The Use of Generative Artificial Intelligence in Higher Education: University Social Responsibility and Stakeholders' Perceptions

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***Abstract*. This pilot study assesses the reliability and validity of measurement tools and instrumentation to ensure accurate measurement of the variables and defines possible problems of the follow-up larger-scale research. The study's overall goal is to measure stakeholders' perspectives on the use of generative artificial intelligence (AI) in higher education and its implications for university social responsibility (USR) with the purpose of better understanding how AI technologies are deployed in academic institutions. The primary aim of this pilot study is to evaluate the effectiveness of the designed questionnaire by calculating Cronbach's alpha coefficient of the measurement scales. A questionnaire of 20 items was disseminated to the relevant stakeholders, including students, and academic and administrative staff, with the total number of received valid responses being 101. Cronbach's alpha was used as a measure of internal consistency to test the reliability of the measurement scale that consists of two groups of items: Scale B) perceptions of AI use in higher education of all the relevant stakeholders; Scale C) AI integration into higher education and its implications for USR. Key findings and implications from the study results include good or acceptable internal consistency > 0.7 among the majority of the items in the questionnaire. Specific recommendations for improving some of the items were suggested based on the findings. Modifying language, rephrasing questions, or deleting items that lead to reduced internal consistency are examples of these. The pilot study provides useful insights on the viability of employing the questionnaire in a larger-scale study, and considerations for time and resource allocation to ensure practicality in the subsequent study.**

Keywords: generative artificial intelligence; higher education, information technologies; technological integration in academia; university social responsibility

I. Introduction

The United Nations (UN) Sustainable Development Goals (SDGs) are a collection of 17 interrelated objectives established by all UN Member States in 2015 as part of the 2030 Agenda for Sustainable Development. The SDGs aim to address many global concerns and create a more sustainable and equitable society by 2030, including poverty, hunger, health, education, gender equality, clean water, sanitation, affordable and clean energy, decent work, industry and innovation, reduced inequalities, sustainable cities, responsible consumption, climate action, life below water, life on land, peace, justice, and strong institutions [1]. The UN define "Quality Education" as ensuring that everyone has access to inclusive, equitable, and high-quality education, as well as encouraging lifelong learning. In the UN 2023 progress report "Quality Education" is not being on track or meeting the target, but rather progressing fairly or showing the signs of stagnation or regress [1].

The COVID-19 pandemic in 2020 exposed vulnerabilities in the current higher education system, as well as the need for more digital technology training for academic staff to respond to the world's rapidly changing educational environment and difficulties. In the post-pandemic era, online learning, digital tools and virtual education seemingly have become an essential component of the higher education system, where universities have the responsibility to address education and research initiatives to ensure student learning outcomes and educational quality [2].

In addition to post-pandemic challenges in higher education, technological developments and the growing rate of adoption of new technologies in higher education, such as artificial intelligence (AI), present certain problems for higher education institutions and student learning in implementing these technologies for teaching, learning, student assistance, and administration [3]. These presented challenges need to be examined to forecast the future models of higher education in a world where AI is integrated into the systems of universities, specifically in

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the context of university social responsibility (USR). The technological integration of AI with ethical issues in universities is a critical and emerging aspect of higher education, as AI has been widely adopted and employed in higher education, particularly by educational institutions, in a variety of fields such as research, curriculum development, interdisciplinary approaches, ethics, and many others. AI started with computers and computer-related technologies, then moved on to web-based and online intelligent education systems, and finally to the use of embedded computer systems, humanoid robots, and web-based chatbots to perform academic staff duties and functions independently or with instructors [4]. Information technologies are adaptive and non-intrusive, making learning more appealing to the next generation, however, conventional teaching methods may be cautious about integrating current technology and gadgets in the classroom, making it a difficult strategy to use at first [5], [6]. The integration of AI technology in academia creates new teaching techniques and systems, promoting innovation and improving learning results [7]. Some studies propose four areas of AI use in academic assistance, institutional, and administrative services: 1. profiling and prediction, 2. assessment and evaluation, 3. adaptive systems and personalisation, and 4. intelligent tutoring systems; with the results highlighting the nearly complete lack of critical thought on AI's problems and challenges, the limited link to theoretical teaching perspectives, and the need for additional research of ethical and educational methods in the deployment of AI in higher education [8].

While USR is not as commonly used as corporate social responsibility (CSR), there is a growing recognition of the importance of universities taking on social responsibilities. USR in the context of AI entails universities recognising their ethical responsibilities in the creation, implementation, and research of AI technology [9]. Several challenges that fall into the USR domain and have to be addressed can be named including cheating, AI honesty and trustworthiness, academic integrity, privacy, deception, and manipulation of data. USR policies should explore effective techniques for building and implementing AI technologies and assessment of their effects on higher education [10].

This pilot study aims to assess the reliability of a questionnaire prepared for a follow-up larger-scale study on the implementation of generative AI in higher education and the stakeholders' perceptions. The internal consistency method assesses how well the individual items within the questionnaire are correlated and Cronbach's alpha is used as a measure of internal consistency. Based on the study results revisions and modifications of the questionnaire are administered.

II. Materials And Methods

The field of AI emerged in the 1950s when computer scientists began to investigate the possibility of developing robots that could learn and think like humans, following McCarthy coining the term "artificial intelligence" in 1956 and organising the Dartmouth Conference, which is widely regarded as the genesis of AI [11]. AI does not refer to a single technology, but rather to a set of technologies and methodologies, including machine learning, natural language processing, data mining, neural networks, and algorithms, in which computers that perform cognitive functions similar to human minds, such as learning and problem-solving [12]. One of the most widely used AI tools is OpenAI, which is a research tool dedicated to developing user-friendly AI systems that are generally smarter than humans to benefit all of humanity [13]. OpenAI's long-term objective is to develop artificial general intelligence (AGI), often known as "strong AI"", AGI refers to robots capable of performing all cognitive activities that humans can [14], [15]. AI technologies in higher education seem to appear to have gone mainstream and the impact on higher education is still in its early stages. It is crucial to monitor and adapt learning, teaching, and assessment methodologies in higher education to this rapidly evolving field of AI [16].

In the age of AI technologies being merged with teaching and learning processes in higher education, ensuring academic integrity and following ethics is of utmost importance [17]. AI tools have the potential to provide a string of benefits to higher education, including enhanced student engagement, cooperation, and accessibility, asynchronous communication, fast feedback, student groups, remote learning, language translation, summarization, question answering, text production, and customized assessments, among other uses. However, AI tools provide issues and concerns, especially with academic integrity, ethics and plagiarism [18]. AI is one of the emerging fields in educational technology seeing a tremendous increase in publication numbers in the span of the last 10 years. According to Scopus abstract and citation database query results using the Boolean operator and the keyword combination "higher AND education AND artificial AND intelligence", the number of published documents grew from 43 in 2013 to 926 in 2023, making it ~21,53 times growth in document count (year range 2013 to 2023). The query results include Document type publications, conference papers, book chapters, conference reviews, editorials and other documents (See Fig. 1).

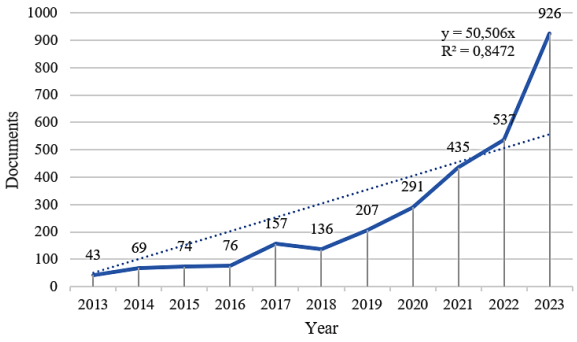

Fig. 1. Search string for artificial intelligence and higher education

The linear regression on a chart represents the general direction of the data points depicting the linear relationship between two variables – independent (year) and dependent (documents). The linear trendline is determined by a linear regression algorithm that minimizes the sum of squared differences between the

observed data points and the points predicted by the line ($R^2 = 0,8472$).

Academic integrity and ethics are the main concerns of the implementation of AI in higher education, despite the potential benefits. AI, as it is known nowadays, is prone to mistakes and information falsification, which can compromise academic integrity, ethics and credibility of the results. These technological limitations provide additional restrictions that limit the usefulness of AI to the users by failing to produce results that meet the required standard [19]. Deliberate academic misconduct by both students and educators is another threat, with several risks identified in higher education and research systems, including cheating on online tests, human-like text production, decreased critical thinking abilities, and difficulty analysing created material [20]. AI has the potential to revolutionise technologies and shift paradigms. Learners would be able to use AI to understand and solve complex problems, improve their reading and writing skills through suggestions, practice exercises, and quizzes, provide personalised guidance to learners during discussions, and use speech-to-text and text-to-speech, among other things. Lesson preparation, personalized learning support, responding to learners' questions, fast assessment and evaluation, and many more opportunities for educators thus saving a substantial amount of time [21]. Information technologies and their integration into academia have significantly impacted the educational systems and the Covid-19 pandemic has boosted the use of digital technology in education. Digital tools such as AI have caused a paradigm change across the education sector, where AI can serve not only as a mentor and assessor but also knowledge provider and co-creator of information [22].

According to the World Business Council for Sustainable Development (WBCSD), CSR is a company's ongoing commitment to ethical behaviour and economic development while improving the quality of life of its employees and their families, as well as the local community and society as a whole [23]. While defining CSR is challenging, defining USR is much more complicated, as the goal is to foster civic commitment and active citizenship through volunteering, ethical behaviour, and encouraging students and faculty to provide social services to their community or promote sustainable development in universities [24]. There have been several definitions of USR produced in the academic setting, "the capacity of the university to disseminate and implement a body of principles and general and specific values, utilizing four key processes—management, teaching, research, and community engagement—to respond to the needs of the university community, and in this framing, their "country" as a whole" [25, p. 710]; "a concept whereby a university integrates all of its functions and activities with the society needs through active engagement with its communities in an ethical and transparent manner which aimed to meet all stakeholders' expectations" [26, p. 275]; "a policy of ethical quality of the performance of the university community (students, faculty and administrative employees) via the responsible management of the educational, cognitive, labour and environmental impacts produced by the university, in an interactive dialogue with society to promote a sustainable human development" [27, p. 2]. From the selected definitions it can be concluded that USR refers to universities incorporating ethical, social, and environmental values into their core operations, with a focus on meeting stakeholder expectations. It has become crucial to evaluate the role of CSR and thus USR as well in the age of AI technologies being integrated into the very fabric of organizations, companies and higher education establishments. Both CSR and USR include aspects of managing conflicts of interest, such as present and long-term interests of stakeholders, ethics, local and global interests, and sustainable development, among others, including raising stakeholders' awareness of social responsibility, rethinking social responsibility, and reconsidering ethical behaviour standards [28].

Cronbach's alpha is a widely used statistic in research on test development and usage [29]. It is commonly used in studies with multiple-item measures [30]. Cronbach's alpha (α) is a commonly used statistic method that evaluates the internal consistency and reliability of a questionnaire or measuring scales in this study. It assesses how closely the items on a scale or questionnaire correlate with one another. Cronbach's alpha spans between 0 and 1, with higher values suggesting more internal consistency [31].

The formula for Cronbach's alpha is as follows:

$$\alpha = \frac{k\bar{c}}{\bar{v} + (k-1)\bar{c}} \quad (1)$$

Where:

k represents the number of items in the measure
$\bar{v}$ represents the average variance
$\bar{c}$ represents the average inter-item covariance.

The key interpretations of Cronbach's alpha values:
- Cronbach's Alpha > 0.9: *Excellent internal consistency*
- 0.8 < Cronbach's Alpha < 0.9: *Good internal consistency*
- 0.7 < Cronbach's Alpha < 0.8: *Acceptable internal consistency*
- Cronbach's Alpha < 0.7: *Consideration for improvement in the scale's reliability*

To achieve the main goal of the study, the authors created a three-part questionnaire, where:

- respondents' occupation question – PART A
- stakeholders' perceptions of AI – PART B
- stakeholders' perceptions of USR role – PART C

TABLE 1 THE STRUCTURE OF THE QUESTIONNAIRE

Part	Main question	Types, responses, scales
A	Respondents' profile	Occupation, dummy variables
B	Perceptions on AI in higher education	10 questions. Likert scale: (1 - absolutely disagree; 5 - absolutely agree)
C	Perceptions of USR role in regards of AI in higher education	10 questions. Likert scale: (1 - absolutely disagree; 5 - absolutely agree)

Table 1 shows the structure of the questionnaire. The responses for Part A are categorized using dummy variables (coded 1 - 0), that represent categorical data with two categories - different occupations within a dataset, student (1) or academic/admirative staff (0) [32]. The proportion of the respondents' occupation is 42,02%/ 57,98%, where 42,02% are academic/ administrative staff, 57,98% are students.

Items from Part B are included in the questionnaire based on the theoretical study of the importance of the perceptions of AI use in higher education of all the relevant stakeholders. The questions are concerned with the general perceptions of students and academic and administrative staff on AI regarding the quality of education, job competitiveness, curriculum, support, learning experience, engagement, and effectiveness among others. The questions of the B scale and their labels are presented in Table 2.

TABLE 2 PART B SCALE ITEMS AND THEIR LABELS

Questions Part B	Label
How would you describe your overall perception of the use of generative AI in higher education?	AI Perception in Higher Ed
Do you agree that generative AI is a revolutionary technology that is going to be widely used in all industries, and employee competitiveness on the labour market will depend on the AI usage skills?	AI and Job Competitiveness
How do you evaluate the use of generative AI will impact the overall quality of education in higher institutions?	AI Impact on Education Quality
How do you perceive the impact of generative AI on the overall learning experience for students in higher education?	AI Impact on Learning Experience
To what extent generative AI positively influences student engagement in higher education?	AI Influence on Student Engagement
How concerned are you about ethical and privacy issues associated with the use of generative AI in higher education?	AI Privacy Concerns
How effective generative AI is in providing academic support and resources to students, academic staff, and administrative staff in higher education?	AI Effectiveness in Academic Support
Do you agree that students, academic staff, and administrative staff are embracing the integration of generative AI in higher education?	Embracement of AI Integration
How well prepared is your institution to integrate generative AI into higher education?	Readiness for AI Integration
How easily generative AI can be integrated into existing educational systems?	AI Integration Ease

Items from Part C are concerned with the incorporation of AI into higher education and making sure it is consistent with the concepts of USR, such as academic integrity and ethics, inclusivity and access to resources, institutional responsibility, stakeholder awareness, training and guidelines, and overall influence of AI on social responsibility. The questions of the C scale and their labels are presented in Table 3.

TABLE 3 PART C SCALE ITEMS AND THEIR LABELS

Questions Part C	Label
Integration of AI into higher education would have a positive outcome on academic integrity?	AI Impact on Integrity
The use of AI in higher education will create certain challenges and threats to the academic ethics and integrity?	Threats to Academic Ethics
Institutions should ensure that ethical considerations are taken into account when using AI products in higher education?	Institutional Responsibility for AI use
Please rate the ethical considerations associated with the use of AI in higher education according to your perceptions.	Ethical Considerations for AI Use
Stakeholders in higher education (e.g., academic staff, students, administrators) are aware of the ethical implications and applications of AI?	Stakeholder Awareness of AI Ethics
Universities have established clear ethical guidelines and oversight mechanisms for the responsible use of AI in higher education?	University Guidelines for AI
Integration of AI aligns with the principles of University Social Responsibility in higher education?	AI Integration and USR
How do you perceive the impact of AI on promoting inclusivity and improving access to educational resources within the framework of University Social Responsibility?	Impact on Inclusivity in USR
How adequate do you find the training and support programs provided by universities to faculty and staff for effectively using AI in higher education?	USR and Training for AI Use
How much positive impact generative AI technologies can have on the university social responsibility initiatives?	Impact of AI on Social Responsibility

Before dissemination, the questionnaire was discussed within different focus groups of students providing additional information and definitions on AI and USR. The focus groups totalled an excess of 100 students from bachelor's and master's programmes in EKA University of Applied Science, programmes "Management", "Business Management" and "Marketing". Clarity, cohesion, and overall understating of the questionnaire items were discussed. In addition to students, academic and administrative staff were provided with the same guidance and clarifications of key definitions. Following the adjustments and needed corrections, the questionnaire was disseminated via the QuestionPro platform to the relevant stakeholders. The return rate of the filled-in questionnaires is ~33%, with 101 completed questionnaires submitted in the QuestionPro platform. The questionnaires were processed and the internal consistency and reliability of the questionnaire and measuring scales of this study were evaluated.

