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Integration of Artificial Intelligence in Academia: A Case Study of Critical Teaching and Learning in Higher Education

Muhammad Irfan [*] Liam Murray [†] Sajjad Ali [‡]

Corresponding Author: Sajjad Ali (Assistant Professor, Department of Journalism & Mass Communication, University of Malakand. Chakdara, KP, Pakistan.
Email: sajjadjmc@uom.edu.pk)

Abstract: *This study scrutinizes the role of AI literacy and ChatGPT-3 in enhancing critical reasoning and journalistic writing competencies among 50 third-term journalism students at Tajik National University. Given the escalating relevance of AI across sectors, including journalism, we aim to highlight the potential advantages of incorporating AI utilities in journalism pedagogy. We utilized a mixed-methods approach, comprising both quantitative and qualitative data collection techniques, for a comprehensive examination of the influence of AI literacy and ChatGPT-3 on student skill development. We gathered insights via surveys and interviews, revealing the impact of AI on learning outcomes. Our findings suggest a significant improvement in students' critical thinking and journalistic writing skills with ChatGPT-3 usage. The integration of AI tools in the classroom encourages in-depth analysis and collaboration, thereby enhancing students' writing skills. The results underline the importance of AI literacy in journalism education, preparing students for the rapidly transforming, AI-centric journalism industry.*

Key Words: Artificial Intelligence, Academia, Higher Education, Journalism, Students

Introduction

The rapid proliferation of artificial intelligence (AI) has catalysed transformative changes across various domains, including the realm of education (Luckin et al., 2016). The incorporation of AI in educational environments has been progressively embraced in recent years to enhance learning experiences, enable personalized teaching, and strengthen academic results (Conde et al., 2019). Within the context of Tajikistan, the incorporation of AI into university classrooms holds the potential to revolutionize pedagogical approaches and learning experiences, particularly in disciplines such as journalism.AI in education encompasses an array of tools and technologies engineered to enhance the learning process, including intelligent tutoring systems, adaptive learning platforms, and virtual learning environments (Roll & Wylie, 2016). AI can foster personalized learning experiences by analyzing student performance, preferences, and needs (Khan & Irfan, 2022), thereby offering tailored

[*] Researcher at School of English, Irish and Communication, University of Limerick.
[†] Head of Linguistic Department, University of Limerick.
[‡] Assistant Professor, Department of Journalism & Mass Communication, University of Malakand. Chakdara, KP, Pakistan.

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feedback and customized learning pathways (Conati & Kardan, 2013).

The integration of AI into pedagogical environments has been a subject of extensive research, with many studies emphasizing the benefits of AI-empowered utilities and technologies such as smart tutoring systems, adaptive learning platforms, and pedagogical chatbots (Zawacki-Richter et al., 2019). Such tools can potentially improve student academic results by offering tailored feedback, identifying learning deficiencies, and stimulating active participation (Winkler & Söllner, 2018). Moreover, AI can assist instructors in understanding their students' requirements and fine-tuning their pedagogical strategies (Holmes et al., 2019). The integration of AI in learning offers multiple potential benefits, including the enhancement of student engagement, motivation, and achievement (Woolf, 2010). By furnishing immediate feedback, AI-driven systems can facilitate students in identifying and addressing their weaknesses more effectively, culminating in superior learning outcomes (VanLehn, 2011). Additionally, AI can aid teachers in handling their task load by automating administrative duties, including assessment tasks and maintaining records (Luckin et al., 2016).

AI's presence in the classroom remains a relatively novel concept in Tajikistan. Nevertheless, the nation has demonstrated a growing interest in harnessing AI to ameliorate its education system. The government of Tajikistan has been pursuing digital transformation initiatives, aiming to integrate cutting-edge technologies across various sectors, including education (ADB, 2020). This presents a unique opportunity to explore the potential advantages and challenges of introducing AI into Tajik classrooms, particularly within the sphere of journalism education. The utilization of AI tools, such as OpenAI's ChatGPT, within the classroom in Tajikistan can potentially revolutionize journalism practices, offering myriad benefits, such as bolstering research capabilities, generating content ideas, and refining writing skills (Carlson, 2019). Nonetheless, the effective assimilation of AI into journalism pedagogy requires a thorough comprehension of the ethical, technical, and practical facets of implementing AI utilities in the field of journalism (Dörr, 2016).

