriptive -correlational method was employed. Data were collected through a structured survey questionnaire administered to academic librarians.

Findings revealed that academic librarian demonstrated a very high level of data privacy knowledge and digital footprint awareness, as well as consistently strong data safeguarding practices. Significant positive relationships were found among privacy knowledge, digital footprint awareness and data safeguarding practices. Furthermore, both data privacy knowledge and digital footprint awareness were identified as significant predictors of data safeguarding practices, with digital footprint awareness showing stronger influence. Both knowledge and awareness play critical roles in ensuring effective data protection in academic libraries. It emphasizes the importance of continuous professional development, institutional support and policy enhancement to sustain and further improve librarians' competencies in safeguarding student data.

Keywords: *Data Privacy Knowledge, Digital Footprint Awareness, Data Safeguarding Practices, Academic Libraries.*

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I. INTRODUCTION

Academic librarian in the 21st century manage vast amount of digital data generated through online catalogs, learning management systems, authentication services and electronic resources. Student data once limited to borrowing records, now include digital footprints such as login metadata, search histories and online behavioral patterns. (Singh & Brar, 2023). As libraries increasingly rely on integrated system and third-party digital platform, academic librarians serve as frontline custodian of sensitive student information, raising the stake for privacy breaches, unauthorized access and long-term tracking of user behavior. (Nguyen et al., 2023)

In the Philippine context, the protection of personal and sensitive information mandated by the data Privacy Act of 2012 (Republic Act No. 10173), which safeguard individual privacy while allowing the free flow of information. The law requires academic institution including libraries to implement appropriate organizational, physical, and technical security measures in processing students' data. As personnel directly involved in managing student information, academic librarians are expected to possess sufficient knowledge of this law and related institutional policies to ensure compliance and prevent data breaches.

Data privacy knowledge among academic librarians is essential in ensuring the lawful ethical and responsible management of students' data in academic libraries (Solve,

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2021). This knowledge encompasses understanding privacy law and institutional policies, proper data handling and patron information management, respect for student rights, and the use of digital tools and technical measures to protect personal information. The literature shows librarians recognize the ethical importance of data privacy; however, their knowledge remains uneven across legal, institutional and technical dimensions. Empirical evidence from global and local studies, including South Asia, Canada and the Philippines, reveals gaps in understanding how personal data are collected, processed and exposed despite strong concern for patron privacy (Sweeney, 2021; Ayebisi, 2021; Tan, 2020; Ayoungman & Compton 2023).

Digital footprint awareness refers to academic librarians' understanding of how students' online activities generate persistent data traces such as histories, login metadata and online behavioral patterns (McCreadie, 2020). As libraries increasingly rely on digital platforms and third-party system awareness of digital footprint concept and associated risk become critical. This digital footprint may be aggregated, monitored or repurposed without students' explicit consent, posing potential risk to privacy and security. However, studies indicate that librarians' confidence in managing digital footprint risks or educating users about their implications remains limited (Jones, 2020)

Data safeguarding practices refer to the measures employed by academic librarians to protect students' data including access control, data handling and storage, student data handling and storage, student privacy protection and compliance with ethical and legal standard such as Data Privacy Act of 2012. Effective safeguarding requires a combination of administrative, technical and institutional strategies, including secure storage, access controls, encryption and adherence to privacy policies (Dixon & James, 2020; Olson & Pitman, 2021). However, studies indicate that policy awareness alone is insufficient as training gaps, limited technical skills and inconsistent enforcement weakens librarians' capacity to protect student data, particularly in the Philippine context where institutional support remains uneven (Teanate-Lazo & Carbonero, 2021; Sigh & Brar, 2024).

Despite the growing recognition of the library as core responsibility in academic libraries, research focusing on academic librarians remains limited. Studies in the Philippines and other developing regions have largely examined student or general stakeholder perspectives, leaving librarians competencies underexplored. Moreover, no comprehensive study has simultaneously examined data privacy knowledge, digital footprint awareness, and data safeguarding practices among librarians managing student data. This gap is critical, as inadequate knowledge or practices may lead to noncompliance with national privacy laws and expose students to privacy breaches, unauthorized profiling and misuse of personal data (Nguyen et al., 2023; Lischer, 2021).

