

The Growing Importance of Data Governance in an Interdisciplinary Research Methods Course with National and International Students

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ABSTRACT

This study investigates the extent of global data governance content in academic “Research Methods” textbooks, which are crucial for interdisciplinary courses involving national and international students. A content analysis was conducted using the O’Reilly Media, Inc. website, known for its comprehensive IT resources. Over the duration of one month, research methods textbooks published in the last two years were analyzed for terms related to international or global research and data governance. The initial search yielded 3,848 results, filtered to 544 books relevant to the “data” sub-topic. Among these, only 47 were valid research methods textbooks. Of these, just three included data governance content. A further search on “International Research Methods” yielded 3,600 textbooks, narrowed to 683 with the same filters, and only 28 were valid. Again, only three books mentioned data governance or legislation. None provided detailed country-specific legislation. This research highlights the significant gap in global data governance coverage in research methods textbooks, indicating a need for more comprehensive resources to support interdisciplinary and international research training.

Keywords: data governance, global data legislation, research methods, interdisciplinary approach

1. INTRODUCTION

In the current context of declining enrollment numbers in higher education, numerous academic institutions are opting to consolidate or merge sections of courses that have similar content. Brint and Clotfelter (2016) explain that creating interdisciplinary courses for research and teaching are beginning to be introduced to increase undergraduate retention and graduation rates along with aiding with declining enrollment numbers. This strategy is primarily aimed at

cutting costs. For example, a Master of Business Administration (MBA) research method course is combined with a Master of Management Information Technology (MSIT) or even a Master of Science in Healthcare. While this interdisciplinary approach to teaching is cost-saving, difficulties may occur when addressing some trending topics, such as data governance.

As the dynamic global business, economic, healthcare, and technology environments continue to evolve rapidly, the use of electronic

data and data sharing is commonplace (Frieden, 2021; Romo, 2022), and the increased usage of cloud computing in data storage and sharing has heightened the importance of global data governance amongst researchers (Ngesimani et al., 2022). However, many data governance standards and documents are currently in the implementation phase; the standards are industry-specific or are not global.

A recent study by Marcucci et al. (2023) identified 100 data governance documents across 37 organizations, 8 national or local governments, and four regional entities. The researchers examined 58 of the identified documents in detail and found that only 63% of documents were at the beginning of their development and served more as starting points rather than compliance standards. Additionally, they found that only 39% of the documents examined included global data governance or international data and/or human rights protection standards. Additionally, the World Development Report 2021 by the World Bank (2021) agrees that there is a heightened need for global data governance standards as there is a lack of safeguards, security, and standards for most of the world (Marcucci et al., 2023; Mungai et al. 2022). The report supports the argument for global data governance across sectors and types of organizations.

There is a need for a more holistic understanding of the difference in data governance and data governance frameworks amongst various sectors such as the global, public, and private business, technology, and healthcare when conducting research. Oftentimes, within a research method course, data governance is addressed when a student researcher completes the ethical research practices provided by the Collaborative Institutional Training Initiative (CITI) program. The CITI program provides training in various aspects of research, such as ethics, compliance, and regulations. The content varies depending on the specific module in which the researcher enrolled. Some but not all modules cover topics related to data governance, privacy, and security, which may include international standards and legislation (Collaborative Institutional Training Initiative, 2020).

For example, CITI's "Information Privacy and Security" courses often discuss key regulations like the General Data Protection Regulation (GDPR) in the European Union and the Health Insurance Portability and Accountability Act (HIPAA) in the United States. These modules are aimed to educate researchers on how to handle

personal data responsibly and in compliance with relevant laws. However, the depth and scope of coverage on global data governance standards and legislation is limited. There is also the adoption of specialized modules that are supported by the institution to ensure that researchers are specialized in their research. The modules serve a dual purpose to provide educational guidance on ethical practices and procedures as well as equip researchers with the critical faculties to scrutinize their study scope and assess the applicability of pertinent regulations. This approach facilitates a thorough preparation for human subject ethical review processes. However, it is noteworthy that some institutions do not mandate ethical reviews for archival data. In such instances, the responsibility of explaining data usage falls upon the researcher. This responsibility necessitates a thorough explication of the data utilization methodology, ensuring adherence to ethical standards and regulatory compliance, despite the absence of a formal institutional review process.