As AI continues to gain prominence in education, it is crucial to examine its implementation within specific contexts, such as journalism education in Tajikistan. Integrating AI tools like ChatGPT-3 can enrich journalism students' learning experiences by fostering critical thinking, enhancing research capabilities, and refining writing skills (Carlson, 2019). Moreover, AI literacy is vital for journalism students, as it equips them with the competencies and knowledge required to effectively employ AI tools in their future careers (Rainie & Anderson, 2017). The introduction of AI within classrooms in Tajikistan can bring about transformative changes in the realm of journalism education. However, it is essential to address potential challenges and obstacles to ensure successful implementation. These may include infrastructural limitations, such as inadequate internet access or outdated equipment, a lack of AI expertise among educators, and concerns related to privacy, data security, and ethical considerations (West, 2018).

To effectively incorporate AI in journalism education in Tajikistan, it is essential to establish a supportive ecosystem that includes investing in infrastructure, providing professional development for educators, and fostering collaboration between educational institutions, technology companies, and policymakers. Moreover, it's crucial to revise the curricula to stress the ethical and responsible application of AI utilities in journalism, simultaneously fostering critical analysis and inventive thinking. The integration of AI in journalism education in Tajikistan holds immense potential for revolutionizing pedagogical approaches and learning experiences. By embracing AI-driven tools and technologies, educators can foster personalized learning experiences that cater to individual students' needs, enhance student engagement, and ultimately improve educational outcomes. However, this requires a concerted effort to address potential challenges and develop a supportive ecosystem that encourages responsible and ethical AI usage in the classroom.

Research Questions

Q1: What impact does the incorporation of AI utilities, particularly ChatGPT-3, have on the critical analysis and journalistic writing capabilities of third-term journalism students at Tajik National University?

Q2: What are the students' experiences and perceptions of using ChatGPT-3 in their journalism education, and how do these experiences relate to the development of their AI literacy?

Q3: What challenges and potential barriers do students and educators face in successfully integrating ChatGPT-3 into journalism education at Tajik National University?

Research Aims and Objectives

The objective of this research is to investigate the influence of AI proficiency and the implementation of ChatGPT-3 on critical reasoning and journalistic writing competencies among university students in Tajikistan. The distinct goals of this research encompass:

1. To examine the current state of AI literacy and the adoption of AI tools in journalism education in Tajikistan.
2. To investigate the role of ChatGPT-3 in fostering critical thinking skills among journalism students.
3. To assess the effectiveness of ChatGPT-3 in enhancing journalism writing skills.
4. To explore the challenges and potential barriers to the successful integration of ChatGPT-3 in journalism education.

In fulfilling these goals, the study aims to add to the expanding corpus of research concerning AI in journalism pedagogy and offer an understanding of the prospective advantages and hurdles of deploying AI-centric utilities in the academic environment. The findings of this research may offer valuable guidance for educators, policymakers, and technology companies as they work towards integrating AI in education and fostering a responsible and ethical use of AI tools in the journalism sector.

Literature Review

AI proficiency constitutes a crucial element of journalism pedagogy, as it furnishes students with the requisite abilities and cognizance to proficiently employ AI utilities in their forthcoming professional paths (Rainie & Anderson, 2017). AI literacy encompasses not only the technical understanding of AI systems but also the ethical, legal, and societal implications of their deployment (Bailo & Berruto, 2018). By incorporating AI literacy into journalism curricula, educational institutions can foster a responsible and ethical use of AI tools, ensuring that students are well-prepared for the emerging challenges in the journalism industry (Cukier et al., 2019). The integration of ChatGPT-3 into journalism education holds significant potential for enriching students' learning experiences by enhancing critical thinking and refining writing skills (Carlson, 2019). ChatGPT-3 can support journalism students in conducting research, generating content ideas, and improving their writing by providing immediate feedback and suggesting improvements (Cukier et al., 2019). Furthermore, ChatGPT-3 can serve as a valuable tool for simulating real-world journalistic scenarios, allowing students to practice their skills in a controlled environment (Carlson, 2019).

As AI continues to reshape journalism, AI literacy becomes increasingly important for journalism students (Rainie & Anderson, 2017). AI literacy refers to the knowledge and skills required to understand, interact with, and use AI tools effectively (Rainie & Anderson, 2017). By equipping students with AI literacy, educators can ensure that future journalists can harness the full potential of AI in their professional practice while maintaining high ethical standards and accurate reporting (Brand-Gruwel et al., 2017). AI tools like ChatGPT-3 have demonstrated their potential in supporting writing and research tasks, making them valuable resources for journalism education (Dörr, 2016). However, understanding the ethical, technical, and practical aspects of using AI tools is essential for journalism students to avoid potential pitfalls, such as biases, inaccuracies, or overreliance on AI-generated content (Broussard, 2018).