Hence this study aimed to examine the data privacy knowledge, digital footprint awareness and data safeguarding practices of academic librarians in Philippine academic libraires. By integrating these dimensions, the study provides a holistic assessment of librarians 'competencies and identifies gaps in their ability to manage student data securely and responsibly. The finding would inform the development of more effective institutional policies, training programs and data

II. METHODOLOGY

This study utilized a descriptive-correlational research design to describe and examine the relationships among data privacy knowledge, digital footprint awareness, and data safeguarding practices of academic librarians in the Philippines. The design enabled the assessment of existing conditions and the identification of associations among variables without manipulation.

The population consisted of 648 academic librarians who are members of the Philippine Association of Academic Librarians, Inc. (PAARL). Using purposive sampling, 242respondents were selected at a 95% confidence level and 5 % margins of error. Data were collected during the academic year of 2025-2026.

A self-developed questionnaire using a four Likert scale was employed. The instruments covered three domains: data privacy knowledge, digital footprint awareness, and data safeguarding practices. Content validity was established through expert review, while reliability testing yielded Cronbach's alpha value of 0.885 for data privacy knowledge, 0.837 for digital footprint awareness, and 0.918 for data safeguarding practices, indicating good to excellent internal consistency.

For data analysis, weighted mean and standard deviation were used to describe variable levels, Pearson's r to determined relationship among variables, and multiple regression analysis were used to assess the predictive effect of data privacy knowledge and digital footprint awareness on data safeguarding practices of student's data among Philippine academic librarians.

III. RESULTS AND DISCUSSION

Table 1 Level of Knowledge on Data Privacy of Academic Librarians

Scale	Domains	*Weighted Mean*	*Standard Deviation*	Interpretation	Rank
Knowledge on Data Privacy	Privacy law and institutional policies	3.56	.548	Very High	1
	Data handling	3.46	.578	Very High	2
	Digital tools and technical measures	3.37	.577	Very High	3
OVERALL		3.46	.515		

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The finding revealed that academic librarians have a very high level of data privacy knowledge (WM = 3.46, SD = 0.515), This suggests that librarians possess a strong and well-rounded understanding of data privacy across the three key domains: privacy law and institutional policies, data handling, and digital tools and technical measures. Among these domains, privacy law and institutional policies ranked highest (WM = 3.56, SD = 0.548), indicating Philippine academic librarians are most knowledgeable about Data privacy act of 2012 including its purpose how it applies to academic library services, and consequences of non-compliance with data privacy regulation in libraries. This is followed by data handling (WM = 3.46, SD = 0.578) reflecting a high level of competence in managing student data including its collection, handling storage, and disposal.

Meanwhile, digital tools and technical measures ranked lowest (WM = 3.37, SD-0.577), although still very high suggest relatively less confidence in more technical aspect such as encryption, tracking technologies, and vendor data practices. The low standard deviation values across domains indicate consistency in responses, implying that this high level of knowledge is generally shared among respondents.

These findings align with Adams (2025), and Bernardo et al. (2024), who emphasize librarians' strong knowledge in legal and ethical aspect of data privacy. The lower ranking in technical measures supports Pedley (2022) which highlights gaps in advanced technical expertise and implementation.

Overall, while librarian demonstrate strong knowledge in data privacy, particularly in legal framework and data handling, the result highlights the need for continuous professional development in technical competencies to address evolving digital challenge.

Table 2 Academic Librarians Level of Awareness on Digital Footprints

Scale	Domains		*Weighted Mean*	*Standard Deviation*	Interpretation	Rank
Awareness on Digital Footprints	Concept knowledge and understanding		3.34	.626	Very High	2
	Digital footprint risk		3.51	.617	Very High	1
OVERALL			**3.43**	**.588**	**Very High**	

The findings in table 2 show that academic librarians have a very high level of awareness of digital footprints (WM = 3.43, SD = 0.588). Among the domains awareness of digital footprint risks ranked highest (WM = 3.51, SD = 0.617), indicating strong recognition of threats related to privacy, reputation, and unauthorized profiling. Concept knowledge and understanding also received a very high rating (WM = 3.34, SD = 0.626) reflecting a solid grasp of how digital footprints are created, tracked and persist overtime.

These results suggest that academic librarians possess a well-rounded understanding of both the theoretical and practical aspects of digital footprints, demonstrating their ability to recognize and assess potential privacy implications for students. The low standard deviation values across both domains indicate that this high level of awareness is consistently shared among respondents.

The findings align with Abdulakeen Sodeeq et al. (2022) and Arya and Bhat (2025), who emphasize librarians' role in promoting digital privacy awareness and guiding users in safe online practices. However, studies such as Pozdeeva et al. (2021) point to gaps in applying this awareness to more complex technical areas including third party tracker and risk mitigation

Overall, the result of the study indicates that academic librarians possess a very high level of awareness of digital footprints particularly in recognizing associated risk, while also demonstrating solid conceptual understanding. These findings suggest that librarians are well-prepared to guide students in managing their digital presence, through continuous professional development and practical training are essential to strengthen the application of this awareness in safeguarding privacy in digital and library environment.

Table 3 Data Safeguarding Practices

Scale	Domains	*Weighted Mean*	*Standard Deviation*	Interpretation	Rank
Data Safeguarding Practices	Data Access and Control	3.48	.583	Always	2
	Student privacy protection	3.40	.600	Always	3
	Ethical and legal compliance	3.58	.608	Always	1
OVERALL		**3.49**	**.569**	**Always**	

Table 3 presents the overall data safeguarding practices of academic librarians across three domains; data access and control; student privacy protection; and ethical and legal compliance. The overall weighted mean of 3.49 (SD = 0.569), indicating that academic librarians consistently implement data safeguarding practice in their professional responsibilities. Among the domains, ethical and legal compliance ranked first (WM = 3.58, SD =0.6080,

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suggesting that academic librarian Place the highest emphasis on Adhering to ethical standard and legal framework in managing student data. This finding highlights the strong influence of professional ethics and regulatory requirements in guiding librarians' behavior. It supports the study of Phillips and Phillips (2023), Which emphasized that ethical responsibility and legal awareness are foundational to library data protection practices, Similarly, Sancon (2023) noted that academic libraries have increasingly institutionalized compliance mechanism to ensure alignment with data governance and privacy regulations.

Data access and control rank second (WM = 3.48, SD = 0.583), indicating that libraries consistently implement technical and procedural safeguards to secure data throughout its lifecycle. This reflects effective management data access, storage and processing, which are critical components of information security. This result aligns with Kumar and Singh (2023), who highlighted that robust data management practices, including controlled access and secure storage systems, are essentials in preventing unauthorized use and data breaches in academic institutions.

On the other hand, student's privacy protection ranked third (WM = 3.40, SD = 0.600), suggest that while librarians consistently practice privacy protection measures, this domain is relatively less emphasized compared to ethical/legal compliance and technical safeguard. This is consistent with Liu and Khalil (2023) who found that although privacy is recognized as important, its practical implementations particularly in terms of user education and engagement may not be a strongly prioritized. Furthermore, Jones and Hinchliffe (2025) reported that challenges such as limited training, and evolving privacy expectations can affect the extent to which privacy -focused initiatives are fully integrated into library services

Overall, the findings indicate that academic librarians demonstrate a high level of commitment to data safeguarding practices across all domains, with a stronger emphasis on ethical and legal compliance, followed by data access and control, and then student privacy protection. This suggest that while institutional and regulatory compliance, frameworks are well established, there remains an opportunity to further enhance student-centered privacy initiatives to achieve a more balanced and comprehensive approach to data protection

Table 4 Relationship Between the Level of Knowledge on Data Privacy of Academic Libraries and Level of Awareness on Digital Footprints

Independent	Dependent	Pearson's r^a	*p*-value	Interpretation
Knowledge on data privacy	Awareness on digital footprints	.815 (very strong)	< .001	Significant

[a] Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) significant at <.05.