III. RESULTS AND DISCUSSION

Reliability analysis was performed in SPSS to test the measurement instrument of internal consistency. The results of Cronbach's Alpha statistics analysis for the questionnaire's Part B and Part C internal consistency and reliability of measuring scales have produced the results presented in Table 4. Overall results present acceptable or

good internal consistency with some items considered for improvement in the scale's reliability.

TABLE 4 RELIABILITY STATISTICS

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Part B	,683	,692	10
Part C	,730	,722	10

Alpha value of *,683* indicates moderate internal consistency for the Part B scale. Researchers often strive for a Cronbach's alpha of 0.70 or above, which indicates good reliability. However, the acceptable range can vary based on the context and measurement aims. For the Part C scale, Cronbach's alpha value is *,730* and suggests that the measuring instrument's set of standardised items has a good level of internal consistency. A Cronbach's alpha of 0.70 or greater is commonly accepted for most research purposes, implying that the items in the instrument reliably measure a common underlying concept.

TABLE 5 INTERNAL CONSISTENCY TEST RESULTS FOR THE SCALE B

Nr.	Part B	Cronbach's Alpha if Item Deleted
Q.B1	AI Perception in Higher Ed	,632
Q.B2	AI Revolution and Job Competitiveness	,675
Q.B3	AI Impact on Education Quality	,618
Q.B4	AI Impact on Learning Experience	,642
Q.B5	AI Influence on Student Engagement	,651
Q.B6	AI Privacy Concerns	,749
Q.B7	AI Effectiveness in Academic Support	,657
Q.B8	Embracement of AI Integration	,630
Q.B9	Readiness for AI Integration	,657
Q.B10	AI Integration Ease	,656

To increase the internal reliability of Cronbach's alpha value for the Part B scale to *,749* it is suggested to delete or modify the following item from the questionnaire – item Q.B6: *How concerned are you about ethical and privacy issues associated with the use of generative AI in higher education*, label: *AI Privacy Concerns* (See Table 5). Removal of this questionnaire item would lead to a small improvement in Cronbach's alpha, where corrected item-total correlation would present only *,137* value for this item.

Although the Part C scale Cronbach's alpha value is *,730* and is considered to be a good level of internal consistency, to slightly increase it to *,756* the following item from the questionnaire should be deleted or modified – item Q.C3: *Institutions should ensure that ethical considerations are taken into account when using AI products in higher education*, label: *Institutional Responsibility for AI use* (See Table 6). Removal of this questionnaire item would lead to a small improvement in Cronbach's alpha, where corrected item-total correlation would present only *,005* value for this item.

TABLE 6 INTERNAL CONSISTENCY TEST RESULTS FOR THE SCALE C

Nr.	Part C	Cronbach's Alpha if Item Deleted
Q.C1	AI Impact on Integrity	,688
Q.C2	Threats to Academic Ethics	,755
Q.C3	Institutional Responsibility for AI use	,756
Q.C4	Ethical Considerations for AI Use	,695
Q.C5	Stakeholder Awareness of AI Ethics	,682
Q.C6	University Guidelines for AI	,692
Q.C7	AI Integration and USR	,686
Q.C8	Impact on Inclusivity in USR	,696
Q.C9	USR and Training for AI Use	,693
Q.C10	Impact of AI on Social Responsibility	,724

Based on the analysis and results, researchers have decided to modify the Part B scale questionnaire item labelled *AI Privacy Concerns*. No deletions will take place in both scales, since it would lead only to an insignificant improvement in Cronbach's alpha value.

IV. CONCLUSIONS

This pilot study presents the interim findings of a planned larger-scale study on stakeholders' perceptions of the use of AI in higher education and its implications for USR. The study aims to evaluate the effectiveness of the designed questionnaire intended for a larger-scale study on the use of generative AI in higher education by calculating Cronbach's alpha coefficient and measuring the internal consistency and reliability of the questionnaire times. Two items from both scales B and C (item Q.B6 and item Q.C3) are adjusted to achieve higher alpha values and improve the questionnaire's internal consistency, providing that both scales have a good level of internal consistency – scale B *,749* and scale C *,756*. Researchers have also reviewed and revised the wording of the questionnaire items, and identified and modified terminology and phrases that may be confusing or subject to interpretation to ensure that respondents understand exactly what is being asked. The final review of the questionnaire included a discussion with the group of experts to validate items and improve overall clarity and cohesion.

The limitations of this study would include that stakeholders only from one university were participating - EKA University of Applied Science, bachelor's and master's programmes students as well as academic and administrative staff.

Future directions for this pilot study would include dissemination of the questionnaire in more universities, including at least one foreign university. Conducting structured pre-survey interviews with a selection of participants to acquire qualitative insights into their comprehension of the questions and identify any problems. Increasing the sample size to receive more diverse replies and a better representation of the target

audience's perceptions and include more diverse stakeholders in the sample population, such as employers and NGO representatives.

REFERENCES

[1] United Nations, "The Sustainable Development Goals Report Special edition," New York: United Nations Publications, 2023. [Online]. Available: United Nations Reports Online, https://unstats.un.org/sdgs/report/2023/. [Accessed January 24, 2024].

[2] S. Rashid and S. Yadav, "Impact of Covid-19 Pandemic on Higher Education and Research," Indian Journal of Human Development, vol. 14(2), pp. 340-343, 2020. doi: 10.1177/0973703020946700

[3] S. Popenici and S. Kerr, "Exploring the impact of artificial intelligence on teaching and learning in higher education," Research and Practice in Technology Enhanced Learning, vol. 12. 22, n. pag., 2017. doi: 10.1186/s41039-017-0062-8.

[4] L. Chen, P. Chen and Z. Lin, "Artificial Intelligence in Education: A Review," in IEEE Access, vol. 8, pp. 75264-75278, 2020. doi: 10.1109/ACCESS.2020.2988510.

[5] B. Cavas, P. Cavas, B. Karaoglan and T. Kisla, "A Study on Science Teachers' Attitudes Toward Information and Communications Technologies in Education," Turkish Online Journal of Educational Technology, vol. 8(2), n. pag., 2009.

[6] I.O. Biletska, A.F. Paladieva, H.D. Avchinnikova and Y.Y. Kazak, "The use of modern technologies by foreign language teachers: developing digital skills," Linguistics and Culture Review, vol. 5 (S2), pp. 16-27, 2021. doi: 10.21744/lingcure.v5nS2.1327

[7] M.L. Owoc, A. Sawicka and P. Weichbroth, "Artificial Intelligence Technologies in Education: Benefits, Challenges and Strategies of Implementation," ArXiv abs/2102.09365, 2021, n. pag.

[8] O. Zawacki-Richter, V.I. Marín, M. Bond and F. Gouverneur, "Systematic review of research on artificial intelligence applications in higher education – where are the educators?," International Journal of Educational Technology in Higher Education, vol. 16, n. pag., 2019. doi: 10.1186/s41239-019-0171-0

[9] M.L. Jorge and F.J. Peña, "Analysing the Literature on University Social Responsibility: a Review of Selected Higher Education Journals," Higher Education Quarterly, vol. 71, pp. 302-319, 2017.

[10] A. Tlili, B. Shehata, M.A. Adarkwah, et al., "What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education," Smart Learning Environments, vol. 15. pp. 1-24, 2023. doi: 10.1186/s40561-023-00237-x.

[11] S. Russel and P. Norvig, Artificial intelligence - a modern approach. New Jersey: Pearson Education, 2010.

[12] T. Baker and L. Smith, "Educ-AI-tion Rebooted? Exploring the future of artificial intelligence in schools and colleges," (2019). London: Nesta Foundation, 2019. [Online]. Available: Nesta Foundation report https://media.nesta.org.uk/documents/Future_of_AI_and_education_v5_WEB.pdf. [Accessed January 29, 2024].

[13] OpenAI, "Our vision for the future of AGI," 2024. Available: https://openai.com/about. [Accessed February 20, 2024].

[14] K. Grace, J. Salvatier, A. Dafoe, D. Zhang and O. Evans, "Viewpoint: When will AI exceed human performance? Evidence from AI experts," Journal of Artificial Intelligence Research, vol. 62, pp. 729–754, 2018.

[15] N. Bostrom, Superintelligence: paths, dangers, strategies. Oxford University Press, 2017.

[16] J. Rudolph, S. Tan and Sh. Tan, "ChatGPT: Bullshit spewer or the end of traditional assessments in higher education?," Journal of Applied Learning & Teaching, vol. 6(1), pp. 342-362, 2023. doi: 10.37074/jalt.2023.6.1.9

[17] M.R. King, chatGPT, "A Conversation on Artificial Intelligence, Chatbots, and Plagiarism in Higher Education," Cellular and Molecular Bioengineering, vol. 16, pp. 1–2, 2023. doi: 10.1007/s12195-022-00754-8

[18] D.R.E. Cotton, P.A. Cotton and J.R. Shipway, "Chatting and cheating: Ensuring academic integrity in the era of ChatGPT," Innovations in Education and Teaching International, vol. 61:2, pp. 228-239, 2024. doi:10.1080/14703297.2023.2190148

[19] G.M. Currie, "Academic integrity and artificial intelligence: Is ChatGPT hype, hero or heresy?," Seminars in Nuclear Medicine, vol. 53(5), pp. 719-730, 2023. doi: 10.1053/j.semnuclmed.2023.04.008

[20] M. Tight, "Challenging cheating in higher education: a review of research and practice," Assessment & Evaluation in Higher Education, pp. 1-13, 2024. doi: 10.1080/02602938.2023.2300104

[21] M.M. Rahman and Y. Watanobe, "ChatGPT for Education and Research: Opportunities, Threats, and Strategies," Applied Sciences, vol. 13(9), pp. 57-83, 2023. doi: 10.3390/app13095783

[22] H. Abid, J. Mohd, Q. Mohd and S. Rajiv, "Understanding the Role of Digital Technologies in Education: A review," Sustainable Operations and Computers, vol. 3, pp. 275-285, 2022. doi: 10.1016/j.susoc.2022.05.004.

[23] R. Holme, Watts P. and World Business Council for Sustainable Development, "Corporate Social Responsibility: Making Good Business Sense," World Business Council for Sustainable Development; 2000.

[24] R. Vasilescu, C. Barna, M. Epure and C. Baicu, "Developing university social responsibility: a model for the challenges of the new civil society," Procedia Social and Behavioral Sciences, vol. 2, pp. 4177-4187, 2010.

[25] R. Garde, M.P. Rodríguez and A.M. Lopez, "Online disclosure of university social responsibility: A comparative study of public and private US universities," Environmental Education Research, vol. 19(6), pp. 709–746, 2013. doi: 10.1080/13504622.2012.749976

[26] A. Esfijani, F. Hussain and E. Chang, "University Social Responsibility Ontology," International Journal of Engineering Intelligent Systems, vol. 4, pp. 271–281, 2013.

[27] J. Reiser, "University Social Responsibility definition," 2008. Available: http://www.usralliance.org/resources/Aurilla_Presentation_Session6.pdf. [Accessed February 20, 2016].

[28] W. Zhao, "How to improve corporate social responsibility in the era of artificial intelligence?," IOP Conference Series: Earth and Environmental Science, vol. 186(6), 012036, 2018. doi: 10.1088/1755-1315/186/6/012036.

[29] J.M. Cortina, "What is coefficient alpha? An examination of theory and applications," Journal of Applied Psychology, 78(1), pp. 98–104, 1993. doi: 10.1037/0021-9010.78.1.98.

[30] N. Schmitt, "Uses and abuses of coefficient alpha," Psychological Assessment, vol. 8(4), pp. 350–353, 1996. doi: 10.1037/1040-3590.8.4.350.

[31] K.S. Taber, "The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education," Research in Science Education, vol. 48, pp. 1273–1296, 2018. doi: 10.1007/s11165-016-9602-2

[32] P. Balestra, "Dummy Variables," in J. Eatwell, M. Milgate and P. Newman (eds) Econometrics. London: The New Palgrave. Palgrave Macmillan, 1990. doi: 10.1007/978-1-349-20570-7_9