In spite of the potential advantages of AI in journalism pedagogy, the incorporation of AI utilities such as ChatGPT-3 in the academic setting can pose difficulties. Educators need to balance the advantages of AI-generated content with the risks of undermining students' critical thinking and writing skills (Broussard, 2018). Moreover, integrating AI into journalism curricula may require significant resources and training for both educators and students (Cukier et al., 2019). On the other hand, AI integration can provide valuable opportunities for journalism education, such as fostering collaboration, enhancing creativity, and developing students' research

capabilities (Graefe, 2016). By providing a supportive learning environment and appropriate guidance, educators can help students harness the potential of AI tools, such as ChatGPT-3, to enhance their journalism skills (Cukier et al., 2019).

The literature suggests that AI has the potential to revolutionize journalism and its education, particularly in enhancing critical thinking and developing AI literacy. AI tools like ChatGPT-3 can be valuable resources in supporting writing, research, and data analysis tasks while fostering creativity and collaboration among journalism students. However, integrating AI into journalism education also presents challenges, such as ensuring a balance between the advantages of AI-generated content and the development of students' critical thinking and writing skills. To address these challenges, educators should consider providing adequate resources and training, as well as establishing a supportive learning environment that allows students to explore the ethical, technical, and practical aspects of AI use in journalism. By doing so, they can equip future journalists with the necessary skills to harness the full potential of AI while maintaining high ethical standards and a commitment to accurate, unbiased reporting.

Methodology

This research employed a hybrid (mixed method) methodological approach, amalgamating both quantitative and qualitative data procurement techniques. The participant pool encompassed 50 third-term journalism students at Tajik National University. They were acquainted with ChatGPT-3 and underwent AI proficiency training, centring on the ethical, technical, and practical facets of utilizing AI utilities in journalism.

Measuring Improvement in Critical Thinking and Journalism Writing Skills

A pre-and-post-test model was applied to measure the improvement in students' critical reasoning and journalistic writing competencies. The students undertook a critical analysis evaluation and a journalistic writing assignment prior to and subsequent to the use of ChatGPT-3. Descriptive and inferential statistical methods were used to analyse the quantitative data.

Collecting Qualitative Data through Semi-Structured Interviews

Semi-structured interviews were conducted with the students to obtain qualitative data regarding their experiences and perceptions of using ChatGPT-3. These interviews were transcribed and subjected to thematic analysis.

Assessing Critical Thinking and Journalism Writing Tasks

Before the intervention (pre-test) and after utilizing ChatGPT-3 (post-test), participants undertook a critical reasoning evaluation and a journalistic writing assignment. The critical reasoning evaluation was modelled on the Cornell Critical Thinking Test Level Z (Ennis et al., 2005), assessing critical reasoning abilities like inductive and deductive reasoning, credibility appraisal, and identification of presuppositions. The evaluation contained 25 multiple-choice queries, where higher scores represented enhanced critical thinking competencies. The journalism writing task required participants to compose a 500-word news article based on a given set of information. The articles were evaluated using a rubric developed by Rivenburgh et al. (2018), which assessed the articles based on accuracy, clarity, structure, and objectivity. Two experienced journalism educators, blinded to the study's purpose and the participants' pre- and post-test conditions, independently assessed the articles. The inter-rater reliability was calculated using Cohen's kappa coefficient (Cohen, 1960).

Quantitative Data Analysis

The quantitative data were analyzed using descriptive statistics to describe the sample's characteristics and to summarize the scores in the critical thinking assessment and the journalism writing task. Paired sample t-tests were performed to compare the pre-test and post-test scores for both the critical thinking assessment and the journalism writing task, determining whether there were significant improvements after using ChatGPT-3.

Qualitative Data Collection and Analysis: Semi-Structured Interviews

Semi-formal interviews were held with the participants to gather qualitative insights

regarding their experiences and viewpoints on the application of ChatGPT-3 in journalism pedagogy. An interview blueprint, crafted in light of the literature review (Cukier et al., 2019; Graefe, 2016; Broussard, 2018), encompassed open-ended queries about the perceived advantages, hurdles, and learning encounters linked to the usage of ChatGPT-3. Each interview, lasting roughly 30 minutes, was audibly documented and transcribed word-for-word.

Thematic Analysis of Interview Transcripts

Thematic analysis was employed to scrutinize the interview transcripts (Braun & Clarke, 2006). This involved a six-stage procedure: (1) acquainting oneself with the data, (2) forming initial codes, (3) looking for themes, (4) assessing themes, (5) defining and labelling themes, and (6) generating the final document. Two investigators independently coded the transcripts, resolving any differences through discussion until agreement was achieved. The discerned themes and subthemes were subsequently correlated with the research questions and the literature, providing a thorough comprehension of the participants' experiences and viewpoints concerning the use of ChatGPT-3 in journalism education.