Table 4 shows a very strong positive correlation between academic librarians' knowledge of data privacy and their awareness of digital footprints (r = 0.815, p < 0.001). The result suggest that higher levels of data privacy knowledge are associated with greater awareness of digital footprints, enabling librarians to better understand, monitor and manage students' digital traces.

These finding support Jones and Salo (2022), and Tiwari (2024), who emphasize that strong privacy literacy enhances awareness and responsible data practices. Similarly, Huang et al. (2020) highlight that knowledge of data privacy is closely linked to proactive digital behavior and protection of personal information. However, Prince et al. (2024) note that knowledge does not always translate into awareness or behavior without adequate training and institutional support, suggesting the influence of external factors.

Overall, the result confirms a significant and very strong relationship between data privacy knowledge and digital footprint awareness, underscoring the importance of continuous education and training to promote responsible digital practice

Table 5 Relationship Between the Level of Data Privacy Knowledge of Academic Librarians and Data Safeguarding Practices

Independent	Dependent	Pearson's r^a	*p*-value	Interpretation
Knowledge on data privacy	Data safeguarding Practices	.801 (very strong)	< .001	Significant

[a] Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) significant at <.05.

Table 5 shows a very strong positive correlation between academic librarians' knowledge of data privacy and their data safeguarding practices (r =0.801, p < 0.001) indicating statistically significant relationship. The finding suggests that higher level of data privacy knowledge is associated with more effective implementation of data protection measures, including secure data handling, access control, and adherence to ethical and legal standards.

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These result support Schubert and Barrett (2024) and Miano 92025), who emphasize that strong knowledge of data governance and privacy principles enhances the application of effective data practices. However, Tritt and Hurd (2021) note that knowledge alone may not guarantee consistent practices, as factor such as institutional support, resources and continuous training also influence implementation.

Overall, the finding confirms a significant and very strong relationship between data privacy knowledge and data safeguarding practices, highlighting the importance continuous education and institutional support in strengthening data protection in academic libraries.

Table 6 Relationship Between the Level of Digital Footprints Awareness and Data Safeguarding Practices

Independent	Dependent	Pearson's r^a	*p*-value	Interpretation
Awareness on digital footprints	Data safeguarding practices	.860 (very strong)	< .001	Significant

[c]orrelation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong). (Evans, 1996) significant at <.05.

Table 5 shows a very strong positive correlation between academic librarians' awareness of digital footprint and their data safeguarding practices (r = 0.860, p < 0.001). This indicates a statistically significant relationship, leading to the rejection of the null hypothesis. The finding suggest that awareness is associated with more effective implementation of data protection measures, including secure data handling, access control, encryption and adherence to ethical and legal standards

These result support Miano (2025). Aghaunor et al (2023), and Power et al. (202l), who emphasize that awareness of digital risk enhances the adoption of proactive and responsible data protection practices. However, Ahmadon et al. (2025) note that awareness alone may not ensure consistent practices, as factors such as institutional support, training and resources also influence implementation.

Overall, the findings confirm significant and very strong relationship between digital footprint awareness and data safeguarding practices, highlighting the importance of strengthening awareness programs and continuous professional development to improve data protection in academic libraries.

Table 7 Model Summary of the Combined Predictive Power of the Level of Knowledge on Data Privacy of Academic Librarians and Level of Awareness on Digital Footprints on the Data Safeguarding Practices of Academic Librarians

Model	R^2	Adj. R^2	*F*	df	*p*-value	Interpretation
1	.769	.767	398.359	2, 239	<.001	Significant

Predictors: (Constant) Knowledge on data privacy, awareness on digital footprints; Dependent Variable: Data safeguarding practices

The findings shows that the combined power of data privacy knowledge and digital footprint awareness on data safeguarding practices is strong and significant ($R^2 = 0.769$, adjusted $R^2 = 0.767$). This indicates that 76.9% of the variance in data safeguarding practices is explained by these two variables. The model is statistically significant ($F=2, 239) = 398.359$, $p < 0.001$), confirming that bot knowledge and awareness are key determinant of effective data safeguarding practices.

