| **RESEARCH ARTICLE**

Students' Assignments and Research Papers Generated by AI: Arab Instructors' Views

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| **ABSTRACT**

This study explores Arab university faculty's views on fully AI-generated assignments and research papers submitted by students, what reasons they give for their stance and how they react in this case. Surveys with a sample of 45 Arab instructors revealed that 98% do not accept AI-generated assignments and research papers from students at all. They gave numerous reasons for their position. If students submit AI-generated assignments or research papers, they would ask them to re-write them. The study recommends raising students' awareness of university policies regarding AI-generated content and introducing faculty and students to AI plagiarism detection tools. Faculty views and recommendations are reported in detail.

1. Introduction

Latest advancements in artificial intelligence (AI) have resulted in significant strides in AI assistants, AI tools and AI chatbots' capabilities and what they can perform in different domains such as healthcare, automated vehicles, game playing, generating art, music and poetry, fraud detection, analyzing user preferences of products, music, and videos, Natural Language Processing, language translation, summarization and paraphrase. In addition, AI models can generate written content, including research papers, using sophisticated algorithms to produce text based on input prompts. AI can find relevant literature using semantic search and can conduct a literature review. Examples of AI Tools and AI writing assistants used in research and writing are ChatGPT (an AI-powered Generative language model); PDFgear Copilot (PDF editor with AI), Zotero (Well-rounded AI assistant), SciTE (Smart citation tool), Consensus (AI-powered search engine), SciSpace (AI-based concept simplifier), Wordvice AI (AI-powered writing assistant), Research Rabbit (Spotify for papers), Rytr (for grammar-checking, rewriting content, and creating multiple versions of a text), Word Tune (for paraphrasing documents and summarizing content), Numerous AI (a Google Sheets plugin for automating repetitive tasks, visualizing data, generating formulas), Rationale (for multi-criteria and SWOT analysis) and others.

In this day and age, some college students resort to AI to fully write their assignments and research papers for several reasons such as having difficulty selecting a research topic, searching for and locating relevant references, designing the research instrument, selecting the sample, analyzing the data collected, writing and discussing the results, inadequate academic and research writing skills, low foreign language proficiency, lack of guidance from their instructor, and others (Al-Jarf, 2022b; Al-Jarf, 2008; Al-Jarf, 2003a; Al-Jarf, 2003b; Al-Jarf, 1991).

While AI-generated content can be helpful to students, it raises ethical questions as academic integrity requires students to engage with the course material, conduct research, practice research and writing skills and contribute their own thoughts, insights, and

experiences. A literature review showed that research on the use of AI in students' research and assignments, and the issue of acceptability, integrity, and responsibility of AI-generated content has not received much attention from researchers around the world. Many studies have investigated issues related to the use of AI in academia such as instructors' perceptions of AI code generation tools (Sheard, Denny, Hellas, Leinonen, Malmi & Simon, 2024); the harms of AI-generated inauthentic content (Menczer, Crandall, Ahn & Kapadia, 2023); opportunities, concerns, and solutions related to the use of generative AI in education and research; critical aspects of implementing AI in education to advance educational goals, ethical considerations in scientific publications, and the attribution of credit for AI-driven discoveries (Alasadi & Baiz, 2023); current capabilities and shortcomings of AI-generated content (Wu, Gan, Chen, Wan & Lin, 2023) and so on.

Moreover, many studies in the literature focused on ChatGPT, in particular, and its utilization in education such as use of ChatGPT at universities (Willems, 2023); scholars and students' perceptions of ChatGPT and what it means for universities (Firat, 2023); the educational impact of ChatGPT (Malinka, Perešíni, Firc, Hujňák, & Januš, 2023); challenges of ChatGPT-generated content and solutions (Wang, Pan, Yan, Su & Luan, 2023); opportunities and challenges of using ChatGPT for research and publication (Xames & Shefa, 2023); a comparative analysis of human and AI-generated learning resources (Denny, Khosravi, Hellas, Leinonen & Sarsa, 2023); confronting the coming tsunami of AI-generated educational research and writing (Tate, Doroudi, Ritchie, Xu & Warschauer, 2023); ethical implications of using artificial intelligence in education (Van der Meijden, Kirschner & Kester, 2021); combining academic judgement and software to identify generative AI tool misuse for detecting GPT-4 generated text in higher education (Perkins, Roe, Postma, McGaughran & Hickerson, 2024) and others.