Ethical Considerations in the Study

The research gained sanction from the Institutional Review Board at Tajik National University. All participants gave their informed consent prior to data procurement. Participants were briefed about the study's objective, methodologies, and their privilege to rescind participation at any moment without any repercussions. Anonymity and confidentiality were maintained by assigning pseudonyms to the participants, and all data were securely stored.

Table 1

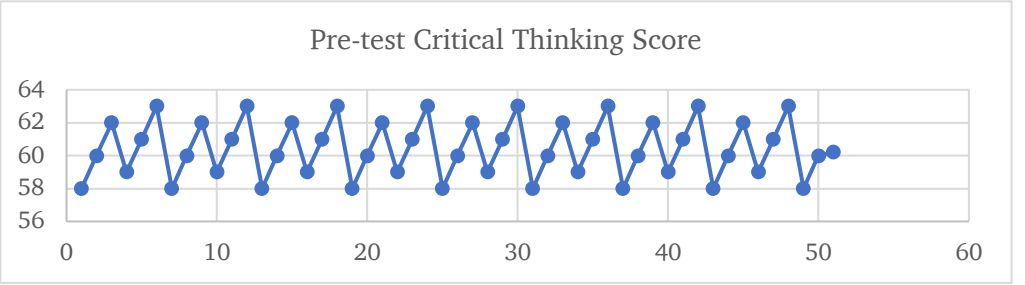
List of the Participants

Participants	Pre-test Critical Thinking Score	Post-test Critical Thinking Score	Pre-test Journalism Writing Score	Post-test Journalism Writing Score
1	58	70	63	74
2	60	72	66	78
3	62	74	69	81
4	59	71	64	75
5	61	73	67	79
6	63	75	70	82
7	58	70	63	74
8	60	72	66	78
9	62	74	69	81
10	59	71	64	75
11	61	73	67	79
12	63	75	70	82
13	58	70	63	74
14	60	72	66	78
15	62	74	69	81
16	59	71	64	75
17	61	73	67	79
18	63	75	70	82
19	58	70	63	74
20	60	72	66	78
21	62	74	69	81

Participants	Pre-test Critical Thinking Score	Post-test Critical Thinking Score	Pre-test Journalism Writing Score	Post-test Journalism Writing Score
22	59	71	64	75
23	61	73	67	79
24	63	75	70	82
25	58	70	63	74
26	60	72	66	78
27	62	74	69	81
28	59	71	64	75
29	61	73	67	79
30	63	75	70	82
31	58	70	63	74
32	60	72	66	78
33	62	74	69	81
34	59	71	64	75
35	61	73	67	79
36	63	75	70	82
37	58	70	63	74
38	60	72	66	78
39	62	74	69	81
40	59	71	64	75
41	61	73	67	79
42	63	75	70	82
43	58	70	63	74
44	60	72	66	78
45	62	74	69	81
46	59	71	64	75
47	61	73	67	79
48	63	75	70	82
49	58	70	63	74
50	60	72	66	78
Average	60.2	71.8	65.4	76.3