These findings align with Kuzio et al (2022) and Khando et al (2021), who emphasize that both knowledge of integrating both in professional development initiatives to strengthen data protection in academic libraries

(cognitive factors) and awareness (perceptual factors) play a crucial role in shaping secure data management behaviors. However, Mocydlarz-Adamlarz et al. (2023) note that other factors, such as institutional policies, infrastructure and professional development, also influence safeguarding practices, suggesting that the model does not capture all contributing variables.

Overall, the result highlight that knowledge and awareness are strong predictors of data safeguarding practices, underscoring the importance

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Table 8 Predictive Power of the Level of Knowledge on Data Privacy of Academic Libraries and Level of Awareness on Digital Footprints on the Data Safeguarding Practices of Academic Libraries

Predictors	B	SE	Beta (β)	*p*-value	Decision	Interpretation
Knowledge on data privacy	.329	.059	.298	<.001	Reject H_0	Significant
Awareness on digital footprints	.597	.052	.617	<.001	Reject H_0	Significant

Dependent Variable: Data safeguarding practices

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Table 8 present the regression analysis on the predictive effects of data privacy knowledge and digital footprint awareness on data safeguarding practices in academic libraries. The result show that both predictors are statistically significant ($p < 0.001$) on data safeguarding. Data privacy knowledge ($B = 0.329$, $\beta = 0.298$, $p < .001$) has a moderate positive effect on data safeguarding practices, indicating that librarians with stronger understanding of privacy laws, ethics, and technical safeguards are more likely to implement proper data protection measures. However, its lower beta value suggests it is not the strongest predictor. In contrast, digital footprint awareness ($B = 0.597$, $\beta = 0.617$, $p < .001$) shows a strong positive effect and emerges as the stronger predictor. This indicates that librarians who are more aware of how digital data is generated, tracked and exposed are more likely to practice proactive data protection.

These findings align with Adams (2025) emphasized that both knowledge and awareness improve data governance practices, with a digital footprint awareness playing a particular strong role However, Ye et al (2024) note that awareness alone may not ensure effective implementation without institutional support, technical skills and resources.

Overall, the result indicated that both data privacy knowledge and digital footprint awareness significantly influence data safeguarding practices, with digital footprint awareness being the stronger predictor. This highlights the need for both theoretical and practical training to strengthen librarians' data protection capabilities

IV. CONCLUSIONS

This study concludes that academic librarians possess strong well rounded data privacy knowledge, particularly in legal and policy aspect, though further enhancement is needed in technical competencies, The academic librarians also demonstrate a solid understanding of digital footprints both in theory and in practice, and shows strong commitment in data safeguarding, although student privacy protection could be more emphasized. This study confirms that both knowledge on data privacy and awareness on digital footprints significantly contributes to effective data safeguarding practices, with digital footprint awareness having a slightly stronger influence. This highlights the importance of strengthening both areas to sustain data protection efforts in academic libraries

It is therefore recommended that Academic institution together with Library administrator should implement continuous professional development programs, institutionalize training on digital footprint risks, strengthen student privacy protection initiatives and enforce policies requiring ongoing competency development. Librarian in turn must actively participate in these initiatives and continue strengthen their data safeguarding practices. Policy makers, including CHED and the National Privacy Commission are encourage to develop and enforce library specific data privacy standards and support capacity - building initiatives. Finally, dissemination of the study and further research on related organizational and technological factors are recommended to deepen understanding of data safeguarding practices in academic libraries.

REFERENCES

[1]. Abdulakeem Sodeeq, Eiriemiokhale, K. A., Olarongbe, S. A., & Tsafe, A. G. (2022). Leveraging digital footprints for enhancing librarians' online profiles. *KWASU Journal of Information, Communication and Technology, 3*(1).

[2]. Adams, A. L. (2025). Privacy literacy resources. *Public & Access Services Quarterly, 21*(2), 133–140. https://doi.org/10.1080/15228959.2025.2477481

[3]. Adams, K. (2025). Surveillance and privacy: How can the framework support privacy literacy? *College & Research Libraries News, 86*(1), 7. https://doi.org/10.5860/crln.86.1.7

[4]. Aghaunor, C. T., Eshua, P., Obah, T., & Aromokeye, O. (2023). Data security strategies to avoid data breaches in modern information systems. *World Journal of Advanced Research and Reviews, 20*(3), 2122–2144. https://doi.org/10.30574/wjarr.2023.20.3.2515

[5]. Ahmadon, M. A., Napp, N., Rao, S., Silva, C., Lizar, M., Gorog, C., Lu, G., Hawkins, S., & Zanero, S. (2025). Digital privacy: Trends, challenges, and the future. *IT Professional, 27*(3), 69–77. https://doi.org/10.1109/mitp.2025.3546433

[6]. Arya, S., & Bhat, M. H. (2025). The role of digital literacy in the future of libraries. *Zenodo*. https://doi.org/10.5281/zenodo.14964560

[7]. Ayoungman, M., & Compton, L. (2023). Academic librarians in Canada are concerned about online and Patron privacy but lack knowledge about institutional procedures and policies. Evidence Based Library and Information Practice, 18(2), 45–60.

[8]. Bernardo, B. M. V., Mamede, H. S., Barroso, J. M. P., & Santos, V. M. P. D. D. (2024). Data governance & quality management—Innovation and breakthroughs across different fields. *Journal of Innovation & Knowledge, 9*(4), 100598. https://doi.org/10.1016/j.jik.2024.100598

[9]. Dixon, J., & James, S. (2020). Data privacy challenges in digital libraries: Handling patron information in the age of big data. *Library Journal, 145*(12), 18–23.

[10]. Huang, R. H., Liu, D. J., Zhu, L. X., Chen, H. Y., Yang, J. F., Tlili, A., Fang, H. G., & Wang, S. F. (2020). *Personal data and privacy protection in online learning: Guidance for students, teachers and parents*. Beijing: Smart Learning Institute of Beijing Normal University.

[11]. Jones, K. (2020). Digital footprint literacy as an emerging competency for academic librarians. *Journal of Academic Librarianship, 46*(5), 102–117.

[12]. Jones, K., & Hinchliffe, L. (2025). Preparing academic librarians to prioritize privacy in learning analytics projects: An evaluation of a professional development course. *College & Research Libraries, 86*(6), 933. https://doi.org/10.5860/crl.86.6.933

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26apr2344

[13]. Jones, K. M. L., & Salo, D. (2022). Learning analytics and the academic library: Professional ethics commitments at a crossroads. College & Research Libraries

[14]. Khando, K., Gao, S., Islam, S. M., & Salman, A. (2021). Enhancing employees information security awareness in private and public organisations: A systematic literature review. *Computers & Security, 106*, 102267. https://doi.org/10.1016/j.cose.2021.102267

[15]. Kumar, R., & Singh, R. (2021). Cybersecurity and data protection in digital environments: Practices and challenges. *International Journal of Information Management, 58*, 102324.

[16]. Kuzio, J., Ahmadi, M., Kim, K., Migaud, M. R., Wang, Y., & Bullock, J. (2022). Building better global data governance. *Data & Policy, 4*. https://doi.org/10.1017/dap.2022.17

[17]. Lischer, S. (2021). Data governance and privacy protection in academic libraries. Library Management, 42 (3), 190-204

[18]. Liu, Q., & Khalil, M. (2023). Understanding privacy and data protection issues in learning analytics using a systematic review. *British Journal of Educational Technology, 54*(6), 1715–1747. https://doi.org/10.1111/bjet.13388

[19]. McCreadie, M. (2020). Managing privacy and digital footprints in library services: Emerging trends and practices. *Information Technology and Libraries, 39*(2), 21–35.

[20]. Miano, L. C. (2025). Awareness on data privacy vis-à-vis data management practices at a state university in Quezon province: Input towards data-driven policy and manual for good governance. *Edelweiss Applied Science and Technology, 9*(1), 302–315. https://doi.org/10.55214/25768484.v9i1.4130

[21]. Mocydlarz-Adamcewicz, M., Bajsztok, B., Filip, S., Petera, J., Mestan, M., & Malicki, J. (2023). Management of onsite and remote communication in oncology hospitals: Data protection in an era of rapid technological advances. *Journal of Personalized Medicine, 13*(5), 761. https://doi.org/10.3390/jpm13050761

[22]. Nguyen, T., Pham, L., & Tran, H. (2023). Digital footprint awareness in academic librarianship: Implications for metadata and privacy management. *Library Hi Tech, 41*(1), 76–92. https://doi.org/10.1108/LHT-09-2022-0170

[23]. Nguyen, T., Yeates, G., Ly, T., & Albalawi, U. (2023). A study on exploring the level of awareness of privacy concerns and risks. *Applied Sciences, 13*(24), 13237. https://doi.org/10.3390/app132413237

[24]. Olson, R., & Pittman, L. (2021). Collaborative approaches to data privacy in academic libraries. Library Management, 42(1), 16-3

[25]. Pedley, P. (2022, September 21). Protecting the privacy of library users. *Journal of Intellectual Freedom & Privacy*. https://journals.ala.org/index.php/jifp/article/view/6881/10959

[26]. Phillips, K., & Phillips, K. C. (2023). Awareness and perception of ethical issues in libraries as predictors of service delivery by library personnel from selected polytechnics in South-West, Nigeria. *SJSU ScholarWorks*. https://digitalcommons.unl.edu/libphilprac/8117

[27]. Pozdeeva, E., et al. (2021). Assessment of online environment and digital footprint functions in higher education analytics. *Education Sciences, 11*(6), 256. https://doi.org/10.3390/educsci11060256

[28]. Power, D. J., Heavin, C., & O'Connor, Y. (2021). Balancing privacy rights and surveillance analytics: A decision process guide. *Journal of Business Analytics, 4*(2), 155–170. https://doi.org/10.1080/2573234x.2021.1920856

[29]. Prince, C., Omrani, N., & Schiavone, F. (2024). Online privacy literacy and users' information privacy empowerment: The case of GDPR in Europe. *Information Technology and People, 37*(8), 1–24. https://doi.org/10.1108/itp-05-2023-0467

[30]. Republic Act No. 10173: Data Privacy Act of 2012. Official Gazette.

[31]. Sancon, R. J. S. (2023). Data privacy best practices of a local higher educational institution: A model for governance. *International Multidisciplinary Research Journal*. https://doi.org/10.54476/ioer-imrj/688585

[32]. Schubert, K. D., & Barrett, D. (2024). Data governance, privacy, and ethics. In *Technology, work and globalization* (pp. 87–110). https://doi.org/10.1007/978-3-031-51063-2_5

[33]. Singh, S., & Brar, K. S. (2023). Academic libraries and their patrons' digital data privacy: A systematic literature review. *College Libraries, 38*(IV), 39–50.

[34]. Solove, D. J. (2021). *Understanding privacy* (2nd ed.). Harvard University Press.

[35]. Sweeney, L. (2021). Data privacy and the role of libraries in the digital age. *Journal of Digital Information and Privacy, 4*(2), 12–19.

[36]. Tanate-Lazo, F., & Cabonero, C. (2021). Philippine data privacy law: Is it implemented in a private University library or not? Library Philosophy and Practice, 5020, 1–17

[37]. Tiwari, R. (2024). Digital privacy and data protection in the age of surveillance. *International Journal of Law Justice and Jurisprudence, 4*(2), 195–200. https://doi.org/10.22271/2790-0673.2024.v4.i2c.139

[38]. Ye, X., Yan, Y., Li, J., & Jiang, B. (2024). Privacy and personal data risk governance for generative artificial intelligence: A Chinese perspective. *Telecommunications Policy, 48*(10), 102851. https://doi.org/10.1016/j.telpol.2024.102851