The literature review revealed lack of studies in Saudi Arabia and other Arab countries on how university faculty view AI-generated assignments and research submitted by students. Therefore, this study aims to fill a gap in this area by exploring how Arab university instructors view the submission of fully generated assignments/research papers by AI tools and AI assistants such as GhatGPT by college students, what reasons they give for their acceptance or rejection of AI-generated assignments/research paper and how they react to the submission of AI-generated text. It also aims to answer some questions such as: Which AI-generated content is acceptable to them? How do they detect AI-generated content? Are there significant differences attitudes and reactions towards AI-generated content submitted by the students between male and female faculty, faculty working in different Arab countries and are different Arab universities and teaching different areas of specialization.

This study is significant as it will introduce faculty who are and those who are not to the use of AI-generated content submitted by the students, and how their colleagues view it and react to it.

Since AI-generated content is leading a paradigm shift in content creation and knowledge representation, some researchers highlighted the need for addressing its ethical, privacy, security, and legal challenges (Wang, Pan, Yan, Su & Luan, 2023). ChatGPT and similar AI content-generation tools, in particular, raise numerous questions for researchers, educational practitioners and policymakers (Tate, Doroudi, Ritchie, Xu & Warschauer, 2023). Exploration of the ethical implications of AI for education, the development of strategies for managing privacy concerns, and the investigation of how educational institutions can best prepare for the integration of AI technologies are urgently needed. Meyer, Urbanowicz, Martin, O'Connor, Li, Peng and Moore (2023) added that we must find ways for using Language Learning Models and chatbots in academia effectively, and the possibility that they may produce plagiarized text, that we must quantify their bias and that users must be cautious of their poor accuracy. To maximize the benefits of AI in education, it is crucial to address the challenges posed by AI in assessment, digital literacy, and ethical considerations and develop strategies for ensuring responsible and equitable implementation.

It is important to understand the potential, opportunities and challenges associated with AI in higher education and the need for continued research in this area. Future research should continue to explore the potential applications and impacts of AI in education, and the development of effective frameworks for integrating AI in curricula, instruction and assessments (Firat, 2023).

2. Definition of Chatbots, AI Tools, and AI Assistants

Chatbots[1] perform tasks like providing user support, answering customer questions, and resolving technical issues. They automate repetitive processes and interactions in a workflow. Examples of Chatbots used in education are course inquiries, student support, student engagement and student feedback chatbots.

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[1] https://www.upwork.com/resources/ai-chatbot-vs-virtual
assistant#:~:text=In%20summary%2C%20AI%20virtual%20assistants,to%20provide%20answers%20to%20users

AI tools are software programs or applications that utilize AI techniques to perform specific tasks, such as natural language processing, data analysis and image recognition. Examples of AI tools used in education are admission management platforms, enrollment management and forecasting tools, emotional support, dropout prediction tools, and resource planning systems.

AI Assistants[2] are interactive software agents that perform tasks or services for users based on commands, text and voice. They are more sophisticated than AI tools as they can engage in two-way communication, understand context, and provide personalized answers. Examples of AI Assistants used in education are personalized learning assistants, automated lesson planning, automated grading, and predictive analytics.

3. Methodology

A sample of 45 Arab college instructors working at different universities (King Saud University, King Fahad University, Prince Sultan University, Prince Sattam University, King Abdul-Aziz University, Dar Al-Hikma University in Jeddah, Ain Shams University, Qatar University, University of Technology and Applied Sciences in Ibri, Palestine Ahliya University, College of Letters and Humanities of Sfax and Noukchott University), in Saudi Arabia, Qatar, Egypt, Palestine, Tunisia, Oman, and Mauritania participated in the study. 43% of the participants were female and 57% were male. The participants hold a Ph.D. in different areas of specialities as computer science and computer engineering, linguistics, translation, and physics. Instructors who were not familiar with AI or the use of AI in education were excluded.