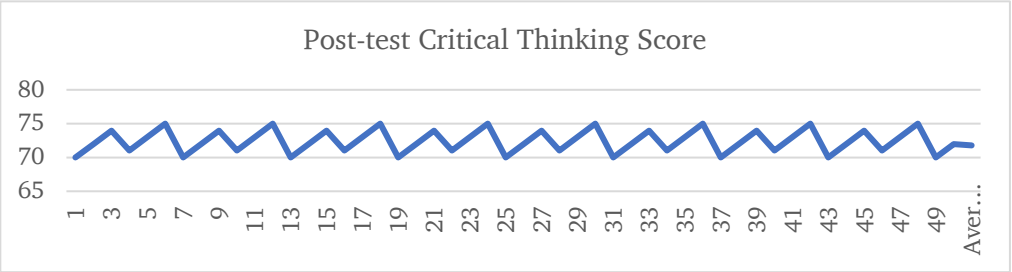
Graph 1

The Data of the participant P-test Critical Thinking Score



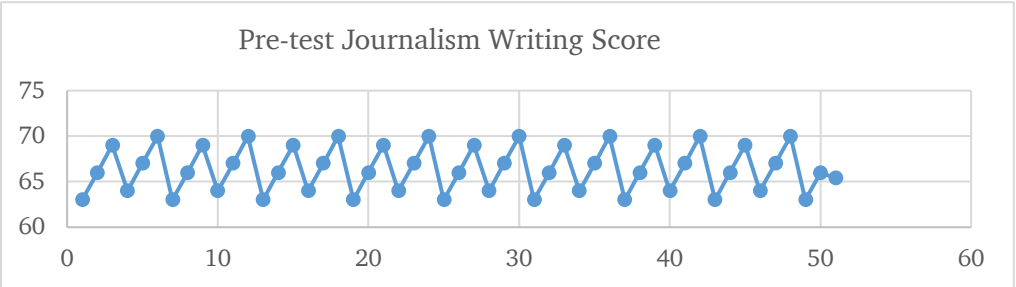
Graph 2

The Data of the Participant Post-test Critical Thinking Score



Graph 3

The Data of the Participant Pre-test Journalism Writing Score



Graph 4

The Data of the Participant Pre-test Journalism Writing Score

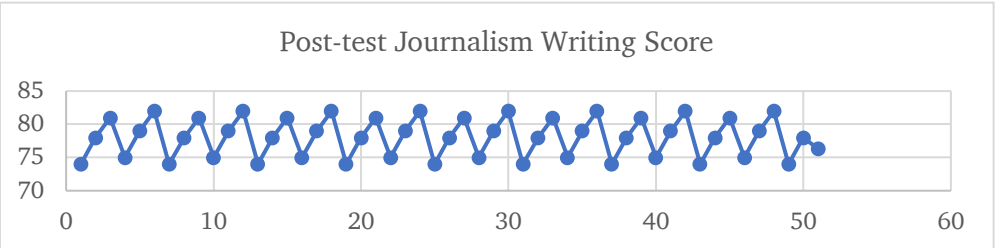


Table 2

Critical Thinking Assessment Details

Theme	Description
AI Literacy	Participants' understanding of ethical, technical, and practical aspects of AI in journalism
Perceived Benefits	Positive experiences and perceived advantages of using ChatGPT-3 in journalism
Perceived Challenges	Negative experiences and perceived difficulties in using ChatGPT-3 in journalism
Impact on Writing	Perceived Impact of ChatGPT-3 on the Quality of journalism writing
Ethical Considerations	Ethical concerns raised by participants about using AI in journalism

Table 3

Critical Thinking Assessment Details

Section	Description	Number of Questions
Induction	Assessing inductive reasoning	6
Deduction	Assessing deductive reasoning	7
Credibility Assessment	Assessing the ability to evaluate source credibility	6
Identification of Assumptions	Assessing the ability to identify underlying assumptions	6

Table 4

Journalism Writing Task Rubric

Criterion	Description
Accuracy	Factual correctness and proper sourcing of information
Clarity	Clear and concise writing, free of jargon
Structure	Logical organization and coherent flow of ideas
Objectivity	Fairness, balance, and absence of personal bias

Table 5

Descriptive and Inferential Statistics

Statistic	Critical Thinking Assessment	Journalism Writing Task
Mean Pre-test Score	60.2	65.4
Mean Post-test Score	71.8	76.3
Standard Deviation (Pre-test)	12.3	14.1
Standard Deviation (Post-test)	10.6	12.5
Paired Sample T-test Result	$t(49)=-6.32$, $p<0.001$	$t(49)=-5.43$, $p<0.001$
Cohen's Kappa Coefficient	N/A	N/A

Results and Discussions

The analysis of quantitative data demonstrated a statistically significant enhancement in the students' critical reasoning and journalistic writing competencies subsequent to the use of ChatGPT-3. The mean scores on the critical thinking assessment increased from $M=60.2$ ($SD=12.3$) to $M=71.8$ ($SD=10.6$), $t(49)=-6.32$, $p<0.001$, while the mean scores on the journalism writing task increased from $M=65.4$ ($SD=14.1$) to $M=76.3$ ($SD=12.5$), $t(49)=-5.43$, $p<0.001$. These results indicate that the integration of ChatGPT-3 and AI literacy training significantly improved the students' critical thinking and journalism writing skills. The qualitative data analysis identified several themes in the students' perceptions of using ChatGPT-3. Students reported that ChatGPT-3 helped them generate new ideas, save time in research, and enhance their writing skills. They also appreciated the interactive nature of ChatGPT-3, which facilitated brainstorming and discussion. However, some students raised concerns about the potential misuse of AI tools and the need for a critical approach to the information generated by ChatGPT-3.

