Balancing Act: Ethical Exploration of AI Tools to Support Student Learning in a Library and Information Science Program

Julie LaDell-Thomas, University of Rhode Island, United States

The IAFOR International Conference on Education in Hawaii 2025
Official Conference Proceedings

Abstract
As artificial intelligence (AI) technologies like ChatGPT become more prevalent, library professionals face the challenge of promoting ethical use of AI as an emerging dimension of information literacy. Students in Library and Information Science (LIS) programs recognize that AI tools will shape their future roles, making it essential for LIS programs to integrate learning experiences that develop students' ability to use and critically evaluate these tools and the content they produce. This descriptive case study examines the pedagogical challenges of introducing AI-based technologies in an online Information Science and Technology course. It explores the instructor's efforts to balance students' engagement with AI tools while addressing ethical concerns like privacy, accuracy, bias, and intellectual property – all issues explored throughout the course and the university's LIS curriculum. The paper describes multiple iterations of AI-based learning experiences and adjustments made based on student behaviors and feedback. This paper will be of interest to instructors integrating AI tools to support student learning, particularly in fields emphasizing ethical information use.

Keywords: Artificial Intelligence, Generative AI, Library and Information Science, LIS Education

iafor
The International Academic Forum
www.iafor.org

Introduction

As the use of artificial intelligence (AI) continues to evolve, library and information professionals play an increasingly important role in ensuring that information seekers will have the knowledge and skills necessary to critically evaluate AI-generated content and to ensure that concerns over the ethical use of AI are mitigated whenever possible. Library and information science (LIS) is a field concerned with the organization, management, access and dissemination of information in a variety of formats (Bassey & Umoh, 2021), and preparation for careers in libraries and information organizations emphasizes principles related to intellectual property, credibility, privacy, and equity of access.

While the relationship between AI technologies and libraries is still evolving, Bassey and Owushi (2023) point out that AI application in libraries already spans critical areas such as information retrieval, cataloging, classification, user services, data analysis, and knowledge management. Kalbande and colleagues (2024) suggest that AI also plays an important role in digital preservation and providing access to historic materials. As awareness of generative AI tools such as ChatGPT, Gemini, and Copilot continues to build, libraries will be expected to support information-seekers in using and evaluating content produced by these tools to meet the needs of their communities. Competencies related to digital literacy and ethical use of information are an integral part of LIS education, but as the use of AI becomes more ubiquitous, educational programs will need to ensure that graduates are well-prepared for an evolving information landscape that includes AI tools.

Integrating AI tools into existing LIS curricula presents several challenges. Like many students, LIS faculty may be unfamiliar with the ever-changing array of AI tools and have limited experience with evaluating AI-generated information and thinking critically about the ethical issues associated with its use. At this point, many higher education institutions have not adopted definitive guidelines on AI use, allowing individual instructors to develop their own approaches and policies (Spivakovsky et al., 2023). Faculty may be faced with educating students about AI tools and related ethical concerns as they are also working to build their own understanding.

Another challenge related to integrating AI tools into LIS curricula involves navigating students' varying perceptions related to AI. Students completing coursework focused on information credibility, equity, and access may be especially concerned as accepted measures of these qualities are disrupted by changing information retrieval and dissemination practices. Peer review publication models that have been a reliable measure of credibility and scholarship don't apply when instant generation of content using large language models can lack even basic attribution of sources, and yet that information may have value. Kizhakkethil and Perryman (2024) found that although LIS students recognize AI's potential to enhance learning, they still have significant concerns about reliability, lack of transparency, and overreliance on the technology. As libraries continue to discover the many ways that AI systems can be used to streamline services – whether "back end" functions like materials acquisition and cataloging or forward-facing services like reference and instruction – students planning careers in librarianship have valid concerns about the rapid growth of AI and potential automation of functions traditionally performed by librarians. In engaging students with AI-related topics, LIS faculty may therefore struggle to facilitate meaningful exploration of AI tools and the issues surrounding their use in ways that won't reinforce students' negative perceptions, but will, instead, promote an openness to learning and to developing critical analysis skills needed to be effective AI users and guides.

Recognizing that integrating AI into the LIS curriculum presents unique challenges, the author identified a course that should reasonably include AI-related topics. Once identified, the instructor sought to build understanding of students' existing perceptions and attitudes while also taking incremental steps towards revising the course to better prepare LIS students for future careers that will be significantly impacted by the use of AI. While research addressing the use of AI in education has increased in recent years, and there is a growing body of literature discussing the application of AI tools in the context of libraries and information organizations, there are a limited number of studies that relate to AI tools, policies, and practices in LIS education. In reporting on the results of this effort, the author hopes to support the work of LIS faculty in finding effective ways to help students adapt to the advancement of AI technologies while also reinforcing foundational principles of library and information science.

Like all classes in the University of Rhode Island's Graduate School of Library and Information Studies (GSLIS) program, LSC 508 (Introduction to Information Science & Technology) explores key principles of information science. But this course also provides students with an opportunity to explore and discuss various technology tools that are relevant to library and information organizations. Throughout the seven weeks of the course, students typically raise ethical issues about the use of artificial intelligence as it relates to information – particularly during the final weeks that address the future of libraries and information professions. This course therefore seemed to be an appropriate choice for introducing students to AI tools while also recognizing concerns about information-related ethical issues that may color students' willingness to build knowledge and experience in this area.

Although the university has established an AI Task Force to examine AI integration as it relates to teaching and learning as well as other key domains, AI adoption varies, with individual instructors determining their own class policies and pedagogical approaches to integrating AI tools. The university offers a centralized resource aimed at fostering faculty exploration and pedagogical innovation related to AI, but GSLIS has not developed specific departmental guidelines for integrating AI into LIS courses.

Within GSLIS, LSC 508 is a required course that introduces fundamental theories of information science and information technology while also building practical skills in using technologies relevant to library and information organizations. The course covers a wide range of skills – from formatting text in Microsoft Word to building a web page using Google Sites, with a bit of html coding and graphic design between. Like all GSLIS courses, LSC 508 is taught in an accelerated online format, with each seven-week section typically enrolling 15–20 students. This study reflects insights gained from students' perceptions about AI while also outlining changes made to the course to introduce AI topics and tools. Data was collected from nine sections of the course taught over fifteen months, beginning in Summer 2023. The study proposes to answer a few basic questions: RQ1: How do students enrolled in LSC 508 perceive and discuss the use of AI in the context of library and information science? RQ2: What recurring themes or concerns emerge from students' discussion and use of AI tools? RQ3: How can faculty integrate AI tools and topics to foster critical thinking and ethical use in LIS Education?

Methodology

For this study, the author analyzed student responses to specific discussion prompts and specific assignments from all sections of LSC 508 taught over five semesters. A timeline of

AI integrations is shown in Table 1. The period to be studied began in Summer 2023 and continued through Fall 2024. This period included nine sections of LSC 508, with a total enrollment of 156 students. Identifiable information was removed from students' reflective responses, and all reporting was conducted in aggregate.

Table 1: Timeline of AI Integrations

Term	Module	Type	Status	AI Tool
SU 2023 – SU 2024	Week 7	Discussion Board prompt	Optional	ChatGPT
FA 2024	Week 5	Lab assignment exercise	Required	ChatGPT
FA 2024	Week 6	Lab assignment exercise	Required	Prezi AI

Students in LSC 508 have increasingly brought up AI and the issues surrounding its use in discussion forums, especially during Week 6, which focuses on the future of technology and the information profession. Based on apparent interest in this topic, in Summer 2023 the instructor introduced an optional ChatGPT exercise as part of an existing discussion board prompt for Week 7. In the original prompt, students were asked to re-read an article by Vannevar Bush (1945) about the future of technology in an information society, then reflect on whether the article's predictions have been manifested in today's society. In the revised version, students were also asked to use ChatGPT to generate an answer to the same question, then compare the AI-generated response to their own. The exercise was made optional because some prior students had expressed ethical concerns about using AI. Offering choice was intended to provide an active learning opportunity for those who were open to experimenting with generative AI, while also allowing those who had concerns to simply learn from reflections shared by peers.

To explore students' existing perceptions of AI (RQ1), all responses that mentioned AI were collected and analyzed for the Week 6 discussion questions. A grounded qualitative approach was used to analyze student responses which were classified as positive, negative, or mixed/neutral. To explore students' perceptions after using an AI-based tool, responses to the enhanced Week 7 prompt were also collected and analyzed. Participation in the optional exercise was tracked along with data reflecting the nature of students' reflections (positive, negative, or mixed/neutral). The author chose to collect data from responses by students who did not choose to complete the optional ChatGPT exercise so any perceptions about AI that may have influenced their choice to abstain would also be represented.

In Fall 2024, the optional ChatGPT exercise in the discussion board was replaced with two required AI-based lab activities in Week 5 and Week 6. The Week 5 lab assignment was essentially the same as the previous discussion board exercise (but no longer optional), with the addition of a lesson on constructing effective prompts for ChatGPT. The Week 6 lab assignment was a modification of an existing assignment that required students to create an online presentation using Prezi. The revised exercise asked students to also use the "Create with AI" function built into the Prezi application to generate a second presentation on the same topic. In their reflection, students were asked to compare the AI-generated presentation with their own work.

To determine the common themes or concerns that stemmed from students' use of AI tools (RQ2), student reflections after completing the lab assignments in Week 5 and Week 6 were

collected and analyzed. Voyant Tools (Voyant Consortium, 2024), a web-based text analysis platform, was used to develop an open list of keywords capturing student concerns about AI in the context of library and information science. All mentions of AI, artificial intelligence, ChatGPT, or chatbots were coded and categorized.

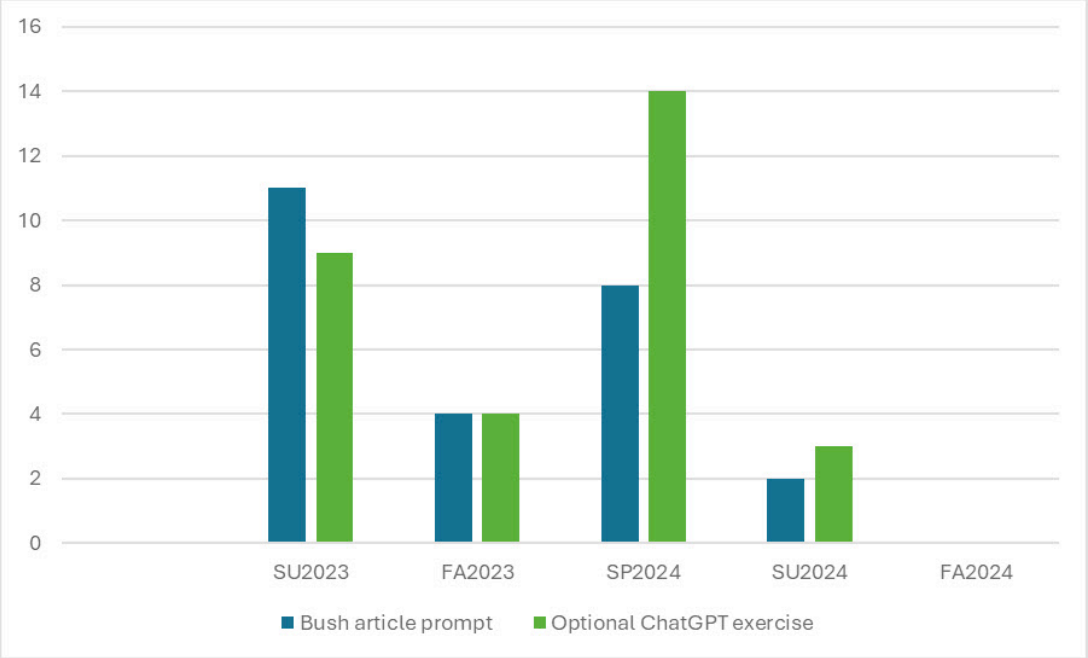
Results

These findings show how students enrolled in LSC 508 perceive the use of AI tools in the context of library and information science. They also document common concerns expressed by students using AI tools to complete course assignments. Student response to AI integrations within the LSC 508 demonstrates how an iterative approach to integrating AI into existing coursework can begin to prepare future information professionals to approach AI in effective and ethical ways.

The discussion board for Week 6 included students' spontaneous mentions of AI in response to prompts that were not focused on AI. Three discussion board questions related to the future -- of technology, of the information professions, and of LIS curricula. While AI is not mentioned in any of the prompts, student responses over the period studied included 85 mentions of AI. Of these mentions, six reflected positive perceptions of AI, 13 reflected negative perceptions of AI, and 66 reflected mixed or neutral perceptions of AI.

Between Summer 2023 and Summer 2024 (when the optional ChatGPT exercise was replaced with required lab assignments), 55 students responded to the Week 7 discussion board prompt. Of the 55 students who responded, 30 chose to complete the optional ChatGPT exercise and 25 did not. In all responses, AI was perceived positively through nine mentions, negatively through eight mentions, and in a mixed/neutral manner through 20 mentions.

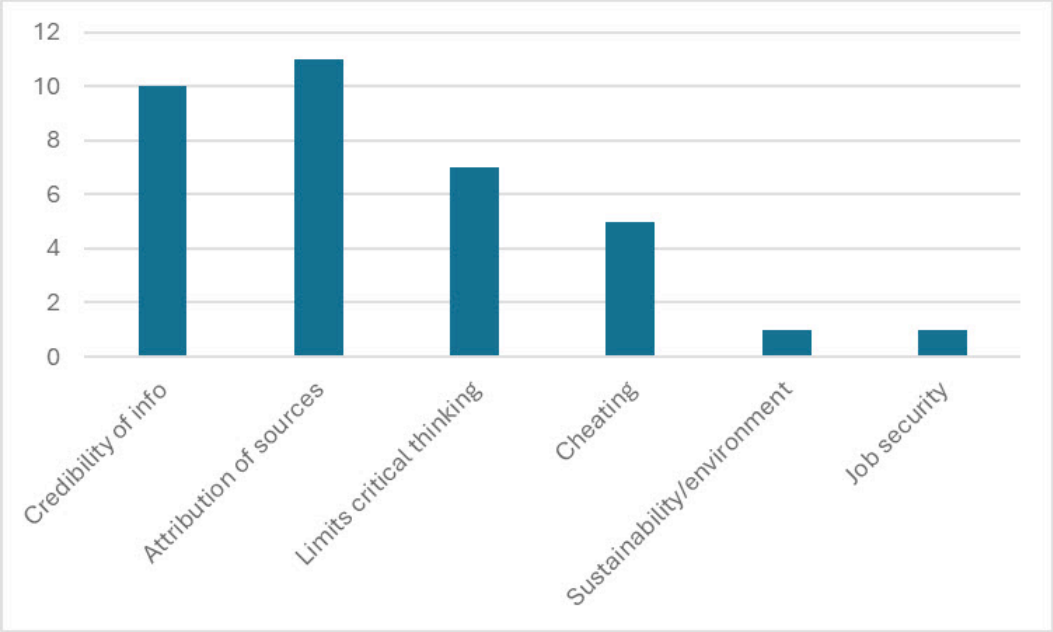
Figure 1: Students Completing Optional ChatGPT Exercise



After completing the required AI-based lab assignments that were introduced in Fall 2024, student reflections identified key concerns with using AI. The Week 5 lab assignment asked students to analyze an article, then use ChatGPT to do the same analysis and compare the two

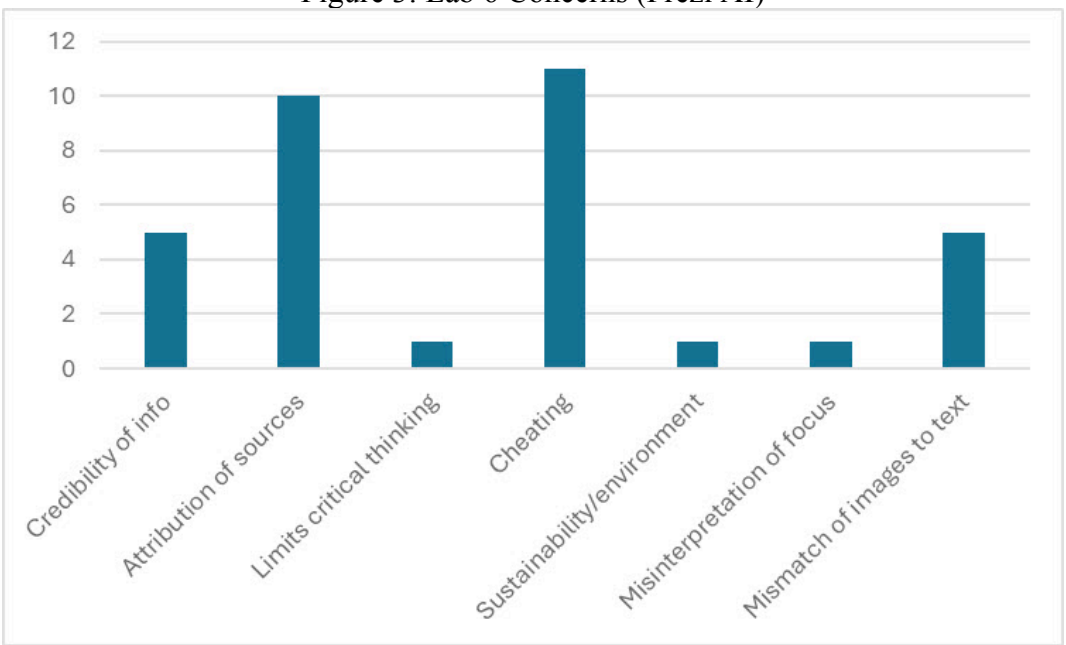
responses. Students discussed differences in terms of content but also reflected on the use of ChatGPT for learning. Student reflections identified four primary concerns with using ChatGPT: credibility of information, attribution of sources, limits to critical thinking, and potential for cheating. Job security and sustainability were also mentioned but not frequently.

Figure 2: Lab 5 Concerns (ChatGPT)



After completing the Week 6 lab assignment, which required students to create an online presentation using Prezi, then also use Prezi's "Create with AI" function to generate a presentation on the same topic and compare the two, student reflections identified four primary concerns with using AI: potential for cheating, attribution of sources, credibility of information, and mismatch of images to text. Limits to critical thinking, sustainability, and misinterpretation of focus were also mentioned to a lesser degree.

Figure 3: Lab 6 Concerns (Prezi AI)



Discussion

Library and Information Studies (LIS) students may exhibit a heightened sense of caution when engaging with AI tools, largely due to ethical concerns surrounding the information such tools provide. These concerns align closely with the ethical principles emphasized across the curriculum of URI's Library and Information Studies program, as well as those in similar LIS programs at other institutions. This alignment suggests that LIS students' exposure to ethical discussions in various courses may enhance their awareness of issues related to information and technology. In other words, coursework in library and information science is a strong basis for critical evaluation of the ethical use of AI tools and the information these tools generate.

In seeking to understand the nature of students' perceptions of AI, the author found that while some comments were clearly positive or negative, most mentions of AI reflected mixed or neutral attitudes. Within a single discussion board response, a student might highlight significant benefits offered by AI tools while also expressing deeply held ethical concerns that influence their willingness to use these tools. Through multiple sections of the course, there was no obvious trend in terms of student perceptions. In every section of the course, most mentions of AI reflected mixed or neutral perceptions, but the balance of negative and positive mentions varied with no clear pattern from section to section of the course.

Student reflections highlighted a range of ethical concerns, with some students expressing strong opinions that led them to consider abstaining from completing an assignment. Students who admitted reluctance to complete the ChatGPT assignment due to ethical concerns ultimately chose to proceed for the sake of learning, but these reactions underscore the need to recognize apprehensions which can impact both learning and professional development.

In considering how faculty might integrate AI tools and topics to foster critical thinking and ethical use in LIS Education (RQ3), the author looked at overall student interaction with course modifications introduced over time. While the incremental integration of AI into the LSC 508 course did not result in an obvious shift in student perceptions, there was change in the proportion of students who chose to complete the optional ChatGPT exercise after its introduction in Summer 2023. In Fall 2023, the number of students who participated was equal to the number who did not, but in Spring and Summer 2024, more students opted to do the ChatGPT exercise than those who did not. This change was likely due to the growing awareness of generative AI and ChatGPT in general, but student discussion also indicated a building sense of curiosity and a recognition gaining a better understanding of AI will be beneficial in their future careers. The increased uptake of the optional exercise, along with evidence that students were willing to override their reluctance for the sake of learning, implies that gradually introducing AI learning opportunities into coursework, and doing so in ways that allow students to explore and reflect, can be an effective way to build AI-related knowledge and skills while respecting students' individual perspectives.

Overall, students demonstrated a rigorous approach to evaluating AI-generated content, providing thoughtful critiques and recommendations for user education on potential issues. When analyzing ChatGPT outputs and AI-generated presentations in Prezi, students identified both overt and nuanced deficiencies, articulating how these shortcomings could influence their adoption of such tools in professional contexts. For example, students described the language in the Prezi AI-generated presentations as "generic" and "corporate," and one student observed that the article analysis generated by ChatGPT had "flattened"

distinct ideas into an overly simplistic summary. These insights, stemming from course discussion and learning activities, help demonstrate that LIS students have the potential to effectively apply information literacy principles and practices in using and guiding the use of AI tools in their future careers.