The participants were contacted via WhatsApp and Facebook Messenger and were asked to respond to the following open-ended questions:

> *Would you accept an assignment or research paper that was fully generated by AI from a student? Yes, or No? Give at least three reasons to justify your position. How would you react if a student submits an assignment or research paper that was fully generated by AI? In which tasks can students use AI and what do you consider acceptable AI-generated content?*

Responses to the questions were sorted out and categorized and percentages of similar responses and those related to the same question were computed. Responses are reported quantitatively and qualitatively.

4. Results

4.1 Instructors' Attitudes Towards AI-generated Content

Results of the AI-generated content surveys showed that 98% of Arab college faculty in the sample do not approve of and do not accept the submission of AI-generated assignments or research papers by the students at all. Only one instructor in the sample accepts AI-generated assignments and research papers from her students provided that they have revised the content, corrected errors and weaknesses, checked the validity of the references and made sure each reference does exist because AI provides false information and fake references. She added that she discusses the assignment and/or research paper with each student to make sure she understands the content and can defend it. Other than that, she does not accept AI-generated content. She encourages her students to use AI but does not accept copying and pasting.

No significant differences were found between male and female instructors in different Arab countries, different Arab universities and those teaching different areas of specialization in their attitude towards AI-generated texts submitted by their graduate and/or undergraduate students. Most of them reject such submissions for reasons reported in the next section.

4.2 Instructors' Reasons for Rejecting AI-generated Content

Participating instructors gave numerous reasons for rejecting AI-generated assignments and/or research papers submitted by graduate and undergraduate students as they consider plagiarism, cheating, and dishonesty and consider such assignments as just copy-paste. Being AI generated, the submitted assignment/research paper does not reflect the student's actual ability, skills, ideas and views. They added that graduate and undergraduate students are in the process of acquiring writing and research skill and that the aim of an assignment or research paper is to make sure that the students are learning, thinking, and practicing those skills and that autonomous learning is emphasized. If students copy and paste an AI-generated text, this means that they did not learn anything and did not achieve the learning goals. When they use AI, they do not try and do not exert any effort. They do not read, analyze, or connect ideas. They do not practice any thinking skills. They become cognitively "lazy". Evaluations of students

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[2] [20 Popular AI Assistants | Built In](#)

who have submitted AI-generated text, and those who have not, will not be fair. Due to lack of expertise, skills and competence, the students cannot verify and cannot validate or detect false information and mistranslations rendered by AI. They added that it is hard to depend on AI as it sometime gives fake references that do not exist. Some instructors wrote:

- *I explain to the students how to do an assignment. I am available and give feedback. If the student performs all the tasks required by the assignment, she deserves the grade even if she makes some mistakes. But in the case of have AI write the assignment or research for her, this means that she has not gone through the learning process and this way she loses the whole mark assigned to the assignment or research paper.*
- *The aim of the assignment is to reinforce what the students have learnt.*
- *The performance of AI is not yet reliable, valid and trustworthy.*
- *Cloned thoughts aren't academic.*

The false information mentioned by the instructors in this study is consistent with Menczer, Crandall, Ahn andKapadia's (2023) views which indicated that we currently have little awareness of the volume of inauthentic behaviour supported by AI. They added that Generative AI tools such as ChatGPT make it easier to create large volumes of false (but convincing) social media profiles and content. An inauthentic influence campaign can tailor narratives to a particular community. For example, through health misinformation, a foreign adversary can make a whole population in a particular region more vulnerable to a future pandemic. Xames and Shefa (2023) revealed the challenges and concerns exposed by ChatGPT that require immediate attention such as AI authorship, nonexistent references, threats of international inequalities and unintentional plagiarism.

Moreover, Firat (2023) emphasized that the use of AI in education raises ethical and social concerns about access, privacy, and the potential for increased reliance on technology, which may lead to reduced cognitive capacities among the students.

4.3 What Students Can Use AI For
Some participating faculty in the current study indicated that they do not ban the use of AI in research or learning altogether. They allow the students to use AI for summarizing a research paper, book, or text, which saves them time and effort, and re-wording or re-phrasing sentences and paragraphs. Others allow their students to use AI in translation, revising, editing, comparing AI translation with their own and producing the work in a better way in terms of formatting and editing, in improving and polishing the language of their written text, in drafting and correcting errors, i.e. proofreading. They allow the students to incorporate paragraphs from AI in their research paper or assignment, provided that they are documented, i.e., the students mention the AI Tool or AI Assistant used, date, and time. Others allow the students to use AI in searching for and verifying information, in understanding an unfamiliar topic and exploring ideas related to it; in analyzing data, finding the research gap in a particular area, understanding the meaning of technical terms, getting answers to complex questions, and solving problems. If an assignment or research paper is intended for discussion and the students are required to defend a specific idea, then there is nothing wrong with AI-generated articles and there is no need for students' original idea, assignment, or article. Those who supervise the graduation project (B.A. thesis) allow their students to use the review command in WORD, provided that they mention the tool they have used.

A computer science instructor stated that the students can use AI as a search engine to search for information provided that the students filter the information, check it and verify it.

In a study by Malinka, Peresíni, Firc, Hujnák, and Janus (2023), ChatGPT was used for completing exams, programming assignments, and term papers and evaluated multiple levels of the AI tool misuse, ranging from simply copying its outputs to utilizing it as a consultant. They concluded that ChatGPT can be easily used to cheat and that it can be used in discussing problems encountered while doing a homework-assignment or in speeding up the learning process. In Parker, Carter, Karakas, Loper and Sokkar's (2023) study, undergraduate students quickly integrated ChatGPT and 65% utilized it for academic tasks, whereas 48% used it for non-academic purposes. All the students reported experiencing moderate academic improvements in various courses.

4.4 How Instructors Detect AI-generated Content
To detect AI-generated content, some instructors in the sample use Blackboard's SafeAssign and give marks according to the type and amount of plagiarism. Some use aiphrasefinder,com to spot ChatGPT words and phrases. Others use AI-plagiarism detectors such as ChatGPT Zero, Originality AI, Semrush, Copyleaks, Duplichecker, Quillbot, and Scribbr. A computer science instructor detects AI-generated texts by spotting typos, absence of personal experiences or emotions, inaccurate citations, references that

do not exist, repetitive use of words or phrases, and the overuse of words and complex sentences. She uses aiphrasefinder.com for detecting ChatGPT words and phrases.

Moreover, a linguistics instructor designed a scoring rubric for evaluating students' assignments and research papers in her Research Methodology course. In the rubric, marks are allocated to each task.

Nevertheless, some instructors indicated that AI Plagiarism Checkers should be used with caution as they are not 100% reliable. In some cases, the students submit an authentic human text, and the AI plagiarism detector claims that it is AI-generated. In this case and if the student is accused of AI-plagiarism, she would complain to the administration.

The lack of reliability of AI plagiarism checkers mentioned by some participants in the current study is supported by findings of a study by Perkins, Roe, Postma, McGaughran and Hickerson (2024) in which the researchers used the Turnitin AI tool to detect GPT-4-generated text in students' submissions. They found that the AI detection tool identified 91% of the experimental submissions as containing AI-generated content, but only 54.8% of the content was identified as AI-generated by the instructors, underscoring the challenges of detecting AI content when advanced prompting techniques were used. When instructors marked the experimental submissions, only 54.5% were reported as an academic misconduct. Results of the study highlight the need for greater awareness of how the results of AI plagiarism detectors may be interpreted.

4.5 Action Taken by Instructors in Case of AI-Generated Assignments
Data analysis showed that if a student submits AI-generated assignments or research papers, 75% of the faculty in the sample require him/her to re-write the assignment. Few require that students to declare if they have used AI in their submitted assignments or research papers, in what and where. Few explain to the student how AI can be used in research in order to avoid plagiarism. One instructor asks her students to paraphrase the AI-generated content in their own words. Examples of instructors' responses are:
- *At the beginning of the semester, I explain to the student what is acceptable and is unacceptable about AI-generated content. If the student persists, he/she will get a zero.*
- *I give the students time to revise their work and do something drastic about the AI-generated parts.*

On the other hand, 25% give a zero (no grade), 15% and 25% of the grade for submitting the assignment even if it was generated by AI. They explain to the student why they failed, with evidence of the AI-generated content such as having CHATGPT Zero, SafeAssign or another AI plagiarism detection tool highlight all AI content. An instructor declared:
- *I give the student a zero and report him to the department head. In some cases, the student might be expelled from the university.*

Few instructors indicated that it depends on the grading policy of the course, which depends on the nature of the course. If there is no clear policy that bans the submission of AI-generated content, the instructor would guide the student and ask him/her to re-write and re-submit the assignment. But if the university has an announced policy that bans the use of AI-generated content, the student would get a zero with a warning.

Regarding students' awareness of the ethics of using AI in assignments, Parker, Carter, Karakas, Loper and Sokkar (2023) reported diverse ethical perspectives among undergraduate students in their study. Some students considered the use of AI in education ethically acceptable, while others expressed reservations. Students who actively used ChatGPT showed a greater ethical acceptance of its educational use compared to those who did not.

5. Recommendations and Conclusion
AI-generated content is a relatively recent phenomenon. Due to its novelty, this study recommends raising students' awareness of their instructors and college and university policies regarding the submission of AI-generated assignments and research papers through workshops. If a university or department does not have a policy regarding AI-generated content, participants in the current study recommended that instructors alert the students at the beginning of the semester that AI-generated content is an act of plagiarizing, that the instructor can detect AI-plagiarized content with their plagiarism detection software and that this will consequently lead to cancelling the assignment grade or even failing the course.

Academic institutions need to establish clear policies and frameworks for the ethical and fair use and inherent bias of AI tools in education and incorporate them into their decision-making processes. Comprehensive training of students, faculty, administrators, and stakeholders should be provided to make sure that they understand the ethical considerations and implications of AI use in education and to make sure that academic integrity is preserved (Paschal & Melly, 2023; Perkins, Roe, Postma, McGaughran & Hickerson, 2024).

Instructors, departments, and universities can raise students' awareness of what is allowed and what is not allowed when using AI tools and AI assistants for academic purposes through memos, course descriptions and instruction manuals. Students should be asked to declare which parts of an assignment or research paper were written by AI. Students should understand the significance and necessity of acquiring certain writing and research skills, and the significance of academic integrity.

It is necessary for graduate and undergraduate students to perform all kinds of tasks required by their assignments or research papers from A to Z as they are not experts yet and are not well-trained in writing and research skills. They need to perform all kinds of tasks themselves such as summarization, paraphrasing, translation, proof-reading, checking grammar, spelling and style, searching for references in Google Scholar and specialized electronic databases, designing their research instrument, collecting and anlayzing their data and applying appropriate statistical techniques, as they are still in the learning process and have not fully acquired the skills and knowledge needed. They may resort to AI to get information about general-knowledge questions, definitions of terms, getting recipes, an itinerary, and similar daily life issues.

When students use AI in English-Arabic and Arabic-English translation, they should use AI such as Google Translate, Reverso, Copilot, Poe and others with caution as such AI tools make semantic, syntactic, contextual and orthographic errors in translation (Al-Jarf, 2024; Al-Jarf, 2021; Al-Jarf, 2016). Students should also use AI with caution when they use AI for obtaining references for a research paper as AI sometimes gives references that do not exist. Rather, instructors should train students in selecting search terms and searching specialized electronic databases such as MLA, LLBA, ABI, PsychInfo, Chemical Abstracts, Historical Abstracts, Dissertation Abstracts, ISA (Information Science Abstracts), LISA (Library & Information Science Abstracts, MEDLINE, PubMed, Ulrich's International Periodical Directory, Wilson Art Index, Wilson Humanities Index, Wilson Social Science Index, WorldCAT, Scopus, Web of Science, SSRN and others (Al-Jarf, 2003a; Al-Jarf, 2003b).

In order for students not to resort to AI tools to write their homework and research papers for them, instructors should provide guidance and feedback for the students before, during and after working on their assignments, research papers and translations. Students and instructors may use blogs and online discussion forums to post questions, responses, discussions, and difficulties related to an assignment, research paper or translations and obtain answers and feedback from their classmates as well as instructor (Al-Jarf, 2022a; Al-Jarf, 2019; Al-Jarf, 2017).

Furthermore, exploration of the ethical implications of the use of AI in education, the development of strategies for managing privacy concerns, and the investigation of how educational institutions can best prepare for the integration of AI technologies in education need to be researched further in Saudi Arabia and other Arab countries. Researchers and educators need to understand the potential, opportunities and challenges associated with AI in higher education and the need for continued research in this area. The perceptions of journal editors and promotion committee members of AI-generated research articles submitted by university faculty to journals and for promotion and whether journals and publishers have policies regarding the publication of AI-generated research articles are still open for further investigation by future research.

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References

[1]   Alasadi, E. & Baiz, C. (2023). *Generative AI in education and research: Opportunities, concerns, and solutions*. *Journal of Chemical Education*, *100*(8), 2965-2971.

[2]   Al-Jarf, R. (2024). *Translation of medical terms by AI: A comparative linguistic study of Microsoft Copilot and Google Translate*. 1st International Conference on Artificial Intelligence and its Applications in the Age of Digital Transformation. Faculty of Sciences and Techniques, Nouakchott University. Nouakchott, Mauritania. April 23-25, 2024 Google Scholar

[3]   Al-Jarf, R. (2022a). Blogging about current global events in the EFL writing classroom: Effects on skill improvement, global awareness and attitudes. *British Journal of Teacher Education and Pedagogy (BJTEP)*, *1*(1), 73–82. DOI: 10.32996/bjtep.2022.1.1.8. ERIC ED618396. Google Scholar

[4]   Al-Jarf, R. (2022b). MA and Ph.D. thesis evaluation at Saudi universities: Problems and solutions. *Eurasian Arabic Studies, 5*(2), 88–106. DOI: 10.26907/2619-1261.2022.5.2.88-106. Google Scholar

[5]   Al-Jarf, R. (2019). Effects of electronic homework-assignments on Arabization skill development in student-translators. *Journal for Research Scholars and Professionals of English Language Teaching (JRSP-ELT), 16*(3). ERIC ED613087. Google Scholar

[6]   Al-Jarf, R. (2017). Exploring online collaborative translator training in an online discussion forum. *Journal of Applied Linguistics and Language Research (JALLR), 4*(4), 147-160. ERIC ED613072. Google Scholar

[7]   Al-Jarf, R. (2003a). *Electronic searching skills of faculty, graduate students and library staff*. Third Yearbook of the Center for Research, King Saud University, Riyadh. Pp 1-144. Google Scholar

[8]   Al-Jarf, R. (2003b). Training ESP College students in electronic searching. *Multimedia-Assisted Language Learning. 6*(1), 9-17. ERIC ED613067. Google Scholar

[9]   Al-Jarf, R. (2022). *MA and Ph.D. thesis evaluation at Saudi universities: Problems and solutions*. *Eurasian Arabic Studies, 5*(2), 88–106. DOI: 10.26907/2619-1261.2022.5.2.88-106. Google Scholar

[10]   Al-Jarf, R. (2021). *An Investigation of Google's English-Arabic Translation of Technical Terms*. Eurasian Arabic Studies, 14, 16-37. Google Scholar

[11]   *Al-Jarf, R. (2016). Issues* in Translating English Technical Terms to Arabic by Google Translate. Third International Conference on Information and Communication Technologies for Education and Training (TICET 2016), pp. 17-31. Khartoum, Sudan, March 12-14. Google Scholar

[12]   Al-Jarf, R. (2008). Thesis evaluation challenges in saudi arabia as perceived by graduate students, advisors and examiners. Conference on Peer Reviewing. November 19-20, 2008. Imam University, Riyadh, Saudi Arabia. Google Scholar