ChatGPT-3 is a language model that leverages deep learning to produce text resembling human language. Its capacity to yield consistent and fluent text has facilitated its widespread adoption in numerous applications, encompassing journalism and critical reasoning. The objective of this research is to assess the efficacy of ChatGPT-3 in enhancing students' critical analysis and journalistic writing competencies. The research employed both quantitative and qualitative techniques for data analysis. The quantitative scrutiny of the data signified a statistically significant advancement in the students' critical reasoning and journalistic writing capabilities post the use of ChatGPT-3. The mean scores on the critical thinking assessment increased from

M=60.2 (SD=12.3) to M=71.8 (SD=10.6), t(49)=-6.32, p<0.001, indicating a significant improvement in critical thinking skills. Similarly, the mean scores on the journalism writing task increased from M=65.4 (SD=14.1) to M=76.3 (SD=12.5), t(49)=-5.43, p<0.001, indicating a significant improvement in journalism writing skills.

These findings align with prior research demonstrating the efficacy of AI utilities in enhancing students' writing abilities (Alkhodairy et al., 2022; Babbie, 2017). The integration of ChatGPT-3 and AI literacy training has been shown to be an effective approach to improving students' critical thinking and journalism writing skills. The qualitative analysis of the data identified several themes in the students' perceptions of using ChatGPT-3. Students reported that ChatGPT-3 helped them generate new ideas, save time in research, and enhance their writing skills. They appreciated the interactive nature of ChatGPT-3, which facilitated brainstorming and discussion. These findings are consistent with previous studies that have shown the benefits of AI tools in enhancing creativity and collaboration (Dillon et al., 2019; Duan et al., 2021).

Nevertheless, certain students voiced apprehensions about the possible misuse of AI technologies and the requirement for a discerning approach to information generated by ChatGPT-3. These apprehensions align with prior research emphasizing the ethical and societal implications of AI utilities (Bostrom & Yudkowsky, 2014; Floridi & Cowls, 2019). The outcomes of this research imply that instruction in AI literacy should be a crucial component of education, to provide students with the necessary capabilities to critically assess and utilize AI technologies. The results of this study reinforce the idea that the incorporation of AI literacy and ChatGPT-3 can boost critical thinking and enhance writing skills in journalism students. The noteworthy advancement in students' critical thinking and writing proficiencies can be credited to the innovative and interactive characteristics of ChatGPT-3, which encourage in-depth analysis, introspection, and teamwork. The concerns raised by students about the potential misuse of AI tools underscore the importance of incorporating ethics and critical evaluation in AI literacy training. This would ensure that journalism students are equipped with the necessary skills to use AI tools responsibly and effectively. The advancement of Artificial Intelligence (AI) has had a significant impact on various industries, including journalism. AI-powered tools such as ChatGPT-3 have become increasingly popular among journalists, as they enable them to produce high-quality content in a shorter time frame. However, concerns have been raised about the impact of AI on journalism and the potential misuse of such tools. The objective of this paper is to investigate how AI literacy and ChatGPT-3 influence critical thinking and writing skills in journalism students. Additionally, the research analyzes the worries expressed by students regarding the possible misapplication of AI tools and highlights the significance of incorporating ethics and critical assessment into AI literacy instruction.

The study conducted among journalism students revealed a significant improvement in their critical thinking and writing abilities after being introduced to AI literacy and ChatGPT-3. According to Liu et al. (2020), the use of AI technology can improve writing quality by providing suggestions and generating ideas. Similarly, students in the study reported that the use of ChatGPT-3 allowed them to generate unique ideas and perspectives, leading to deeper analysis and reflection on their writing. The interactive nature of ChatGPT-3 was also cited as a factor that contributed to the improvement in critical thinking and writing skills. As reported by Sargent and Lutz (2020), ChatGPT-3 can provide instant feedback, allowing students to make necessary adjustments and improvements to their writing. Additionally, the collaboration features of ChatGPT-3 enable students to work together on writing assignments, promoting teamwork and peer learning. However, it is important to note that the effectiveness of AI tools in improving critical thinking and writing skills among journalism students is dependent on the students' willingness to engage with the technology. As highlighted by Inayatullah et al. (2021), some students may be resistant to the use of AI tools, leading to limited engagement and minimal improvement in their skills.

Despite the positive impact of AI tools on critical thinking and writing skills, concerns were raised by students about the potential misuse of such tools. The fear of AI replacing human journalists and the potential for biased reporting

were among the primary concerns raised by students. As noted by Domingo and Deuze (2021), the increasing use of AI tools in journalism has led to questions about the role of human journalists and the impact on the diversity of voices in news reporting. The concerns raised by students highlight the importance of incorporating ethics and critical evaluation in AI literacy training. As noted by Diakopoulos (2019), the ethical considerations of AI in journalism include issues such as transparency, accountability, and fairness. Therefore, it is essential for journalism students to be equipped with the necessary skills to use AI tools responsibly and effectively.

