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Is ChatGPT Building or Destroying Education? Perception of University Students in Tanzania

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ABSTRACT

Since its launch, ChatGPT has gained popularity and is widely used by university students. The tool has both positive and negative effects on students' education. In other words, it contributes to either the building or destruction of education.This study was conducted to ascertain university students' perceptions of whether ChatGPT is building or destroying their education. A cross-sectional research design was employed, in which data were collected from 200 randomly selected students from two Tanzanian Universities. The collected data was analysed using SPSS, in which frequencies, means, and standard deviation (SD) facilitated descriptions of various aspects of the study. Results showed that the majority of university students in the study area (around 81.5%) were using ChatGPT for a variety of reasons, including helping them prepare for exams, undertaking assignments, and writing research proposals and reports. Although there are negative impacts, such as reducing academic integrity and diminishing critical thinking, it was established that if ChatGPT is used cleverly, it stands to build rather than destroy education. Thus, this study recommends that universities should consider formulating and operationalizing respective policies and guidelines, as detailed further in the document. The study, therefore, delivers more clarity on the nexus between the use of ChatGPT and University education endeavours.

Keywords: *ChatGPT, AI, Education, University Students, Tanzania*

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INTRODUCTION

The Fourth Industrial Revolution (4IR), in which the world is in, is constantly changing the way people live, work, and relate to one another. According to Schwab, several technologies drive 4IR, one of which is Artificial Intelligence (AI).[1] AI, as Pfeifer and Scheier explain, is a technology that simulates the thinking and behaving processes of humans.[2] It allows computers to perform tasks that would normally require human intelligence. One prominent area where AI has been widely employed is education. AI has been used in education in several ways. Some of them include adaptive learning,

[1] Klaus Schwab, "The Fourth Industrial Revolution: What It Means, How to Respond.," *Economy, Culture & History Japan Spotlight Bimonthly*, 2016.
[2] Rolf Pfeifer and Christian Scheier, *Understanding Intelligence* (MIT Press, 2001).

intelligent tutoring systems, data analytics, and simulation-based learning such as virtual reality.[3] AI has also been used in teacher training, online tutoring, and curricula development.[4]

In November 2022, OpenAI developed an advanced AI technology called ChatGPT (Chat Generative Pre-trained Transformer).[5] ChatGPT, a general-purpose conversation chatbot-based Natural Language Processing (NLP) system, produces well-structured, logical, and informative responses that exhibit the response-generating ability of human beings.[6] Since its launch, ChatGPT has constantly increased its number of users. For instance, according to Halaweh, in January 2023 (just two months after its launch), it had a total of 100 million users.[7] The number increased to 180 million in August 2023, which is an 80% increase over only eight months.[8] Global statistics of ChatGPT users indicate that, in 2023, the age groups that used ChatGPT were mostly 25 and 34 years and between 18 and 24 years.[9] Most university students, as detailed in a study by Kapinga and Amani, fall under these age groups.[10] Therefore, it can be argued that most ChatGPT users are university students.

Scholars have contradicting perceptions concerning the academic impact of ChatGPT on university studies. Some describe ChatGPT as having monumental negative impacts whereas others feel that the tool is associated with considerable positive impacts. In its efforts to establish whether the tool provides negative or positive impacts, Halaweh asked ChatGPT itself if it should be allowed in education.[11] The results from the tool (as shown in Figure 1) confirm the contradicting reality of its use in education. The tool refers to its use in education as a complex issue. Although it briefly indicated both positive and negative impacts, it concluded that the decision to use it is up to universities upon assessing whether its benefits outweigh its risks.