Due to the massive amount of data available (Benfeldt Nielsen, 2017) along with the commonplace of global business and healthcare data sharing (Frieden, 2021; Romo, 2022), educational institutions should emphasize the importance of global data governance in an interdisciplinary research method course encompassing international students. However, the problem is that awareness data governance has typically been covered in the CITI exam, which, depending on the module that is selected, may or may not address global data governance. Regardless, the focus on data governance typically focuses on the United States legislation regarding data governance. As a result, many international students return to their home country and may not be aware of their country's data governance legislation within their discipline.

Furthermore, while many papers and documents have been published, many lack knowledge regarding global governance and the differences between multiple global sectors. Hence, educators then rely on academic textbooks to cover this content. The goal of this research is to better understand the degree of information centered around global data governance, which can be used for interdisciplinary graduate research methods courses with national and international students. Specifically, the contents of graduate academic "Research Methods" textbooks were examined via a content analysis for global data governance content. This work has practical implications for graduate programs,

faculty, and future publishers and authors. The remainder of this paper is structured as follows: review of literature, purpose, methodology, results, recommendations, and conclusion.

2. REVIEW OF LITERATURE

Within the biomedical field, data governance is characterized by stringent regulations and ethical considerations due to the sensitive nature of patient information. Thus, data governance in the biomedical field extends beyond privacy and security to encompass ethical considerations and regulatory compliance in data usage and sharing (Choi et al., 2019; Luna et al., 2019). As a result, the importance of informed consent and maintaining patient confidentiality when accessing and utilizing health data for research purposes is essential (Choi et al., 2019) due to data governance standards such as the Health Insurance Portability and Accountability Act (HIPAA) in the United States and/or General Data Protection Regulation (GDPR) in the European Union. These ethical data standards aid in ensuring patient data is used responsibly via anonymization or de-identified when collected, stored, processed, and shared (Zhang et al., 2020).

Moreover, data sharing involving collaborative efforts among healthcare institutions, research organizations, and regulatory bodies is commonplace within the biomedical field (Luna et al., 2019). As a result, it is also important to note that while sharing anonymized data can accelerate medical research and improve patient outcomes, stringent protocols, and agreements are in place to safeguard against data breaches and unauthorized access. Therefore, data governance in the biomedical field emphasizes data quality and accuracy to support clinical decision-making and research outcomes. This involves protocols for data validation, integrity checks, and ensuring that data used in research studies are reliable and reproducible (Weng et al., 2017).

Conversely, in the IT business field, data governance focuses on maximizing the value of data assets to drive organizational performance and innovation. As a result, data governance frameworks place emphasis on ensuring data transparency, accessibility, and usability across different business units (Albrecht et al., 2020; Kong et al., 2021). The emphasis is on leveraging data as a strategic asset to enhance decision-making processes, improve operational efficiency, and gain a competitive advantage in

the marketplace (Kong et al., 2021; Lee et al., 2019). Therefore, data governance in the IT business field often revolves around establishing clear policies and procedures for data management, including data stewardship roles, data lifecycle management, and compliance with industry regulations such as GDPR or California Consumer Privacy Act (CCPA). For instance, while GDPR and CCPA regulations provide legal frameworks for data compliance, organizations often struggle to balance the demands of these regulations with their need to innovate and maintain competitiveness in the marketplace (Kong et al., 2021). The trade-offs between maximizing data utility and ensuring data security highlight the need for a more holistic approach to data governance that encompasses both technical and ethical considerations.