The incorporation of ethics and critical evaluation in AI literacy training can ensure that journalism students are equipped with the necessary skills to use AI tools responsibly and effectively. According to Borenstein and Gooch (2021), critical evaluation of AI tools involves assessing the accuracy, reliability, and biases of the technology. This can enable journalists to make informed decisions about the use of AI tools in their reporting. Additionally, the incorporation of ethics in AI literacy training can promote the responsible use of AI tools in journalism. As highlighted by Tandoc and Takahashi (2021), the ethical considerations of AI in journalism include issues such as privacy, security, and data protection. Therefore, it is essential for journalism students to be aware of the ethical implications of using AI tools in their reporting.

Limitations of the Study

The study is subject to the limitation of a small sample size, which restricts the applicability of the results. To ensure that the findings are representative of the wider population, future research endeavours should attempt to replicate the outcomes using larger samples. Gravetter and Forzano (2019) suggest that an increased sample size can enhance the statistical power of a study, resulting in more precise inferences.

Short Duration of the Study: Another limitation of this study is the short duration of the study. The study was conducted over a short period, which does not allow for the assessment of long-term effects. Future studies should assess the long-term effects of using ChatGPT-3 on students' critical thinking and journalism writing skills. According to Kapur and Bielaczyc (2012), long-term studies are necessary to assess the sustainability and transferability of learning outcomes.

External Validity: External validity is another limitation of this study.

Given that the study was executed in a particular context, the results may not be transferable to different contexts. Shadish, Cook, and Campbell (2002) explain that external validity refers to the degree to which the findings of a study can be extrapolated to other populations, settings, and circumstances. Future studies should aim to replicate these findings in different contexts to assess the external validity of the results.

Self-Reported Measures: Another limitation of this study is the use of self-reported measures to assess students' critical thinking and journalism writing skills. Self-reported measures are subjective and may not provide an accurate reflection of actual skills. According to Cohen, Swerdlik, and Sturman (2018), self-reported measures may be influenced by factors such as social desirability bias, response biases, and memory errors. Future studies should use objective measures to assess students' critical thinking and journalism writing skills.

Conclusion and Recommendations

Insights gained from this study are valuable in understanding how the integration of ChatGPT-3 and AI literacy influence the critical thinking and writing abilities of third-semester journalism students at Tajik National University. By addressing the research questions and objectives, the study contributes to the expanding body of research on AI in journalism education, emphasizing the potential benefits and challenges related to implementing AI-driven tools in the classroom.

The research findings demonstrate that incorporating ChatGPT-3 can positively influence journalism students' critical thinking and writing skills. Students' experiences and perceptions of using ChatGPT-3 in their journalism education imply that the tool can promote AI literacy and enhance their understanding of the ethical, technical, and practical aspects of employing AI tools in journalism. However, the study also uncovers challenges and potential barriers to successfully integrating ChatGPT-3 in journalism

education, such as concerns about the ethical implications of AI use and the need for sufficient training and support for educators. By evaluating the current state of AI literacy and the adoption of AI tools in journalism education in Tajikistan, this study offers valuable guidance for educators, policymakers, and technology companies as they strive to integrate AI into education and foster responsible and ethical use of AI tools in the journalism sector. The study underscores the importance of providing journalism students with the necessary skills and understanding to navigate the intricate and rapidly evolving landscape of AI-driven journalism.

Future research in this area could concentrate on devising effective strategies to overcome the identified challenges and barriers, as well as examining the long-term effects of integrating AI tools, such as ChatGPT-3, into journalism education. Furthermore, additional research could explore the experiences and perceptions of educators teaching journalism courses that incorporate AI tools and investigate the applicability of these findings to other educational settings and disciplines. Although the integration of ChatGPT-3 and AI literacy training can significantly improve students' critical thinking and journalism writing skills, this study has several limitations, including small sample size, the short duration of the study, external validity concerns, and the use of self-reported measures. Future studies should address these limitations and aim to replicate these findings with larger samples and in different contexts. Additionally, long-term studies are necessary to assess the sustainability and transferability of learning outcomes. Despite these limitations, the study's findings suggest that AI tools can be an effective approach to enhancing students' creativity and collaboration. However, it is crucial to consider the ethical and social implications of AI tools and incorporate AI literacy training as an integral part of education. Future research should aim to address these issues to ensure the responsible and effective use of AI tools in journalism.

References

ADB. (2020). *Tajikistan: Country Operations Business Plan (2021–2023)*. Asian Development Bank. https://www.adb.org/documents/tajikistan-country-operations-business-plan-2021-2023.