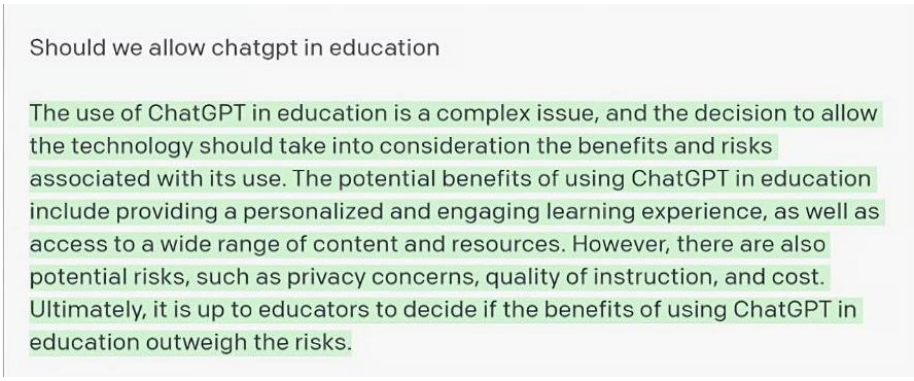

Figure 1: ChatGPT output on whether it should be allowed in education (Source: Halaweh, 2023)

[3] Chih-Pu Dai and Fengfeng Ke, "Educational Applications of Artificial Intelligence in Simulation-Based Learning: A Systematic Mapping Review," *Computers and Education: Artificial Intelligence* 3 (2022): 100087; Alfred S Sife and George Matto, "Realigning Library and Information Services with the Fourth Industrial Revolution" (COTUL Scientific Conference, 2022).
[4] Thi Thuy An Ngo, "The Perception by University Students of the Use of ChatGPT in Education," *International Journal of Emerging Technologies in Learning (IJET)* 18, no. 17 (September 14, 2023): 4–19, https://doi.org/10.3991/ijet.v18i17.39019; Kardo Joseph Mwilongo, Rhodes Mwageni, and George Matto, "Emerging Assumptions and the Future of Artificial Intelligence in Teaching and Learning Processes in Higher Learning Institutions in Sub-Saharan Africa: A Review of Literature," *Zambia Journal of Library & Information Science (ZAJLIS), ISSN: 2708-2695* 6, no. 2 (2022): 12–18.
[5] Juan Dempere et al., "The Impact of ChatGPT on Higher Education," *Frontiers in Education* 8 (September 8, 2023), https://doi.org/10.3389/feduc.2023.1206936.
[6] Ngo, "The Perception by University Students of the Use of ChatGPT in Education."
[7] Mohanad Halaweh, "ChatGPT in Education: Strategies for Responsible Implementation," *Contemporary Educational Technology* 15, no. 2 (April 1, 2023): ep421, https://doi.org/10.30935/cedtech/13036.
[8] D. Ver Meer, "Number of ChatGPT Users and Key Stats," February 2024, https://www.namepepper.com/chatgpt-users.
[9] Statista, "Global User Demographics of ChatGPT in 2023, by Age and Gender," 2024, https://www.statista.com/statistics/1384324/chat-gpt-demographic-usage/.
[10] Orestes Kapinga and Jaqueline Amani, "Determinants of Students' Academic Performance in Higher Learning Institutions in Tanzania," *Journal of Education and Human Development* 5, no. 4 (2016): 78–86.
[11] Halaweh, "ChatGPT in Education: Strategies for Responsible Implementation."

Regarding the negative impacts, as per the literature, a study by Malinka *et al*. posit that ChatGPT assists students to cheat in their studies and plagiarize.[12] The study added that the tool is also imperfect in that it can give incorrect and misleading answers to students. This argument is supported by Tlili *et al*. who claimed that ChatGPT is prone to errors as it sometimes provides biased or fake information.[13] Further, according to Sullivan et al., ChatGPT has proven to facilitate academic dishonesty by helping students write papers and answer examination questions.[14] In addition, as per Huallpa, ChatGPT removes human interaction, which is a crucial aspect of learning.[15] It is therefore not surprising that, due to alleged negative impacts, some countries and states have banned ChatGPT in schools.[16]

On the other hand, the tool has been associated with several positive impacts on university education. Michel-Villarreal et al. posit that ChatGPT improves learning and upholds students' success by fostering innovative pedagogical practices.[17] Sullivan *et al*. added that the tool simplifies learning in which complicated concepts are presented to students in simple language.[18] Furthermore, according to Halaweh, ChatGPT is very useful as it can help save time and effort in quickly generating educational information that would otherwise take a long time to be created by humans.[19] As part of supporting the use of ChatGPT by providing counter-arguments to its alleged negative impacts related to cheating and plagiarizing, Halaweh asserted that students can still cheat and plagiarize even without ChatGPT.[20] Halaweh According to the author, the only difference is that ChatGPT can help them cheat and plagiarize much faster.