Furthermore, many organizations may share aggregated or anonymized data with third-party vendors, business partners, or customers to enhance product development, customer insights, and marketing strategies (Marchese et al., 2020; Roberts et al., 2018). Thus, data governance in the IT business field emphasizes data integration, interoperability, and the use of advanced analytics to derive insights that drive business innovation and growth. As a result, data governance measures, including data masking and encryption, are implemented to protect sensitive information and mitigate risks associated with data breaches (Roberts et al., 2018).

Global Data Governances for Usage and Sharing

Global data governance refers to the systematic and transparent management of data worldwide, aiming to ensure responsible data use, protection, and coordination across various stakeholders, organizations, and governments (Kuzio et al., 2022). The concept has evolved from private organizational governance to include governmental and institutional bodies.

There are different applicable data governance that apply to sectors that might be overlooked in the cross-discipline sectors. The application of data governance for a technology organization may differ from that of a bio-medical organization. Additionally, there are also differences within policies in data governance for biomedical organizations and private organizations, which differ significantly due to their distinct objectives, regulatory environments, and data types.

Bernier et al. (2022) asserted, "Rapid legal change, unsettled ambiguities in the law, or conflicting obligations arising in different jurisdictions can exhaust the limited legal compliance resources of biomedical consortia or deter the secondary use of research data for fear of legal non-compliance." (p.2) To evaluate the difference in applicability or the paradigm of the differences and similarities in overarching regulations as assessed by the literature begins with the establishment of data privacy laws and the application of country and local regulations.

Although the legislative privacy laws have been enhanced and have been vastly added to consider the changing data landscape. The first approach to sector-specific data privacy laws includes laws such as the Health Insurance Portability and Accountability Act (HIPAA), which governs covered entities in the health sector, and the Federal Trade Commission (FTC) Privacy of Consumer Financial Information Rule (Bernier et al., 2022). Following the US, the Council of Europe, OECD, and the GDPR were enacted in other European countries to ensure the regulation and data governance to protect personal and proprietary data. The GDPR follows the Data Governance Act (DGA), the act established in 2022; however, it was enacted and applicable in 2023. This legislation is part of the European Union's efforts to create a more integrated data economy and enhance trust in data sharing across the EU.

Establishes rules for reusing protected data held by public sector bodies, including personal and commercially confidential information. The consent of use for the data must be established, confidential information or proprietary information can be disclosed for reuse only with such consent or permission, and exclusive data reuse agreements are needed with accommodating reasonable fees (European Commission, 2024). The US also has similar data sharing and use agreements. The European Data Innovation Board (EDIB) has also been established for regulation and compliance.

It is important to note that there are many different data privacy legislations around the world, and these may vary by country. However, as Kuzio et al. (2022) noted, there is a lack of a comprehensive global structure for safeguarding consumer data, which leads to a situation that is both incomplete and fragmented. The insufficiency of data protection mechanisms for cross-border data transfers is evident, with many regulations currently in development of a common framework is lacking due to the need for

global consensus and fragmented policies, inability to resolve overlapping jurisdictional claims, and normative differences among actors by articulating distinct visions of data governance. Furthermore, the emergence of machine learning (ML) technology has emphasized the necessity for global language data governance, proposing a multi-party international governance structure focused on language data management as well as the data lifecycle, encompassing data handled by information resellers. Additionally, there is a notable shortage of safeguards for cross-border and international data transfers, potentially resulting in the adoption of the least stringent protection standards as the norm. Lastly, emerging data collection domains possess a worldwide reach but lack adequate regulatory measures at either the domestic or international level (Marcucci et al. (2023).

In addition to these challenges, the global nature of data governance brings forward complex considerations surrounding ethical data use and equitable access. Different regions prioritize various aspects of data protection based on cultural, economic, and political factors, resulting in an uneven global data governance landscape. This disparity raises concerns about the potential for "data colonialism," where more powerful nations or corporations exploit data from less regulated regions for their gain, without adequately addressing local privacy or ethical concerns (Couldry & Mejias, 2019). Therefore, the importance of making students aware of international data governance becomes increasingly important as their future employers may be borderless, international corporations.

3. GOAL & RESEARCH QUESTION

The goal of this research is to better understand the degree of information centered around global data governance, which can be used for interdisciplinary research methods courses with national and international students. Specifically, the contents of academic "Research Methods" textbooks were examined via a content analysis for global data governance content. The following research question was explored in this paper"

1. To what extent do graduate-level research methods textbooks incorporate content on global or international data governance, as measured by the percentage of inclusion texts?

4. METHOD

The O'Reilly Media, Inc. website (<https://www.oreilly.com>) was used to evaluate academic text focusing on research methods. Since data governance is currently a trending IT topic, the O'Reilly website was selected due to its status as a renowned knowledge-sharing platform for IT professionals and academic professors. This free resource offers a comprehensive range of online training materials, encompassing books, videos, interactive events, and structured learning paths. (O'Reilly Media Inc., 2024; Powell et al., 2021). Additionally, the O'Reilly Media, Inc. website was utilized as a valid tool for content analysis research focused on IT textbooks containing grid computing and volunteer computing content (Powell, et al., 2021).

Over a one-month period, from June 8, 2024, to July 8, 2024, a content analysis was conducted on research methods texts found on the O'Reilly website. A content analysis represents a rigorous methodological approach for systematically evaluating textual, visual, and multimedia content. It has been used in many research studies for over 50 years (Elo, & Kynqas, 2008).

In this study, we utilized the O'Reilly website to perform a content analysis of research methods textbooks. The website's search functionality allowed us to refine our data collection by applying specific filters to ensure the accuracy and relevance of our results. We utilized the search page (https://www.oreilly.com/search/?q=*&rows=100) and restricted our query. Specifically, under the "publication date" category, we selected publications "within the last two years". This was selected as we wanted to find current research method texts with relevant data privacy content. Under the "format" category, we selected "books". We selected "books" since we were not interested in videos, or any other content. Under the "topic" category, we selected "data". Once these filters were selected, we type in "research methods" into the search box and pressed enter.

As the results appeared, an initial content analysis on the title of the text was conducted to ensure that valid research methods texts appeared. We considered texts to be invalid if they did not have "Research Methods" in their title. For instance, works like "Ensemble Methods for Machine Learning," despite appearing in the search results, were deemed irrelevant and excluded based on this criterion.

Once a list of valid research methods texts was identified, we reviewed the table of contents for each text. Specifically, we examined the table of contents for any of the following three terms: international research, global research, and data governance. Texts which contained these terms were further examined for the extent of the specific content upon which they contained. We examined the content for country specific legislation or at the very least the GDPR Data Protection Act. Based upon our findings, we reported the raw data. No statistical analysis was conducted on the data.

5. RESULTS

The initial search initially yielded 3,848 search results for "research methods" books. The search was further narrowed down to 544 books via the following filters: Research methods published within the last two years and the sub-topic "data" Upon further examination among the results, 544 books that were found, only 47 were identified as a valid research method textbook.

Among the evaluation of the 47 identified books, only three of the texts contained data governance language or legislation information. Figure 1 provides a visual representation of the visual percentage of textbooks with some data governance coverage.

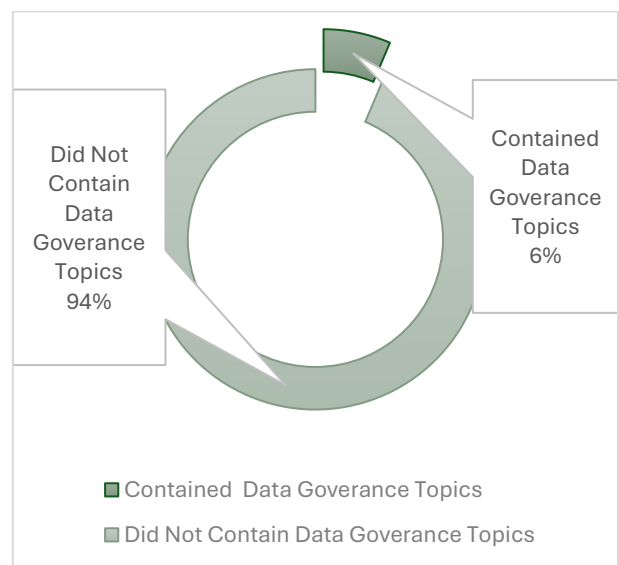


Figure 1. Percentage of texts with data governance topics

An additional search was conducted under the search topic of "International Research Methods" published within the last two years. This initial search yielded (3,600) textbooks. The same "data" filter was applied which narrowed down the

result to 683 textbooks. Among those texts, only 28 were identified as valid textbooks.

Results from the content analysis of the table of contents for the 28 textbooks revealed that only 3 contained data governance language or legislation information. Figure 2 provides a visual representation of the visual percentage of textbooks with some data governance coverage

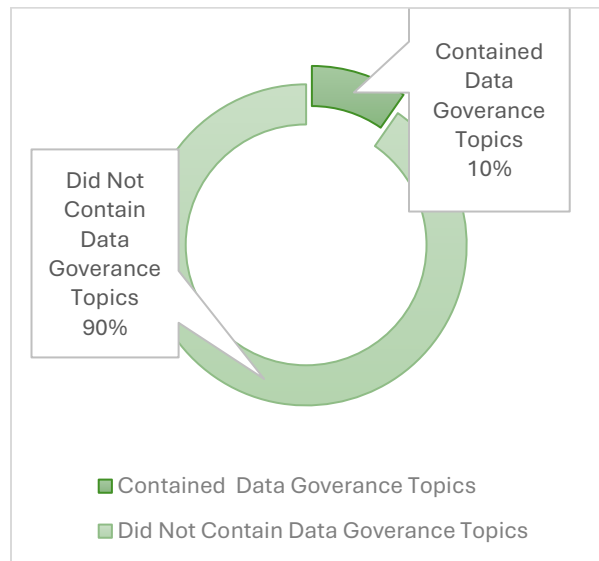


Figure 2. Percentage of texts that contain data governance or legislation.

It is important to note that upon examination of the specific text chapter among each of the three identified textbooks, none of the texts provided a list of country-specific legislations regarding data governance.

6. DISCUSSION AND RECCOMENDATION

Based upon the results showing that research methods textbooks do not cover global or international data governance information, we argue that this may be because this is a fairly new topic. Many laws and legislations are in progress or have not been implemented. Furthermore, many research methods textbooks address the topic by stating the importance of the CITI program, which does not thoroughly address data governance from global data governance perspectives, regulations, and standards. Thus, students are inadequately prepared or undereducated regarding global data usage, privacy, and sharing practices across different countries. This lack of preparation can hinder the student's ability to collect data or conduct

research in international contexts due to an insufficient understanding of diverse data governance laws. Consequently, this gap in knowledge can lead to significant legal and financial repercussions for their employers or businesses, including substantial fines and compliance issues. The absence of comprehensive global data governance training undermines students' capability to navigate complex international regulations, thus impacting their effectiveness in global research initiatives and business operations. Therefore, it is imperative to integrate international data governance education into academic curricula to better equip students for the challenges of global data management and ensure compliance with international standards.

Moreover, since there are limited resources for educators on global data governance, we recommend supplementing the texts with information explaining established data privacy legislation enacted by countries. We adapted Marcucci et al.'s (2023) work, which identified 100 different legislation documents and provided a simplified list of a representative sample of significant data privacy legislation from various countries, providing educators and student researchers a starting point for understanding the global landscape of data governance. Each of these laws reflects similarities as well as different approaches to data protection, influenced by cultural, political, and economic factors specific to their respective jurisdictions. Focusing on data privacy laws, educators can provide student researchers with a comprehensive overview of global data privacy trends, regulatory frameworks, and the varying approaches to data protection across different countries. Understanding, as well as applicable global knowledge, is crucial for developing a complicated understanding of the intricacies involved in global data governance and the challenges faced by organizations operating in multiple jurisdictions.