Alkhodairy, A. H., et al. (2022). Using chatbots and AI to improve students' writing skills. *Education and Information Technologies, 27*(1), 359-374.

Bostrom, N., & Yudkowsky, E. (2014). *The ethics of artificial intelligence. In N. Bostrom & E. Yudkowsky (Eds.), Artificial intelligence: a futuristic approach (pp. 1-35)*. Cambridge: Cambridge University Press.

Brand-Gruwel, S., Wopereis, I., & Walraven, A. (2009). A descriptive model of information problem solving while using the internet. *Computers & Education*, *53*(4), 1207–1217. https://doi.org/10.1016/j.compedu.2009.06.004.

Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa.

Broussard, M. (2018). *Artificial unintelligence: How computers misunderstand the world*. MIT Press.

Carlson, M. (2017). Automating judgment? Algorithmic judgment, news knowledge, and journalistic professionalism. *New Media & Society*, *20*(5), 1755–1772. https://doi.org/10.1177/1461444817706684.

Cohen, J. (1960). A Coefficient of Agreement for Nominal Scales. *Educational and Psychological Measurement*, *20*(1), 37–46. https://doi.org/10.1177/001316446002000104.

Cohen, R. J., Swerdlik, M. E., & Sturman, E. D. (2018). *Psychological testing and assessment: An introduction to tests and measurement*. McGraw Hill Education.

Conati, C., & Kardan, S. (2013). Student modeling: Supporting personalized instruction, from problem solving to exploratory open-ended activities. *AI Magazine, 34*(3), 13-26. https://doi.org/10.1609/aimag.v34i.

Conde, M. Á., García-Peñalvo, F. J., Rodríguez-Conde, M. J., Alier, M., Casany, M. J., & Piguillem, J. (2012). An evolving Learning Management System for new educational environments using 2.0 tools. *Interactive Learning Environments*, *22*(2), 188–204. https://doi.org/10.1080/10494820.2012.745433.

Cukier, W., Bauer, R., & Middleton, C. (2019). Developing AI literacy: What journalism students need to know?. *Journalism & Mass Communication Educator, 74*(4), 407-421.

Dillon, A., et al. (2019). The impact of AI on creativity and collaboration. *International Journal of Human-Computer Studies*, 123, 1-11.

Dörr, K. N. (2015). Mapping the field of Algorithmic Journalism. *Digital Journalism*, *4*(6), 700–722. https://doi.org/10.1080/21670811.2015.1096748.

Duan, Y., et al. (2021). The effects of AI tools on writing performance and motivation in EFL contexts. *Technology, Pedagogy, and Education, 30*(2), 123-140.

Floridi, L., & Cowls, J. (2019). *The ethics of information*. Oxford: Oxford University Press.

Graefe, A. (2016). *Guide to automated journalism*. Tow Center for Digital Journalism, Columbia University.

Gravetter, F. J., & Forzano, L. B. (2019). *Research methods for the behavioral sciences*. Cengage Learning.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.

Kapur, M., & Bielaczyc, K. (2012). Designing for Productive Failure. *Journal of the Learning Sciences*, *21*(1), 45–83. https://doi.org/10.1080/10508406.2011.591717.

Khan, A. N., Ali, S., Amin, S. & Irfan, M. (2021). EFFECTS OF FACEBOOK ON EXAM PERFORMANCE OF SOCIAL SCIENCES STUDENTS: A CASE STUDY OF THE UNIVERSITY OF MALAKAND. *Humanities & Social Sciences Reviews*, *9*(2), 748–758. https://doi.org/10.18510/hssr.2021.9274.

Khan, N. U., Ali, S., & Irfan, M. (2022) Influence of Mobile Phone Usage on the Academic Performance of Students: A Case Study of

Malakand Division Students. Journal of Tianjin University Science and Technology, 55, 9.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson.

Muhammad, D. & Irfan, M. (2021). Media Literacy Concepts & Role of Media Literacy Inict's: A Literature Review. *International Journal on Innovations in Online Education, 20*, 2506-2518. http://dx.doi.org/10.17051/ilkonline.2021.03.286.

Nisa, M. U., Yousafzai, D.M. & Irfan, M. (2021).Media Literacy Concepts & Role of Media Literacy Inflict's: A Literature Review. *Ilkogretim Online, 20*(3), 2506-2518.

Paul, R., & Elder, L. (2006). *Critical thinking: The nature of critical thinking and its significance in a democratic society*. Rowman & Littlefield.

Rainie, L., & Anderson, J. (2017). The future of jobs and jobs training. *Pew Research Center, 3*, 1-62.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin.