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Teaching Research Writing with AI: A Case Study of Academic Development Courses in Higher Education

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ABSTRACT

Introduction: Rapid advances in artificial intelligence are reshaping higher education and intensifying debate about the effectiveness, risks, and ethical implications of AI supported learning and academic writing. Yet faculty experiences with AI for research writing remain comparatively underexamined.

Purpose: To examine university faculty members' experiences and perceptions of using AI tools to support research writing and publication practices in higher education, with particular attention to issues of AI literacy and responsible use..

Method: This exploratory design based case study reports two one day immersion courses delivered through the university writing center at HSE University in Fall 2023 and Spring 2024. Participants were two cohorts of trainees (Case 1 n = 19; Case 2 n = 15) and two course instructors. Data comprised post course trainee feedback covering course usefulness, content, assignments, activities, instructor performance and feedback, and self reported involvement, as well as semi structured interviews with instructors about teaching and writing with AI tools. Numeric feedback items were analyzed using descriptive statistics in R. Interview data were analyzed using thematic analysis focused on key takeaways, concerns, and suggestions for improvement.

Results: Trainees rated the courses highly, especially the practice oriented format (Case 1 mean = 9.4 out of 10; Case 2 mean = 9.5). Instructors corroborated strong engagement but reported that an eight hour single day schedule increased cognitive load and reduced pedagogical stamina. Ethical concerns differed across cohorts: responsible AI use was discussed extensively in Case 1, whereas Case 2 participants mainly acknowledged the need for ethical use. Participants also demonstrated heterogeneous AI literacy and limited prior exposure to AI tools, reported by seven trainees in Case 1 and six trainees in Case 2.

Conclusion: Findings informed immediate redesign of the writing center's offerings by strengthening attention to AI ethics and literacy, extending course formats, and maintaining hands on learning as a core principle. Course designers should consider participants' prior experience, ensure reliable access to a curated set of tools, allocate time for guided familiarization and task completion, and plan for classroom management in mixed literacy groups. The study contributes faculty focused evidence to discussions of AI mediated research writing and motivates experimental testing of AI integrated pedagogical frameworks, including Intelligent TPACK.

KEYWORDS

faculty development; research writing; higher education; artificial intelligence; AI literacy; writing center; TPACK

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INTRODUCTION

The advent of generative AI models has sparked global proliferation of AI tools across domains, including text production and image creation. It has raised concerns among developers, research-

ers, psychologists, sociologists, and educators regarding the influence, function, and ethical implications of AI (Cong-Lem et al., 2024; Dwivedi et al., 2021; Popenici & Kerr, 2017). As a result, academic community expresses caution regarding the use of AI tools in research (Kendall &



Teixeira da Silva, 2023; Miao et al., 2023; Stokel-Walker, 2023; Tang, 2023), which is evidenced by statements in academic journals urging authors to report AI use in manuscripts. Elsevier's policy¹ on integration of AI in scientific articles reflects the trends in academic publishing. To ensure ethical use of AI, Elsevier permits generative AI tools solely for enhancing readability and language, requires human oversight, and prohibits using AI as a co-author. This policy pertains to the writing process and does not include the use of AI tools for analyzing data or deriving insights during the research process. The policy does not apply to spelling or grammar checkers and reference management software. While three groups of tools (grammar checkers, writing assistants, and automated content generators) are legitimate, their misuse poses risks to academic integrity (Dwivedi et al., 2021). Educators need to proactively address the ethical use of AI tools in academic text production (Eke, 2023).

The ethical use of AI tools in teaching is viewed through the lens of the Technological Pedagogical Content Knowledge, TPACK (Mishra & Koehler, 2006; Schmidt et al., 2009). The TPACK approach focuses on three domains of technology, pedagogy, and content to promote technology infused teaching practices (Koehler & Mishra, 2009). In TPACK, content knowledge refers to faculty's knowledge of the domain, pedagogical knowledge is the expertise in teaching and learning processes, and technological knowledge denotes faculty's experiences with technology, and in case of this study, with AI tools. TPACK highlights the importance of blending technological, pedagogical, and content knowledge to design effective teaching and learning practices. However, the use of technology (AI) should be constructive: faculty should know what types of AI tools promote or impede learning and use them thoughtfully, which requires a high degree of AI literacy. However, AI literacy and ethics of the AI use are not explicitly stated within the original TPACK (Mishra & Koehler, 2006; Schmidt et al., 2009) and the attempts are made to introduce Intelligent TPACK (Velander et al., 2024), claiming to combine AI literacy and ethics. Some research studies suggest measuring the Intelligent TPACK using the correlational designs (Karataş & Ataç, 2025), examining relationships and how TPACK along with AI literacy and ethics might predict the intent to use AI. Studies that used the Intelligent TPACK to develop and test a curriculum are lacking. In the context of this study, TPACK provides a foundational lens for understanding how different AI tools (technological knowledge) can be meaningfully combined with instructional strategies (pedagogical knowledge), and the subject matter of research writing (content knowledge). Before moving onto the discussion of the current study, it is important to understand the research findings on AI use.

Although AI has been a subject of scholarly inquiry since the 1950s, most research on AI in education emerged only around 2018–2019 (Long & Magerko, 2020). Scholars argue that AI can streamline mundane tasks and create new educational opportunities (Annamalai et al., 2023; Chan, 2023; Chiu et al., 2023; Kasneci et al., 2023). Proponents of integrating AI into research and education assert that it can facilitate personalized learning experiences (Chan & Hu, 2023; Crompton & Burke, 2023; Nzoka, 2024; Sumakul et al., 2022). AI tools provide novice writers with individualized feedback (Hwang et al., 2020; Weng & Chiu, 2023) and guidance, helping them learn academic writing techniques (Kim et al., 2024). AI supporters also believe that it might act as a bridge to alleviate the strain on an overburdened educational system (Javaid et al., 2023; Nzoka, 2024) and help educators in tasks related to planning, executing, and evaluating their work (Çelik et al., 2022). At the same time, researchers express concerns that AI can be a threat to critical thinking (Chaparro-Banegas et al., 2024) and a potential competitor, depriving educators of jobs in the future (Alekseeva et al., 2021; Huang & Rust, 2018). Other concerns regarding AI include: transparency and ethical issues, e.g., bias and discrimination based on the quality of training data, and plagiarism; the risk of academic fraud and hallucinations; interpretability and referencing issues; the risk of a declining need for human expertise; and concerns about data privacy and legal issues (Sallam, 2023). These concerns highlight the need for developing AI literacy of its users.

AI literacy is a set of skills and knowledge that enable individuals to understand, interact with, and critically assess the applications and implications of artificial intelligence across various domains (Chounta et al., 2021; Long & Magerko, 2020). AI literacy is not only essential for navigating this evolving landscape (Khanjani et al., 2023) but also enhances individuals' competitiveness on the job market (Alekseeva et al., 2021). As a result, AI literacy becomes instrumental for faculty members who may use AI for research and teaching purposes.

Numerous organizations, including universities, have already suggested AI literacy and competency frameworks. For instance, UNESCO launched two AI competency frameworks in 2024²: for students and teachers. These frameworks emphasize that AI should serve as a tool to support human decision-making and intellectual growth rather than replace or diminish them. UNESCO identifies four key competencies: (1) a human-centered mindset, including the ability to understand and assert one's agency in relation to AI, (2) responsible and safe use of AI, (3) foundational knowledge and skills related to AI, and (4) creativity, design

¹ Elsevier. (n.d.). Generative AI policies for journals. <https://www.elsevier.com/about/policies-and-standards/generative-ai-policies-for-journals>

² United Nations Educational, Scientific and Cultural Organization. (2024). What you need to know about UNESCO's new AI competency frameworks for students and teachers. <https://www.unesco.org/en/articles/what-you-need-know-about-unescos-new-ai-competency-frameworks-students-and-teachers?hub=343>

thinking, and problem-solving. Many universities have been developing AI use in academia policies (Chan, 2023; Moorhouse et al., 2023), but they are of different level of detail (e.g., Columbia University Policy³, 2023; George Mason University⁴, n.d.; HSE Policy⁵, 2024; Patrice Lumumba Peoples' Friendship University of Russia⁶, 2023). The speed of the AI advancement outpaces the creation of institutional academic integrity policies and guidelines for AI use. This may result in gray areas, confusion, and a lack of expertise among educators, students, and administrators (Roe et al., 2023).

Despite the growing focus on AI literacy in higher education, most existing research has centered on the perspectives of students (Crompton & Burke; 2023; Gašević et al., 2023; Hornberger et al., 2023; Johnston et al., 2024; Nguyen et al., 2023), suggesting that AI could contribute to the development of students' self-regulated learning skills, learning and cognition, presentation of individual learner's progress, use of team-based learning, assessment of students' work, to name a few. In contrast, faculty development and use of AI tools remain comparatively underexplored. While a bibliographic analysis identified that the use of AI tools by faculty could serve as teaching and learning support, facilitate decision making on how to optimize teaching and learning processes, the issues of educational ethics and academic integrity are the most pressing concerns, which should be addressed by faculty professional development (Zhang et al., 2025). This exploratory study addresses the research gap on faculty professional development by providing evidence-based insights into how university staff view AI tools and how prepared they are to incorporate them into research and writing processes. The findings will contribute to the existing literature on AI use by faculty and help institutions develop effective practical strategies to promote AI literacy.

The purpose of this study is to identify the experiences and perceptions of university instructors and research staff about applying AI for research and publication purposes by addressing the following research questions (RQ):

- RQ1: How do course trainees' perceptions of using AI tools in research writing reflect their understanding of AI literacy?
- RQ2: How does the writing instructors' understanding of AI literacy reflect their practices of teaching/learning to write with the help of AI tools?

We tested the pedagogical design of one-day immersion courses with the assumption of its appropriacy for full-time university staff. We assumed that a weekend intensive program can ensure trainees' accessibility and engagement, and guided uninterrupted exploration of AI tools can help achieve relevant results individually. The course design is grounded in the TPACK framework (Mishra & Koehler, 2006; Schmidt et al., 2009), focusing on the importance of AI literacy.

METHOD

Research Design

The exploratory design-based case study research is chosen because it enables us to examine the events over which we, as researchers, do not have control (Yin, 2018). That is, we focus on a contemporary phenomenon – the spread of AI technology across domains, including research writing – within its real-world context in academia, given that the principles of the ethical use of AI are still being developed and implemented. The case study design allows us to examine two teaching cases aimed at developing academics' AI competency. In addition, the authors of this study are taking the pragmatic epistemological stance by recognizing that adoption of the AI tools in research and teaching practices reflects the personal experiences of faculty, which further feed their knowledge about and mastery of new tools to ensure their future use (Kelly, 2020).

The following criteria were used to select cases: the courses should be offered through the Academic Writing Center (AWC) because it required instructors to outline learning goals, use hands-on activities, and create a final product (i.e., a written draft of the literature review). In addition, the courses had to be offered in English only to university staff, for an extended period of time (8 hours), and had to include such stages of writing as searching for literature, drafting texts, and revising/editing the drafts using AI tools. We also wanted to ensure that the courses were offered in close time proximity to each other to follow the replication logic as well as compare and contrast AI tools during the analyses. These criteria allowed us to examine the use of AI in academic writing within the context of a single university yet provided enough variation in sampling to conduct cross-case comparisons among instructors and trainees (Yin, 2018). Each

3 Columbia University. (2023). Generative AI policy. <https://provost.columbia.edu/content/office-senior-vice-provost/ai-policy>

4 George Mason University. (n.d.). Plagiarism. <https://infoguides.gmu.edu/Artificial-Intelligence/Plagiarism>

5 HSE University. (2023). Politika ispolzovaniya iskusstvennogo intellekta. <https://www.hse.ru/mirror/pubs/share/937054455.pdf>

6 RUDN University. (2023). Politika ispolzovaniya iskusstvennogo intellekta. <https://www.rudn.ru/storage/media/documents/7c-62d88a-8d8e-4e3a-a2a0-9fcc74c3e12d/uxxGZjVlg0ESgNkz7EuwgpQ9D2ToEOPT3V9QL1O5.pdf>

case is described below, including the description of the instructors, trainees, and contents of the courses.

Setting and Procedure

Courses were organized by the AWC at Higher School of Economics (HSE). The AWC provides linguistic support to academics who publish their research in international peer-reviewed journals in English. The AWC offers courses, workshops, and individual consultations, targeting its programs on the faculty’s needs. Based on the AWC’s annual surveys, the faculty’s request for learning how to use AI for preparing a publication has been the most popular for three years. It encouraged the center to develop several AI educational programs, two of which we analyze in this article.

Each course for university academic staff was advertised as a daylong course (10:00 a.m. to 6:00 p.m.). To become a course trainee, an applicant wrote a motivation letter, demonstrating their commitment. Trainees were selected on a competitive basis; the selection criteria included (1) full time affiliation with HSE, (2) an appropriate level of English, and (3) the commonality of course goals and the applicant’s objectives.

The case study participants included two instructors (1 assistant professor and 1 senior lecturer), and trainees (Case 1 = 19; Case 2 = 15). All trainees had a high command of English (at least B2 according to the CEFR) and had some experience in writing and publishing academic papers in English. Most of the trainees had very limited experience in using AI tools for academic writing (Case 1 = 7; Case 2 = 6).

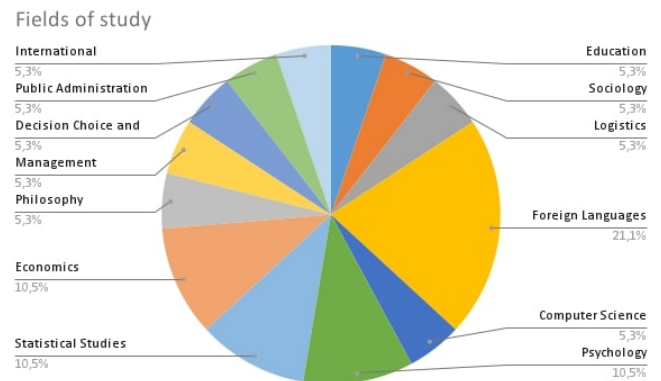
Case 1

The first case focuses on a face-to-face course “Enhance Your Writing Using AI Tools,” which took place in November 2023. The course aimed to raise trainees’ awareness and provide practice in using various AI tools while working on scholarly manuscripts. It was structured around hands-on tasks and discussions of possible uses, challenges, strengths, and ethical considerations concerning AI. The course included four stages of writing: researching, reading, drafting, and revising/editing. For the research phase, trainees learned about such AI tools as Consensus, Semantic Scholar, and Research Rabbit. During the reading phase, they practiced using ChatPDF, QuillBot, and Semantic Reader. In the drafting phase, trainees generated texts using QuillBot, Jenni, and ChaptGPT. They revised and edited their texts in QuillBot, WordTune, and ChatGPT. Trainees were expected to write at least one page of their literature review.

Participants. The instructor of this course was a female in her thirties, with a PhD in educational psychology, who has been teaching and researching academic writing for eight years. The course trainees included faculty and early career scholars (n = 19; females = 13, males = 6, average age = 39)

from the Moscow campus of HSE University, representing different research fields (Figure 1).

Figure 1
Case 1 Trainees’ Research Fields



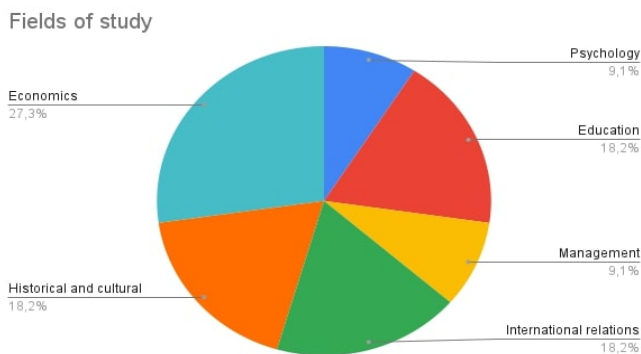
Case 2

The second case was a day-long online course titled “From a Research Idea to the Paper Draft” offered in April 2024. Its main purpose was to help trainees develop their research questions, work on their literature review drafts, and choose a journal for publication. During this course, trainees searched, analyzed, and selected literature using AI tools. To search for literature, trainees referred to Consensus, Elicit, and Semantic Scholar. For analyzing scholarly articles, they used Litmaps. To generate texts, the instructor recommended QuillBot Flow, Scholar AI, Consensus, Perplexity, and Trinka. For revising and editing, QuillBot, Hemingway, and Writefull were recommended. Similar to Case 1, the course was structured around hands-on tasks and invited trainees to evaluate different instruments while working on their literature reviews.

Participants. The instructor of this course was a male in his thirties, PhD candidate in economics, whose research interests include business communication. The course trainees included faculty and early career scholars (n = 15; females = 11, males = 4, average age = 33), from different research fields (Figure 2).

These two cases were chosen because both courses, albeit taught by different instructors, were offered to a very similar audience – teaching and research staff of the same university. They both focused on the same part of the academic paper – the literature review, which is considered one of the most challenging sections to write (Pautasso, 2013). The courses used various AI tools to search for, analyze, and work with literature, draft, and revise their texts.

Figure 2
Case 2 Trainees’ Research Fields



Instruments

The Feedback Form

To assess the quality of both courses and the suitability of the one-day format, we used the feedback form (Appendix A). Trainees evaluated the overall usefulness of the course, its content, assignments, activities, instructor's performance and feedback, and trainees' own involvement, on a scale from 1 (completely disagree) to 10 (completely agree). The form included a few open-ended questions, inquiring about key takeaways, the most ir/relevant tasks, and suggestions on how to improve the courses. The feedback form was originally developed by the second author to evaluate the effectiveness of courses offered through the AWC. The questions are based on the recommendations on designing teaching evaluations forms, combining closed and open-ended responses to inform future instructor practices (Frechtling & Sharp, 1997; Medina et al., 2019). The feedback form provides a general idea of the trainees' perceptions of the courses and helped to address the first research question.

Semi-Structured Interviews

To examine instructors' perceptions about teaching/learning writing assisted by AI tools, we conducted two semi-structured interviews (Appendix B). The two instructors reflected on AI resources they used in their writing, including the ones introduced during the courses. Instructors also shared the highlights, drawbacks, and observations and described possible changes to the course. The first author developed interview questions based on the second research question; all three authors discussed each interview question to validate their clarity. The final version is included in Appendix B. After the first interview, the third author, who conducted the interviews, added further revisions to the questions. The revisions did not affect the quality of the instructors' responses in any way or form. Each interview lasted less than 1 hour (Case 1 = 51 min; Case 2 = 15 min).

The use of the feedback form and semi-structured interviews allowed us to examine the perceptions of both trainees and instructors of the writing courses. These instruments helped to identify similarities and differences across two groups of participants in terms of their experiences and plans for using AI writing tools. The study gave us insights into academics' overall attitude towards AI tools for research writing that could be further explored and applied in practical contexts.

Data Analysis

The numeric questions of the feedback form were analyzed using the descriptive statistics in R. The interview data were analyzed using thematic analysis (Braun & Clarke, 2012) and revolved around the key takeaways, concerns, and suggestions.

Interview Data

For the interview data, the ZOOM-generated transcripts were edited for clarity. Next, the first and the third author coded the interviews in Taguette (n.d.) – an open-source coding software. Then we checked the codes against AI generated codes by ChatGPT, Perplexity, Avidnote, and MAXQDA. However, ChatGPT, Perplexity, and Avidnote did not produce tangible coding results. These tools provided the codes but could not distribute them across meaningful units. As for MAXQDA, it provided good quality codes, but we noticed notable differences between the coding employed by AI and human raters. For instance, the MAXQDA AI assistant highlighted five instances of ethics in instructors' interviews. However, each time the AI assistant assigned a new ethics code (i.e., "ethical considerations" or "ethical concerns"), whereas just one of those codes could be used.

Human vs. AI Coding

We applied an inductive approach to generate the codes as we were coding interviews (Saldaña, 2016). We generated 32 codes across two interviews, which were then condensed into six themes (Table 2, Appendix C). We discussed the discrepancies during the meeting by adding, removing, or refining the codes. Our codes were more general, resulting in a significantly smaller number of categories. The AI tool processed larger segments of text and assigned multiple codes – typically around five – to each segment. For example, "Yeah, one, irrelevant or unnecessary task. One of the comments was that much time was spent on personal work. I disagree with this one comment just because I feel like, when you actually learn how to use something, doesn't matter if it's like AI technology, right, text generating stuff, or how to use the data analysis program. It's not enough just to show the functionality and to press certain buttons, but you need to actually do stuff using that tool in order to make sure that a) It does a really good job b) that you can use the text generated or whatever you did on that AI tool and 3rd that like is ethical and that it actually meets the requirements and goals that you set for yourself. So, I defi-

nitely disagree with this one.” (Instructor 1). This meaningful unit was coded as “task relevance,” “personal work,” “functionality mastery,” and “ethical concerns.” While the codes were relevant, they did not provide the necessary granularity of meaningful units and corresponding codes to inform the further analyses and description of the results. In contrast, the human raters examined the interview data granularly, by identifying smaller meaningful units and assigning only two to three codes per unit. This difference highlights AI’s precision in generating codes; however, it also reveals a lack of flexibility in how these codes are applied across larger segments of text. Despite these differences, the codes generated by both humans and AI converged and enriched the results.

Interview Themes and TPACK

The analysis of the trainee’s feedback forms and instructors’ interviews identified several main themes, which clearly reflect the TPACK framework. Thus, trainees’ takeaways reflect the combination of the content and technological knowledge. The theme of AI tools used by instructors corresponds with the technological knowledge. Trainees’ suggestions and instructors’ insights and recommendations on the improvement of courses cover the pedagogical knowledge. Finally, instructors’ course expectations, highlights, and drawbacks focus on the content knowledge. In the following section, we present the results organized by trainees’ perceptions and followed by the instructors’ perceptions of AI tools for research writing.

RESULTS

Course Trainees’ Perceptions of Using AI Tools and AI Literacy in Research Writing

The results of the feedback surveys revealed that the majority of trainees highly valued the course (Case 1 = 9.4 out of 10; Case 2 = 9.5) and were likely to recommend it to their col-

leagues (Case 1 = 95%; Case 2 = 93%). All trainees provided a high score for the usefulness and effectiveness of the courses for their writing (Table 1). Also, they considered course activities meaningful, and the assignments effectively organized. Trainees highly evaluated instructors’ performance during the courses and found their feedback constructive. They evaluated their own involvement as high, too.

Trainees’ Takeaways

Among the main takeaways, trainees mentioned learning about new AI tools both in Case 1 and Case 2 (n = 12) and specifically “*instruments that really work! It’s so good in the endless quantity of AI tools that are so hard to understand.*” (Case 1). Some other comments differed between Case 1 and 2 trainees. For instance, trainees from Case 1 focused more on the experiences with AI tools and noted sharing experiences of using AI tools with each other (n = 3), finding new articles for their projects (n = 4), realizing that AI tools can be useful (n = 7), using the AI tools ethically (n = 3), checking the accuracy of information provided by AI (n = 2), and understanding strengths and limitations of the AI tools (n = 4). One trainee admitted that they “*write better than the AI tools*” (Case 1).

In contrast, trainees from Case 2 reflected more on the process of writing a literature review and choosing target journals for future publications (n = 3). Some specific comments were provided on the literature search procedures, such as clear recommendations on how to search for (n = 1) and how to work with literature (n = 2). Other sets of comments referred to the writing process, for instance, writing a good literature review (n = 5) and summary (n = 1), formulating a research question (n = 2), and having the author’s voice (n = 1). One person from Case 2 specifically mentioned “*commitment to work for a long time and fight procrastination.*” Another trainee admitted “*progress in my topic*” (Case 2).

Both Case 1 and Case 2 trainees found the following tasks as the most relevant and useful: searching for literature (Case 1 = 2; Case 2 = 5), formulating research questions (Case 2 =

Table 1
Trainees’ Evaluation of the Courses

Course evaluation criteria	Case 1	Case 2
usefulness	M = 9.4, SD = 1.6	M = 9.5, SD = 0.8
effectiveness	M = 9.85, SD = 0.8	M = 9.5, SD = 1.1
activities	M = 9.5, SD = 1.6	M = 9.6, SD = 0.88
assignments	M = 9.6, SD = 0.82	M = 8.9, SD = 2.04
instructor’s feedback	M = 9.7, SD = 0.65	M = 8.7, SD = 1.91
instructor’s performance	M = 9.9, SD = 0.22	M = 9.3, SD = 1.25
trainee’s personal engagement	M = 8.6, SD = 1.9	M = 9.1, SD = 1.3

4), revising and editing exercises (Case 1 = 3), choosing the target journal (Case 2 = 2), tasks that targeted on trainees' personal research interests (Case 1 = 7), summarizing research articles (Case 1 = 1), and generating their own texts (Case 1 = 4) because it *"helps to obtain new ideas and directions for research"* (Case 1). One trainee appreciated *"when colleagues were sharing the tricks and hacks"* (Case 1) of using the AI tools. A couple of the trainees (Case 1 = 1 and Case 2 = 1) valued the opportunity of going through the features of each tool together before practicing on their own because *"there is a possibility to miss some features if we experiment with the tools independently"* (Case 1).

While many trainees in Case 1 (16) and Case 2 (13) agreed that the course did not include any irrelevant tasks, there were some comments about some tasks: one trainee highlighted that *"reading new articles was distracting"* (Case 1) and a trainee from Case 2 echoed this sentiment by stating that they could not draft the literature review since reading literature takes time. In addition, another person noted that *"much time [was] spent on personal work"* (Case 1), one more stated *"I don't understand the need to choose a journal"* (Case 2), and yet another participant shared that QuillBot *"was less accurate in paraphrasing the original texts"* (Case 1).

As evidenced by the descriptive statistics (Table 1), trainees from both cases were highly involved during the course. Case 1 trainees were very engaged with the activities ($M=8.6$, $SD = 1.9$), explaining that using new AI tools ($n = 5$), developing their own output, finding relevant articles ($n = 1$), engaging conversations about the strengths, limitations, and ethics of using AI ($n = 2$), and being motivated to learn ($n = 4$) contributed to their involvement. Likewise, Case 2 trainees explained their involvement by the number of new AI tools they learned about, the *"intense and useful"* nature of the course, and the opportunities to ask questions and seek help.

While the Case 2 trainees were engaged ($M = 9.1$, $SD = 1.3$), they also felt a little overwhelmed: *"It was so interesting to search [for literature] that it was hard to start writing immediately ..."* Another participant admitted that *"the pace was very high for me."* (Case 2). Several people in Case 1 mentioned that they would have been more involved if they were not so tired by the end of the week (the course was offered on Saturday). One Case 1 trainee was already familiar with most of the tools, and another person struggled with them because it was their first-time using AI tools. Yet, a couple of trainees (3) chose not to join the discussion in Case 1.

Trainees' Suggestions

Participants from Case 1 and Case 2 provided a host of useful comments about the course design. For instance, Case 2 trainees recommended considering the timing for activities ($n = 2$), providing clearer instructions ($n = 1$), and splitting the course into two days ($n = 2$): *"the only problem was*

sometimes they [tasks] required more time. It may be helpful to plan for a multi-day course with our own time for tasks, more time for feedback on tasks and a bit more space for networking, which was very interesting due to the different sciences!" (Case 2). Another trainee from Case 1 recommended *"different course tracks about AI tools with a specification on professional needs."* The Case 1 participant, who was completely new to AI, wanted to slow down the pace of the instruction because it was hard for them to keep up with the pace. A similar comment was mentioned by three trainees in Case 2, but they were planning *"to go step-by-step at my own pace."* In addition, one person in Case 2 mentioned that it would be better not to mix writing tasks with those aimed at practicing using new AI tools. A PhD student wrote, *"Please make this a feature of the PhD program for HSE students, replacing a couple of lessons of Bibliometrics, as this was far more useful."* (Case 2). There were several organizational comments for Case 1 such as starting Saturday courses at 10:30 a.m. and getting a bigger room since the course was held in person.

Most of the trainees spoke highly of the course, and it seems that some people might have developed naive ideas about using AI tools for scholarly writing: *"I have understood that a literature review can be done in one day by using different tools"* (Case 2). This observation was predicted by one Case 1 participant, who made several important points about the ethical use of AI tools. He emphasized that the instruments should be used carefully because *"for real researchers, these tools are not applicable, in many ways they are dangerous assistants, not good assistants."* He added that *"Serious journals do not accept AI-assisted work in any form"* (Case 1). The main claim was that the use of AI tools would prevent scholars from *"conduct[ing] real research."* It was suggested to discuss *"how to understand dangerous tools and how one can try to identify their use among students"* (Case 1).

An Overview of Trainees' Perspectives

The results described above revealed that trainees from both cases found AI writing courses useful and effective (Table 1). They also highly evaluated the choice of activities, assignments, as well as instructors' performance and feedback practices. All trainees reflected on being engaged during the courses; however, some of them admitted that they were tired by the end of the week (Case 1) and suggested splitting the course to a two-day course (Case 2). Novice participants in both cases were slightly overwhelmed by the fast pace of the courses and the number of new AI tools to master; nevertheless, they were eager to work on the materials at their own pace later.

While Case 1 trainees' feedback was more focused on the use of AI tools and their features, Case 2 trainees reflected on the stages of working on their literature reviews. This might be due to the emphases which were placed by the instructors and final outputs they were expecting to see at the end of each course. Another peculiar finding is the na-

ivete of some participants in both cases, who thought that writing a literature review can be an easy endeavor if they use AI tools. However, the ethical use of AI tools for research writing was the subject of discussion (Case 1).

The trainees' results clearly focus on the pedagogical and content knowledge of the two courses rather than the technological knowledge in accordance with the TPACK framework. The technological knowledge of AI tools and their features were more prominent in Case 1 feedback forms rather than in Case 2. In terms of the AI literacy, its glimpses were present in the feedback forms of the AI tools and their use in both cases; however, such tenet of the AI literacy as the ethical use of AI tools was discussed only in Case 1. In the next section, we will discuss the perceptions of instructors.

Writing Instructors' AI Literacy and Teaching/Learning Practices of Writing Using AI Tools

The thematic analyses revealed six main themes: (1) AI tools used by instructors, (2) course expectations vs. reality, (3) course highlights, (4) course drawbacks, (5) instructors' insights after reading trainees' feedback, and (6) recommendations for future improvements (Table 2; Appendix C). In this way, the theme of AI tools covers the technological knowledge, themes of course expectations and recommendations represent the pedagogical knowledge, and course highlights and drawbacks as well as instructors' insights represent the content knowledge. Each theme is described below.

AI Tools Used by Instructors

Both instructors demonstrated caution in their reliance on AI tools in the context of research writing. Instructor 1 admitted employing a greater variety of AI tools in her work. Among the resources utilized are Quillbot, which assists in verifying language accuracy and facilitating paraphrasing: *"Once I finished my manuscript, I checked it using Quillbot, for grammar."* Other tools include Semantic Scholar, Research Rabbit, and Consensus, which aid in identifying academic papers and recognizing prominent authors in the field. Additionally, she uses Otter AI, which streamlines the transcription of qualitative data. Conversely, Instructor 2 adopted a more conservative approach to the use of AI tools, stating, *"If you use AI tools, you should recheck. So, it's double work."* He uses such tools as Litmaps, Elicit, and Perplexity, to validate his research inquiries and ensure comprehensive coverage in his literature review process. However, he does not use any AI tools for the writing process itself.

Course Expectations vs. Reality

Both instructors agreed that the primary objectives of the course were met. Most trainees demonstrated high levels of engagement and motivation, which was also evidenced by trainees' self-evaluations presented above (Table 1). In-

structor 2 noted that trainees actively contributed to discussions and shared their preferred AI tools: *"I remember some students asking interesting questions and suggesting some more AI tools."* Instructor 1 also stressed that there were few trainees who questioned the usefulness of AI resources, but they still found something new and useful for them: *"There were a couple of people which were really skeptical about certain things, but even they could find certain functions or certain features within different tools that made them experience this 'aha' moments like saying 'oh, I can use it with my students'."*

At the same time, both instructors expressed some ambivalence regarding the time frame of the course. They highlighted the demanding nature of the weekend sessions. This intensity proved exhausting for both instructors and trainees. Furthermore, Instructor 1 emphasized the effectiveness of a pedagogical approach that combined demonstrations of the tools with opportunities for hands-on exploration. However, she noted that the time allocated for participants to engage with these tools was insufficient, limiting their ability to generate tangible outputs for their research papers. As Instructor 1 articulated, *"Some people get so interested in experimenting with the tool and checking out all functions that they forget that this should be used to actually meet their academic goal of writing a paper."*

Course Highlights

Both instructors emphasized that they were challenged by the trainees' diverse backgrounds, expectations, and goals. At the same time, Instructor 1 noted, *"I loved that the group was so diverse because we really had very rich discussions and reflection on the whole process and experiences of different people."* Instructor 2 states that he encountered difficulties in dividing trainees into pairs, as each trainee had a different specialization. Despite the different backgrounds, trainees managed to work productively. Instructor 1 expressed satisfaction that many trainees concluded that they wrote better than artificial intelligence and considered themselves more creative. Instructor 1 also highlighted her delight that the course was conducted in person.

Interestingly, the two cases demonstrated different levels of concern about the ethical use of AI among trainees. While Case 2 trainees did not raise the issue at all, Case 1 trainees had many questions, for example: *"How ethical is it to use AI technologies for academic purposes? How does the system use the text we upload to paraphrase or edit? Will the text show up when we run all plagiarism checkers? Do we still need to report that at certain stages we used AI technology to assist with our academic writing?"*

Course Drawbacks

Instructors identified a very tight schedule as the primary drawback of the course. They also noted a mismatch between the learning objectives stated in the AWC course syllabus

bi and the goals trainees set for themselves: *"I felt like people had different expectations and goals, which were not necessarily advertised within the description of the course... people would ask, 'oh, do you have... transcribers.' ... it was from the left field, it had nothing to do with the course"* (Instructor 1). *"I remember one comment of the student who was thinking about data, and was expecting that during this course, we will be also going through some data sources. So, this is kind of a confusing thing"* (Instructor 2). Instructor 1 also expressed concerns that some trainees were not sufficiently critical regarding the capabilities and limitations of AI tools. She foresaw a risk that they might become overly reliant on these tools.

Instructors' Insights after Reading Participants' Feedback

Both instructors generally concurred with trainees' feedback. However, they also encountered statements with which they could not agree. For instance, Instructor 1 disagreed with the statement that the practical component of the course was superfluous. She emphasized that it was impossible to learn effectively without proper practice: *"It's not enough just to show the functionality and to press certain buttons, but you need to actually do stuff using that tool in order to make sure that (a) it does a really good job; (b) that you can use the text generated ... and 3rd that it is ethical and that it actually meets the requirements and goals that you set for yourself."* She contested a trainee's claim that AI tools could not be effectively used for academic purposes. Similarly, Instructor 2 expressed disagreement with some trainees' assertion that the final task was irrelevant, stating, *"If there is a skill of reading the article, it's okay to scan it so the task was devoted to pushing the skill into practice and trying to understand what the final plan is."*

Recommendations for Future Improvements

Instructor 1 would like to ensure that selected tools are the most relevant at the moment and trainees have sufficient time to experiment with each tool yet produce a solid output by the end of the course. She emphasized that she plans to update the tools: *"I definitely will change the tools because they develop so quickly."* Instructor 2 indicated that he would allocate more time for certain assignments to provide trainees with additional opportunities to practice. He suggested incorporating peer reviews using different instruments.

An Overview of Instructors' Perspectives

Overall, instructors expressed their satisfaction with the AI immersion courses and revealed that the objectives were met. They also expressed that the majority of trainees actively participated in activities and discussions. These results allude to the content knowledge and pedagogical expertise of two instructors. Although both instructors had a high degree of technological knowledge of AI tools, Instructor 1 was more open to applying a wider array of AI tools for different writing stages and purposes, while Instructor 2 was more

conservative and used AI tools mostly for literature search. Instructors were a little challenged by diverse backgrounds of course trainees; however, the trainees managed to work successfully with each other, engaging in fruitful discussions and networking opportunities. A peculiar difference between the two cases was the amount of attention to the ethical use of AI. While in Case 1 this issue was the through-line of conversations, it was almost not raised in Case 2. Case 2 instructor just mentioned it as part of the instructional guidelines at some point, whereas Case 1 instructor expressed her concerns about uncritical perception of AI by some course participants. This difference might be the result of varying degrees that instructors placed on the issue of AI literacy and different levels of trainees' familiarity with AI. Organizationally, instructors agreed that the tight schedule and timing were the main drawbacks of both courses, which limited trainees' deeper dive into AI tools. However, both generally agreed with trainees' feedback and saw the value of amending the course syllabi. In this way, instructors demonstrated the presence of all elements from the TPACK framework when reflecting on their experiences; however, the issue of AI literacy received varying degrees of attention.

Comparison of Trainees' and Instructors' Perspectives

Some similarities and differences were identified between trainees' and instructors' evaluation of the one-day courses. Similar to the sentiments regarding responsible AI use expressed by Case 1 trainees, both course instructors agreed that the use of AI for research writing should be treated with due caution. Instructors aimed to introduce various AI tools for different tasks; however, some trainees might have developed superficial ideas about the tools and how to utilize them for research writing goals. This finding and, especially, differential treatment of the AI ethical use by instructors, raises concerns and importance of promoting AI literacy in such courses.

Equally both instructors and trainees were overwhelmed by the intensity of an eight-hour weekend course and suggested splitting them up into longer courses. Instructors revealed that they were challenged by the various backgrounds of trainees (fields and status), which led to finding creative ways of encouraging people to collaborate. While instructors raised concerns about diverse participants, trainees generally liked the opportunity to network with people from other departments. Ultimately, the courses resulted in beneficial experiences for trainees. However, instructors disagreed with some of the trainees' views, especially about the need for certain tasks or the way assignments were organized. Overall, the feedback forms filled out by trainees and interviews with instructors demonstrated that the courses raised trainees' awareness of existing AI tools that can assist research writing. Trainees benefited from familiarization with new tools and discussing their pros and cons,

which will, hopefully, facilitate their conscious and ethical use in future.

DISCUSSION

The academic community agrees on the necessity of integrating AI into the teaching of writing (Chiu et al., 2023; Wang et al., 2024). Writing centers can take the lead in this process, fostering innovative approaches to teaching and learning with new AI technologies (Eleftheriou et al., 2025; Essid, 2023). Writing centers are gradually introducing AI-focused training programs (Eleftheriou et al., 2025), and this study is in line with global educational initiatives. The initiatives vary in format, ranging from long-term courses and boot camps to demonstrations and workshops combined with subsequent teaching chats (Eleftheriou et al., 2025). However, educational efforts are mainly targeted on students. Empirical research on faculty perceptions of AI tools remains limited.

The major goal of this exploratory case study was to identify perceptions of course trainees and instructors about the use of various AI tools for research writing. The results of the feedback forms and interviews reflect all elements of the TPACK framework and indicate the following main findings: ethical concerns of AI use and varying levels of AI literacy of participants (technological knowledge), pedagogical engagement during the courses and cognitive load of trainees (pedagogical and content knowledge).

Ethical use of AI tools is one of the attributes of AI literacy (Liu & Jagadish, 2024). A peculiar observation was made based on interviews of two instructors: while in Case 1 trainees were engaged in understanding the ethics of their personal use of AI resources and how AI uses collective intellectual property, trainees in Case 2 did not raise those questions. This lack of inquiry might be attributed to the fact that six months had elapsed between the two courses. By the time Case 2 started, discussions surrounding this topic had been prevalent in academic circles for some time and had consequently diminished in urgency. Also, many research publishers had released their guidelines on the use of AI tools in research publications (e.g. Elsevier, 2023; Springer Nature, 2023). It may also be explained by the course design. That is, Case 1 covered generative and editing instruments, where the use of AI is particularly controversial. Case 2 focused on effective literature searches and the formulation of research questions, and as a result did not require generation of a text *per se*. Also, while both instructors included information on the ethics of AI use, Case 1 instructor invited and encouraged a discussion of this topic during the course. Another reason for differential focus on the ethics could be due to the wider array of disciplinary backgrounds in Case 1 than in Case 2 and participants' experience in research. That is, Case 1 had three full professors as trainees, and they were the driving force of the discussions revolving around the

AI ethics, which can be explained by their richer publishing backgrounds than their early career colleagues. At the same time, in both cases, the discussions about the ethical use of AI tools were spontaneous rather than a structured and deliberately planned exercise, which should be considered in future course design by practitioners and researchers.

The results revealed that the instructors were more critical in their use of AI tools for their personal research writing, which confirms the discussions about the ethical use of AI by the scholarly community (Elsevier, 2023; Springer Nature, 2023) and efforts of different organizations to regulate the ethical use of AI tools (Chan, 2023; Liu & Jagadish, 2024; Moorhouse et al., 2023; Stokel-Walker, 2023). The seemingly higher level of critical AI literacy of the course instructors could be explained by their larger exposure to AI tools and better understanding of the benefits and limitations of them than that of trainees. However, in this exploratory study, we did not measure AI literacy using the validated surveys to truly understand the levels of AI literacy of the participants. This case study with academics' views on AI adds to the educational research across the world, where students and instructors also voice concerns about the ethics of AI technology (Chan & Hu, 2023; Williyen et al., 2024). For example, a survey of 399 undergraduate and graduate students in Hong Kong showed that students are especially concerned about plagiarism and the difficulty of identifying plagiarized information with the advent of AI tools (Chan & Hu, 2023). In this way, the discussions about the ethical use of AI in the Russian context echo and confirm similar discussions around the world.

While both trainees and instructors expressed their satisfaction with the overall experience and were engaged at all stages of the courses, trainees in both cases noted that the courses were fast paced, and it was tiring to be actively engaged for eight hours during the weekend. This observation taps onto the cognitive load theory, which posits that when new information exceeds the capacity of working memory, learners experience cognitive overload and fail to successfully process incoming information (Sweller, 2020). As a result, course designers and instructors should aim at considering this peculiarity of cognitive processing, when developing new courses (Hawlitshchek & Joeckel, 2017). Even though trainees ranged from PhD students to seasoned professors, introducing new information such as AI writing tools should be done in accordance with the research findings of information processing and learning theories.

Despite the growing interest in AI technology in academia, AI literacy remains low among researchers (Liu & Jagadish, 2024). We observed a lack of AI literacy in this case study too, given various levels of the trainees' familiarity with AI tools. This observation was reported by instructors and also mirrored in trainees' feedback forms. However, even novice AI users were determined to explore the suggested tools further at their own pace. Such observations generally

adhere to the research findings of life-long adult learning. Being experts in their fields, adult learners return to higher education or take professional development courses to stay up to date with the new developments in their respective fields (Havnes & Smeby, 2014). One of the key elements of effective AI integration in education is creating a collaborative space for faculty members from diverse disciplinary backgrounds so that they can learn together (Eleftheriou et al., 2025).

While this case study provided the first glimpse at the pedagogical practices of teaching academics to use AI tools for research writing through TPACK and AI literacy, it demonstrated both benefits and limitations. The study signified the advantages of a practice-oriented approach to teaching academics, combining AI-based hands-on activities with critical analysis of individually relevant outcomes. Nevertheless, this exploratory study includes some inherent limitations such as small sample sizes in Case 1 (n=19) and Case 2 (n=15) as well as sampling of self-selected trainees and instructors from one university in Russia. Also, the exploratory design-based case study was used, which precludes us from identifying the effects of the courses on the faculty's adoption and ethical use of AI. Both the small sample size and the use of the exploratory case study limit the interpretation and generalizability of findings. In addition, both instructors and trainees might have provided socially desirable responses in feedback forms and interviews.

Another limitation is the length of the AI interventions – both of them lasted just one day for around eight hours, which is not enough to develop AI literacy. As a result, it is hard to identify if there were any measurable effects on the trainees' use of AI tools for searching, drafting, and revising stages of academic writing beyond the courses. To be effective, interventions should last at least eight weeks for the effects to be considered generalizable (Chwo et al., 2016). While two courses covered very similar topics and introduced similar AI tools, they were developed and delivered by two different instructors. As a result, it is impossible to conduct more serious cross-case comparisons or measurements of the effectiveness of these courses on trainees' AI literacy. Finally, one of the authors of this study was an instructor of the two courses and this might have affected both teaching and data analysis. However, we ensured the validity of the results by conducting the interviews and coding the results of the feedback forms and interviews together with the other two authors to diminish any possible bias and vested interests in the results of this study. These limitations should be taken into account when interpreting the results of this study and designing further studies focusing on AI writing tools.

CONCLUSION

This exploratory case study is an attempt at examining the perceptions of the trainees and instructors' experiences at

one-day immersion courses introducing AI tools into research writing. Irrespective of the limitations outlined above, this study identified that researchers from one of the universities in Russia intend to learn about and apply AI tools to facilitate various stages of research writing. However, some of them might have been not as critical as instructors of the courses in terms of assessing the benefits and limitations of AI tools for research and publication purposes, highlighting the need in promoting the AI literacy among faculty. The results of this study echo and support some of the earlier findings across the globe. In addition, the study contributes to the practices of ethical use of AI tools, designing short-term courses, and further research on academic writing infused with AI tools. That is, the novelty of this study lies in shifting the focus of AI users from university students to faculty in higher education. Also, the examination of AI literacy and use of AI tools through the lens of the TPACK framework.

In terms of the theoretical contribution, the discussions of the ethical use of AI tools at various stages of research writing should be an important tenet of AI infused academic writing by expanding such theoretical frameworks as TPACK. Attempts are made to introduce the Intelligent TPACK framework, which is claimed to include AI literacy and ethics. Nevertheless, how to apply the Intelligent TPACK, inclusive of AI literacy and ethics, in practice is still not clear. This point becomes prominent when targeting AI writing courses to the needs of novice researchers, who might be seduced by the ease of text generation and summarization of articles by AI tools. The same might be true for non-native speakers of English whose level of proficiency is not enough for evaluating, adapting, and appropriating AI-generated texts. Therefore, it is important for course designers to include AI literacy and ethics as key points in all courses inviting participants to reflect on the issue and generating evidence-based applications of Intelligent TPACK. In addition, the results of this study support the tenets of cognitive load theory, by emphasizing the need for designing courses which might span longer than one day but facilitating a better cognitive uptake and processing of new information, especially for adult learners. These contributions lead to the practical implications for course design targeted on adult learners.

Practical Implications

The cases clearly demonstrate the benefits of practice-oriented courses over a mere presentation of the functionality of AI tools. The TRACK framework for designing courses on research writing seems to be efficient. It allows creating courses that equip learners with AI technology and the knowledge how to use it for achieving individually set research goals. The opportunity for trainees to experiment with the tools and to access the generated output appears to be appropriate for adult academics. However, a course designer should consider such factors as (1) trainees' previous experience, (2) a careful selection of AI tools and easy

access to them, (3) time for familiarization with the tools and completing tasks, (4) classroom management, especially in groups with various levels of AI literacy, and (5) goal setting to ensure a sense of achievement in order to develop effective courses. For instance, the results of this study had an immediate practical effect for HSE academic writing center. Many AWC courses have been redesigned: more focus on developing AI ethics literacy have been added and a longer format has been offered, maintaining the priority for hands-on activities. This exploratory study highlights the evolving roles of writing instructors and multiliteracy writing centers, adding developing learners' AI literacy as a new domain. The recommendations provided above might be useful for course designers and writing center staff across different contexts and countries who are struggling with balancing a traditional approach to teaching/learning writing with introducing AI tools as writing assistants. As AI continues to evolve and new tools rapidly appear, centers that organize similar courses should have knowledge of recent developments and the functionality of AI resources.

Future Research

This exploratory case study unfolds numerous possibilities for further practice-oriented research, for instance, to create a survey for the case study participants and analyze the washback effect of the courses in order to examine which of the tools introduced during the courses are being used by trainees longitudinally. It might be also interesting to design writing courses with the same educational objectives in various formats (one-day vs. multi-week programs) and examine their effectiveness in experimental studies with control and experimental groups. Another topic that deserves further investigation is how to efficiently develop AI literacy in groups of adults with different levels of expertise and various needs, followed by measuring AI literacy of participants. Additionally, it is worth examining how reliance on AI for feedback affects the development of a writer's voice and critical thinking skills.

Theoretical Implications

At the same time, we acknowledge the limited theoretical scope of the study and invite other researchers to examine

the AI literacy development and TPACK approach by focusing on the theoretical implications. That is, the Intelligent TPACK, an extension of the TPACK by adding AI literacy and ethics, has been introduced elsewhere. Presently, most of the research studies using the Intelligent TPACK are correlational, not experimental to warrant that the updated TPACK can be applied in professional development or teaching settings. As a result, we call for the evidence-based curricula and pedagogical methods, which are examined in experimental studies to identify the mechanism of developing AI literacy and ethics in educational settings with faculty, including multilingual scholars, to truly transform TPACK into Intelligent TPACK.

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None declared.

AUTHOR CONTRIBUTION

Diana Akhmedjanova: conceptualization; data curation; formal analysis; funding acquisition; methodology; project administration; visualization; writing – original draft; writing – review & editing.

Svetlana Suchkova: formal analysis; investigation; methodology; resources; software; supervision; writing – original draft.

Natalia Zharkova: conceptualization; data curation; formal analysis; funding acquisition; methodology; project administration; visualization; writing – original draft; writing – review & editing.

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APPENDIX A.

Course Feedback *

**The forms slightly differ only in Question 2 as the course objectives are specific for each case.*

- (1) Evaluate the overall usefulness / relevance of the course. (On a scale from 1 (unsatisfactory) to 10 (outstanding))
- (2) Have the objectives of the course been met?
Case 1
 - a) To practice using a combination of AI writing tools to work on your literature review (Yes, Partially, No)
 - b) To evaluate and identify possible writing challenges you experience when using AI tools (Yes, Partially, No)
 - c) To write at least one page of your literature review (Yes, Partially, No)**Case 2**
 - a) To formulate and validate research question (Yes, Partially, No)
 - b) Use a combination of AI tools to search for and access relevant academic literature (Yes, Partially, No)
 - c) To decide on a list of target journals (Yes, Partially, No)
 - d) To write a plan for literature review draft (Yes, Partially, No)
 - e) To prepare literature review draft of about 1000 words (Yes, Partially, No)
- (3) What are the main course takeaways? Please give at least three examples. (open-ended question)
- (4) On a scale from 1 (completely disagree) to 10 (absolutely agree) to what extent do you agree with the following statements about the course?
 - a) The course content was organized effectively.
 - b) The assignments were organized effectively.
 - c) The feedback provided by the trainer was constructive.
 - d) The course activities were meaningful.
- (5) What tasks did you find most relevant and/or useful? (open-ended question)
- (6) What tasks did you find irrelevant and/or unnecessary? (open-ended question)
- (7) Assess the teacher's performance (On a scale from 1 (unsatisfactory) to 10 (outstanding))
- (8) Assess your own involvement. (On a scale from 1 (unsatisfactory) to 10 (outstanding))
- (9) Please explain your level of involvement. (open-ended question)
- (10) If you have any comments or suggestions on improving the course, please write them here. (open-ended question)
- (11) Here you can write anything else relevant to the course. (open-ended question)
- (12) Would you recommend the course to others? (Yes, Not sure, No)

APPENDIX B

Interview Questions for Instructors

Which AI resources do you use for your research and scholarly writing?

- (1) Which ones did you include in this course? Why?
- (2) Did teaching the course meet your expectations in terms of teaching methods and participants' engagement? Please explain and provide examples.
- (3) What were the highlights of the course?
- (4) What were the drawbacks?
- (5) What are some other observations that you had while working with participants?
- (6) What insights did you have after reading participants' feedback?
 - a. Was there something that you agreed with? Provide examples.
 - b. Was there something that you disagreed with? Provide examples.
- (7) What would you change when you teach this course next time?
- (8) Is there anything else you would like to share with me in regards to this topic?

APPENDIX C

Semi-Structured Interviews Analysis

Table 2

Themes, codes, and example quotes from semi-structured interviews.

Themes	Codes and frequencies	Example quotes
AI tools used by trainers		
	AI tools (n = 28)	“For researching with AI, I use Consensus, Semantic Scholar, and Research Rabbit” (Instructor 1) “Litmaps, Elicit and maybe Perplexity” (Instructor 2)
	Tool features (n = 35)	“It does not work with all the articles, but like once you click on the article you can find out information about the study design, the number of participants, what kind of methods they use to measure certain things and general results that they got.” (Instructor 1)
	The reason to include AI tools in the course (n=27)	“but I felt like it was helpful to show it to academics just because sometimes, like the tools which are not for academics can help us to generate like the titles for our articles, for example.” (Instructor 1)
	The reason not to include AI tools in the course (n = 3)	“I feel like this is part of our research work anyway and people like use those websites and can see all these other tools” (Instructor 1)
	Reasons for using AI tools (n = 18)	“just to recheck if I haven’t missed any works in my literature Review search” (Instructor 2)
	Reasons for not using AI tools (n = 3)	“if you use AI resources, you should recheck” (Instructor 2) “I do some things or most of the things better.” (Instructor 1)
Course expectations vs. reality		
	Course expectations (n = 4)	“... to be interested in these AI instruments and to apply them to do the exercises and have some group work discussions. And they did that. So, yeah, they kind of meet the expectations” (Instructor 2)
	Goal of the course (n = 3)	“I wanted to cover all the stages of writing a scientific paper” (Instructor 1)
	Content of the course (n = 3)	“I included tools based on the stages of academic writing; let’s say because I had four main stages like researching with the AI, reading with AI, drafting with AI and revising and editing with AI.” (Instructor 1)
	Engagement (n = 8)	“Splitting into two kinds of teams or pairs. So some pairs, they were very engaged and very talkative, and really tried almost to make friends during this course, and some of them were kind of neutral and just doing the task.” (Instructor 2)
	Teacher’s perception of the course (n = 14)	“another thing that made me happy was that most of the people showed up in person and it was like 20 people in that class” (Instructor 1)
Course highlights		
	Highlights (n = 9)	“moment when I was grouping people, and I have to put into pair two people, one from physics knowledge area and the other person from humanities knowledge area, I think it was linguistics and yeah, so despite my fears, they managed to interact and go through the exercises” (Instructor 2)
	Ethics (n = 12)	“Especially I guess people who have been in this academic game, for a while they were like, Oh, they are not writing as well as I do. These tools are not as creative as I am and I feel like for some people that was one of the takeaways from the course and it made me happy because people were asking about how ethical to use this kind of stuff.” (Instructor 1) “we didn’t discuss it at all. Ethical usage of AI was briefly mentioned by me and then had no comments. So I just briefly discussed that you have to mention what you use, what instruments and for what purpose should this” (Instructor 2)
	Participants’ expertise (n = 3)	“maybe just a couple of these students were well prepared in terms of being into their research projects, I have I had a feeling that some other students, they just they needed some more time to navigate through new aspects of their research topic.” (Instructor 2)

Themes	Codes and frequencies	Example quotes
Course drawbacks		
	Mismatch between of participants' and trainer's expectations (n = 8)	I felt like people had different expectations. And different goals. Which were not necessarily advertised within the description of the course" (Instructor 1) "remember one comment of the student who was thinking about data, and was expecting that during this course, we will be also going through some data sources. So this kind of a confusing thing, this expectation that was for me." (Instructor 2)
	Drawbacks (n = 13)	"when you within the single day you look at the researching, reading, drafting, editing. I feel like it can be a little bit overwhelming" (Instructor 1) "Maybe there should have been more time allocated to some assignments, just to play it safe for all the participants of the course." (Instructor 2)
Trainers' insights after reading participants' feedback		
	Participants' feedback (n = 13)	"there was one very harsh comment by one of the participants who explicitly stated that the course was bad." (Instructor 1) "so it was too good to be true during the course. So they really liked the course. I didn't expect that, because for me, it was just interesting course, but not outstanding" (Instructor 2)
	Teacher's perception of students' feedback (n = 14)	"one really cool thing which was written in Russian "я убедилась, что я пишу лучше чем AI" So, it translates as I was assured that I write better than artificial intelligence tools and that was one of the messages, one of the messages that I wanted to deliver as well as a teacher" (Instructor 1) "I think I mainly agreed. So some of them write that they were tired at the end and was beneficial material." (Instructor 2)
Recommendations for future improvements		
	Changes (n = 18)	"I would definitely reconsider either maybe splitting it up not to have it like during the whole day 8 h maybe make it a little bit more spread out and have it like, for 5 weeks, but for, for an hour and a half, for example, and focus on different topics." (Instructor 1) "I would also add peer reviewing using a different instrument that would also benefit them more." (Instructor 2)
	Pedagogical reflection (n = 41)	"maybe it's going back to the methodological issue just because like in my case I tried to cover all the main stages of working or writing an academic paper and maybe it was a little bit too much." (Instructor 1) "I was trying to allocate my time to get into the pairs which had this not so maybe friendly or intensive communication, and try to understand what was the reason? Was it somehow, course related, assignment related, or something else?" (Instructor 2)