As students considered how they might guide information seekers in using AI tools, they showed recognition of the librarian's role in educating users about AI-generated information and best practices for using it ethically. Despite some reservations, students expressed willingness to increase their knowledge about AI tools to help foster AI literacy within their communities. This finding highlights the importance of incorporating AI literacy into LIS curricula to equip future librarians with the skills to navigate and teach about emerging technologies.

This study collected information about students' perceptions of AI but only from one class in one LIS program. As LIS programs evaluate how to best integrate AI into their curricula, it will be important to explore additional opportunities for addressing AI-related issues which are aligned with core competencies supported through the LIS education. Data about students' prior technological backgrounds was not collected, leaving a gap in understanding about how such experiences may shape student perceptions about AI. LSC 508 coursework has typically shown that students' familiarity with technology varies significantly, and this variance could certainly influence students' comfort level and approach to using AI tools, a factor that warrants further investigation.

Conclusion

This study highlights the critical need for integrating AI literacy into Library and Information Science (LIS) education to prepare students for the challenges and opportunities that AI brings to information professions. Findings from the LSC 508 course reveal that while LIS students approach AI tools with caution, they also demonstrate a willingness to critically engage with these tools to better understand their implications. Students' reflections illustrate their ability to evaluate AI-generated content rigorously, applying core information literacy principles to assess credibility, ethical considerations, and potential applications in information seeking.

Despite the prevalence of mixed and neutral perceptions about AI, students recognized the inevitability of its integration into professional practice and expressed a growing curiosity about its potential uses. By incorporating AI-related topics and tools into the curriculum, faculty can support students in developing the critical thinking skills and ethical frameworks necessary to navigate this rapidly evolving technology. This approach also ensures that LIS graduates are well-equipped to educate information seekers about responsible AI use, fostering broader AI literacy within their communities.

However, the study's limited scope—focusing on a single course within one LIS program—underscores the need for further research. Expanding the investigation to other courses and programs, as well as examining how students' technological backgrounds influence their perceptions, will provide a more comprehensive understanding of how best to integrate AI into LIS education. Additionally, exploring standardized approaches to AI literacy across LIS curricula could help ensure consistency and effectiveness in preparing students for the future of the profession.

As AI continues to transform the information landscape, LIS educators have a unique opportunity to promote ethical use of AI tools. By addressing student apprehensions and emphasizing the alignment of AI literacy with foundational LIS principles, educational programs like the one offered at the University of Rhode Island can ensure that future librarians remain a critical resource in a world increasingly shaped by artificial intelligence.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

In preparing this paper the author used ChatGPT to improve the language and readability of selected sections. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content.

References

Bassey, M. M., & Owushi, E. (2023). Adoption of artificial intelligence in library and information science in the 21st century: Assessing the perceived impacts and challenges by librarians in Akwa Ibom and Rivers States. *International Journal of Current Innovations in Education*, *6*(1), 75-85.

Bassey, M. M., & Umoh M. S. (2021). Library roles in e-learning through information and communication technology: The prospects and challenges. *Journal of Library and Information Science Compendium,* 1-14.

Kalbande, D., Yuvaraj, M., Verma, M. K., Suradkar, P., & Chavan, S. (2024). Exploring the integration of artificial intelligence in academic libraries: a study on librarians' perspectives in India. *Open Information Science*, *8*(1), 20240006.

Kizhakkethil, P., & Perryman, C. (2024). Student perceptions of generative AI in LIS coursework. *Proceedings of the Association for Information Science and Technology*, *61*(1), 531-536. https://doi-org.uri.idm.oclc.org/10.1002/pra2.1053

Spivakovsky, O. V., Omelchuk, S. A., Kobets, V. V., Valko, N. V., & Malchykova, D. S. (2023). Institutional policies on artificial intelligence in university learning, teaching, and research. *Information Technologies and Learning Tools, 97*(5), 181-202. https://doi.org/10.33407/itlt.v97i5.5395

Voyant Consortium. (2024). *Voyant tools.* https://voyant-tools.org/

Contact email: julie.ladellthomas@uri.edu