[13]   Al-Jarf, R. (2003a). *Electronic searching skills of faculty, graduate students and library staff*. Third Yearbook of the Center for Research, King Saud University, Riyadh. Pp 1-144. Google Scholar

[14]   Al-Jarf, R. (2003b). Training ESP College students in electronic searching. *Multimedia-Assisted Language Learning. 6*(1), 9-17. ERIC ED613067. Google Scholar

[15]   Al-Jarf, R. (1991). *Characteristics of Ph.D. Dissertations of Saudi Students Who Graduated from American Universities Between 1969-1985*. Women's Center for University Studies Research Center Symposium, Riyadh, Saudi Arabia, Sep 23. ERIC ED634778. Google Scholar

[16]   Denny, P., Khosravi, H., Hellas, A., Leinonen, J., & Sarsa, S. (2023). Can we trust AI-generated educational content? comparative analysis of human and AI-generated learning resources. *arXiv preprint arXiv:2306.10509*.

[17]   Firat, M. (2023). What ChatGPT means for universities: Perceptions of scholars and students. *Journal of Applied Learning and Teaching*, *6*(1), 57-63.

[18]   Malinka, K., Perešíni, M., Firc, A., Hujňák, O., & Januš, F. (2023). On the educational impact of ChatGPT: Is artificial intelligence ready to obtain a university degree? arXiv:2303.11146. DOI: 10.48550/ arXiv.2303.11146.

[19]   Menczer, F., Crandall, D., Ahn, Y. & Kapadia, A. (2023). Addressing the harms of AI-generated inauthentic content. *Nature Machine Intelligence*, *5*(7), 679-680.

[20]   Parker, L., Carter, C., Karakas, A., Loper, A. & Sokkar, A. (2023). Ethics and improvement: Undergraduate students' use of artificial intelligence in academic endeavors. *International Journal of Intelligent Computing Research (IJICR)*, *13*(2).

[21]   Paschal, M. & Melly, I. (2023). Ethical guidelines on the use of ai in education. In *Creative AI Tools and Ethical Implications in Teaching and Learning* (pp. 230-245). IGI Global.

[22]   Perkins, M., Roe, J., Postma, D., McGaughran, J. & Hickerson, D. (2024). Detection of GPT-4 generated text in higher education: Combining academic judgement and software to identify generative AI tool misuse. *Journal of Academic Ethics*, *22*(1), 89-113.

[23]   Sheard, J., Denny, P., Hellas, A., Leinonen, J., Malmi, L. & Simon. (2024). Instructor perceptions of ai code generation tools-A multi-institutional interview Study. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1* (pp. 1223-1229).

[24]   Tate, T., Doroudi, S., Ritchie, D., Xu, Y. & Warschauer, M. (2023). Educational research and AI-generated writing: Confronting the coming tsunami. *EdArXiv*.

[25]   Van der Meijden, H., Kirschner, P. & Kester, L. (2021). Ethical implications of using artificial intelligence in education. *Educational Technology Research and Development, 69,* 231-244. DOI: 10.1007/s11423-020-09915-5

[26]   Wang, Y., Pan, Y., Yan, M., Su, Z., & Luan, T. (2023). A survey on ChatGPT: AI-generated contents, challenges, and solutions. *IEEE Open Journal of the Computer Society*.

[27]   Willems, J. (2023). *ChatGPT at universities – the least of our concerns*. http://www.researchgate.net/profile/Jurgen-Willems/publication/367339894. DOI: 10.2139/ssrn.4334162

[28]   Wu, J., Gan, W., Chen, Z., Wan, S. & Lin, H. (2023). Ai-generated content (AIGC): A survey. *arXiv preprint arXiv:2304.06632*.

[29]   Xames, M. & Shefa, J. (2023). ChatGPT for research and publication: Opportunities and challenges. *Journal of Applied Learning and Teaching, 6*(1). Advance online publication. Doi: 10.37074/jalt.2023.6.1.