Table 1 provides a list of currently established data privacy legislation enacted by countries. Although this list is not comprehensive, table 1 does provide a foundation/starting point for understanding international/global researching policy requirements, regulations, and guidance to enhance the existing on no existing data governance content within textbooks. As a result, we feel there is a need to recommend supplemental scholarly educational resources regarding country specific data governance legislation.

Country	Privacy Legislation	Website
Australia	Privacy Regulation 2013	https://www.legislation.gov.au/F2013L02126/latest/versions
Bangladesh	Data Protection Act (DPA) of 2023 (proposed)	https://bangladesh.gov.bd/
Brazil	Lei Geral de Proteção de Dados (LGPD) Law No. 13,709/2018	https://www.gov.br/esporte/pt-br/aceso-a-informacao/lgpd
Canada	Digital Charter Implementation Act (proposed)	https://ised-isde.canada.ca/site/innovation-better-canada/en/canadas-digital-charter-trust-digital-world
China	Personal Information Protection Law (PIPL)	http://www.npc.gov.cn/npc/index.html . (not translated to English)
Columbia	Statutory Law 1266 of 2008 Statutory Law 1581 of 2012.	https://www.sic.gov.co/en/deputy-superintendence-for-the-protection-of-personal-data
Denmark	Danish Data Protection Act	https://denmark.dk/privacy-notice
Egypt	Personal Data Protection Law	https://mcit.gov.eg/en/TeleCommunications/Regulations/Laws_and_Legislations
European Union England	GDPR Data Protection Act 2018	https://gdpr.eu/ https://www.gov.uk/data-protection
France	GDPR	https://www.diplomatie.gouv.fr/en/navigation/about/article/privacy-policy
Germany	Nationale de l'Informatique et des Libertés (CNIL)	https://www.diplomatie.gouv.fr/en/navigation/about/article/privacy-policy
	GDPR	https://www.bfdi.bund.de/EN/Home/home_node.html
Hong Kong	Federal Commissioner for Data Protection and Freedom of Information (BfDI)	https://www.bfdi.bund.de/EN/Home/home_node.html
	Personal Data (Privacy) Ordinance (PDPO)	https://www.pcpd.org.hk/english/data_privacy_law/ordinance_at_a_Glance/ordinance.html
India	Personal Data Protection Bill, 2023	https://prsindia.org/files/bills_acts/bills_parliament/2023/Digital_Personal_Data_Protection_Act,_2023.pdf
Israel	Protection of Privacy Law	https://www.wipo.int/wipolex/en/text/347462
Ireland	Data Protection Act 2018	https://www.dataprotection.ie/en/who-we-are/data-protection-legislation
Japan	Act on Protection of Personal Information	https://www.japaneselawtranslation.go.jp/en/laws/view/4241/en
Malaysia	Personal Data Protection Act 2010 (PDPA)	https://www.malaysia.gov.my/portal/content/654

Mexico	Federal Law on the Protection of Personal Data Held by Private Parties	https://s3.amazonaws.com/creel.mx/public/creelprod/2021/07/Data-Protection-in-Mexico-Overview.pdf
New Zealand	Privacy Act 2020	https://www.justice.govt.nz/justice-sector-policy/key-initiatives/key-initiatives-archive/privacy/
Philippines	Data Privacy Act of 2012 (Republic Act No. 10173)	https://privacy.gov.ph/data-privacy-act/
Qatar	Qatar Law No. 13 of 2016 concerning Personal Data Privacy	https://www.qfc.qa/-/media/project/qfc/qfcwebsite/documentfiles/resource-center/data-protection/regulations-and-rules/qfc-data-protection-regulations-and-rules-2021-guidance.pdf
Russia	Federal Law on Personal Data (No. 152-FZ)	https://pd.rkn.gov.ru/docs/Federal_Law_On_personal_data.doc
South Africa	Protection of Personal Information Act	https://popia.co.za/
Singapore, Thailand, Taiwan	Personal Data Protection Act (PDPA)	https://www.trade.gov/market-intelligence/thailand-personal-data-protection-act
Switzerland	Federal Act on Data Protection (FADP)	https://www.kmu.admin.ch/kmu/en/home/facts-and-trends/digitization/data-protection/new-federal-act-on-data-protection-nfadp.html
Turkey	Law on Protection of Personal Data	https://www.dlapiperdataprotection.com/index.html?t=law&c=TR
United Arab Emirates	The Dubai Data Law	https://www.digitaldubai.ae/docs/default-source/default-document-library/dde-module-1---overview-of-the-dubai-data-manual_v5.pdf?sfvrsn=aaae240_0
United States of America	No comprehensive federal law, but notable state laws include	
	California Consumer Privacy Act (CCPA)	https://oag.ca.gov/privacy/ccpa
	Virginia Consumer Data Protection Act (CDPA)	https://law.lis.virginia.gov/vacodefull/title59.1/chapter53/
Vietnam	Law on Cybersecurity and Law on Protection of Personal Information	https://baovedlcn.gov.vn/

Table 1. Privacy legislation by Country

7. CONCLUSION

As higher education Institutions continue to face declining enrollments, they will continue to look for creative ways to cut costs. As a result, academic institutions may merge various graduate subject areas, such as business administration, healthcare, and information

technology. One logical area to place an interdisciplinary graduate course is within the research methods subject area. However, this presents a challenge in preparing students, particularly international students, for the complexities of teaching global data governance. While the Collaborative Institutional Training Initiative (CITI) offers foundational guidance, its

focus remains primarily on U.S. regulations, leaving students underprepared to handle international data governance issues.

This research study explored data governance in interdisciplinary graduate research methods courses. It revealed a critical gap in global data governance knowledge, which is particularly relevant given the rapidly evolving global business, healthcare, and technology landscapes. As demonstrated through this research, the academic content of research methods textbooks, as currently available, inadequately covers global data governance topics. This learning gap can leave students, especially international ones, unprepared to navigate data privacy laws and governance standards in their home countries or in a global context. Our findings align with Marcucci et al. (2023) and Kuzio et al. (2022) research which also emphasize the fragmented and inconsistent nature of data governance frameworks, as well as the challenges posed by emerging technologies and international data exchanges.

Furthermore, this study underscores the need for more comprehensive and globalized approaches to data governance education, particularly for students in disciplines that increasingly require interdisciplinary research and international collaboration. By integrating global data governance content into research methods courses, academic institutions can better prepare students for the complexities of data governance in a globalized world. Furthermore, educators are encouraged to supplement existing materials with up-to-date legislative documents from various countries, thereby providing a broader, more informed perspective on the topic. Addressing these gaps is essential for equipping future researchers with the necessary tools to navigate data privacy, security, and governance challenges in an increasingly interconnected world. This paper provides a foundation of country-specific legislation and emerging trends in data governance. By doing so, educational faculty, programs, institutions can better prepare students, future researchers and professionals for the complexities of data governance in an increasingly interconnected world.

This research is not without limitations as it is limited to 100+ publishers found on the O'Reilly site. There may be texts which were not updated or included on the site. Second, the recommendations to integrate global data governance information stem from the current enrollment crisis push toward interdisciplinary

courses like research methods. Third, this research focuses on the fact that there may be international students within the course or students wishing to conduct research overseas. Finally, this research only focuses on using global data governance. Thus, this research does not imply that understanding global data governance is the key to understanding international research methods. Future research should address the limitations described and reevaluate the text content as there is a need for global data governance materials in the future.

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