In line with the prevailing negative and positive effects of ChatGPT, little is known about whether the tool is building or destroying education. Several previous studies have attempted to investigate the effects of ChatGPT on education.[21] However, most of them ended up describing only positive and negative impacts, lacking a nexus to whether those prevailing impacts are tool-building or destroying education. In addition, most of the efforts made by previous studies have not considered the perceptions of students themselves. A number of them were based on the analysis of social media (mainly X, previously known as Twitter) data.[22] Others were based on literature surveys in existing databases and other digital platforms.[23] Those who attempted to obtain opinions from students were not exhaustive enough, as most of them involved respondents from the sole group of students. For example, Huallpa, Ajlouni et al. and Ngo used only undergraduate students, while Firat used only PhD

[12] Kamil Malinka et al., "On the Educational Impact of Chatgpt: Is Artificial Intelligence Ready to Obtain a University Degree?," in *Proceedings of the 2023 Conference on Innovation and Technology in Computer Science Education V. 1*, 2023, 47–53.
[13] Ahmed Tlili et al., "What If the Devil Is My Guardian Angel: ChatGPT as a Case Study of Using Chatbots in Education," *Smart Learning Environments* 10, no. 1 (2023): 15.
[14] Miriam Sullivan, Andrew Kelly, and Paul McLaughlan, "ChatGPT in Higher Education: Considerations for Academic Integrity and Student Learning," 2023.
[15] Jorge Jinchuña Huallpa, "Exploring the Ethical Considerations of Using Chat GPT in University Education," *Periodicals of Engineering and Natural Sciences* 11, no. 4 (2023): 105–15.
[16] Tlili et al., "What If the Devil Is My Guardian Angel: ChatGPT as a Case Study of Using Chatbots in Education."
[17] Rosario Michel-Villarreal et al., "Challenges and Opportunities of Generative AI for Higher Education as Explained by ChatGPT," *Education Sciences* 13, no. 9 (2023): 856.
[18] Sullivan, Kelly, and McLaughlan, "ChatGPT in Higher Education: Considerations for Academic Integrity and Student Learning."
[19] Halaweh, "ChatGPT in Education: Strategies for Responsible Implementation."
[20] Halaweh, "ChatGPT in Education: Strategies for Responsible Implementation."
[21] Malinka et al., "On the Educational Impact of Chatgpt: Is Artificial Intelligence Ready to Obtain a University Degree?"; Tlili et al., "What If the Devil Is My Guardian Angel: ChatGPT as a Case Study of Using Chatbots in Education"; Huallpa, "Exploring the Ethical Considerations of Using Chat GPT in University Education"; Michel-Villarreal et al., "Challenges and Opportunities of Generative AI for Higher Education as Explained by ChatGPT"; Halaweh, "ChatGPT in Education: Strategies for Responsible Implementation."
[22] Lingyao Li et al.,"ChatGPT in Education: A Discourse Analysis of Worries and Concerns on Social Media," *Education and Information Technologies*, 2023, 1–34; Adem Korkmaz, Cemal Aktürk,and Tarik Talan,"Analyzing the User's Sentiments of ChatGPT Using Twitter Data," *Iraqi Journal for Computer Science and Mathematics* 4, no. 2 (2023): 202–14; Ibrahim Adeshola and Adeola Praise Adepoju, "The Opportunities and Challenges of ChatGPT in Education," *Interactive Learning Environments*, 2023,1–14.
[23] Jürgen Rudolph, Shannon Tan, and Samson Tan, "War of the Chatbots: Bard, Bing Chat, ChatGPT, Ernie and beyond. The New AI Gold Rush and Its Impact on Higher Education," *Journal of Applied Learning and Teaching* 6, no. 1 (2023); Dempere et al., "The Impact of ChatGPT on Higher Education"; Tareq Rasul et al., "The Role of ChatGPT in Higher Education: Benefits, Challenges, and Future Research Directions," *Journal of Applied Learning and Teaching* 6, no. 1 (2023).

students and seven other scholars.[24] This hinders obtaining mixed perceptions from students of different levels in a single study.

Thus, this study was carried out to ascertain university students' perceptions of whether ChatGPT is building or destroying education. The study involved respondents from non-degree, undergraduate, and postgraduate programmes. The specific objectives of this study were threefold. First, to investigate the extent and reasons for ChatGPT use among university students. Second, to establish students' perceptions of both the positive and negative impacts of ChatGPT and how the tool has affected their education. Third, to determine students' views on whether ChatGPT should be allowed in universities.

THEORETICAL FRAMEWORK

This study is based on the integrated framework of the benefits and challenges of ChatGPT in higher education, as proposed by Rasul et al.[25] The framework is grounded in constructivist theory, a theoretical perspective, and a learning methodology that alleges that knowledge is created by the learner. The theory suggests that learners actively construct and raise their understanding through various social interactions with their environment.[26] Constructivist theory emphasizes the importance of students constructing their own understanding of knowledge.

The constructivist theory claims that learners construct their own knowledge through engaging and not by being passive recipients of information.[27] For that to be achieved, the theory is built on five pedagogical approaches: contextual learning, active learning, social interactions, real-world experience, and critical thinking and problem-solving as Figure 2 summarizes. Regarding contextual learning, it is argued that learning occurs when students are able to use their own experience to create meaning on the presented course matters.[28] Active learning alleges that learning happens if students can think, discuss, investigate and create.[29] The social interactions approach claims that learning occurs in environments where there are interactions with others and with the environment.[30] In other words, learning is not an isolated process. With regard to real-world experience, it is argued that learning is achieved when learners reflect upon their own real-world experiences.[31] About critical thinking, Lunenburg suggests that learning happens as a result of analysis, evaluation, and argumentations grounded on evidence and logic.[32]

[24] Huallpa, "Exploring the Ethical Considerations of Using Chat GPT in University Education"; Aseel O Ajlouni, Fatima Abd-Alkareem Wahba, and Abdallah Salem Almahaireh, "Students' Attitudes Towards Using ChatGPT as a Learning Tool: The Case of the University of Jordan.," *International Journal of Interactive Mobile Technologies* 17, no. 18 (2023); Ngo, "The Perception by University Students of the Use of ChatGPT in Education"; Mehmet Firat, "What ChatGPT Means for Universities: Perceptions of Scholars and Students," *Journal of Applied Learning and Teaching* 6, no. 1 (2023): 57–63.

[25] Rasul et al., "The Role of ChatGPT in Higher Education: Benefits, Challenges, and Future Research Directions."

[26] Chu Chih Liu and I Ju Chen, "Evolution of Constructivism.," *Contemporary Issues in Education Research* 3, no. 4 (2010): 63–66.

[27] Fred C Lunenburg, "Critical Thinking and Constructivism Techniques for Improving Student Achievement," in *National Forum of Teacher Education Journal*, vol. 21, 2011, 1–9.

[28] Lunenburg, "Critical Thinking and Constructivism Techniques for Improving Student Achievement."

[29] Cynthia Brame, "Active Learning," *Vanderbilt University Center for Teaching*, 2016.

[30] Beth Hurst, Randall R Wallace, and Sarah B Nixon, "The Impact of Social Interaction on Student Learning," *Reading Horizons*, 2013.

[31] David H Jonassen, "Evaluating Constructivistic Learning," in *Constructivism and the Technology of Instruction* (Routledge, 2013), 137–48.

[32] Lunenburg, "Critical Thinking and Constructivism Techniques for Improving Student Achievement."

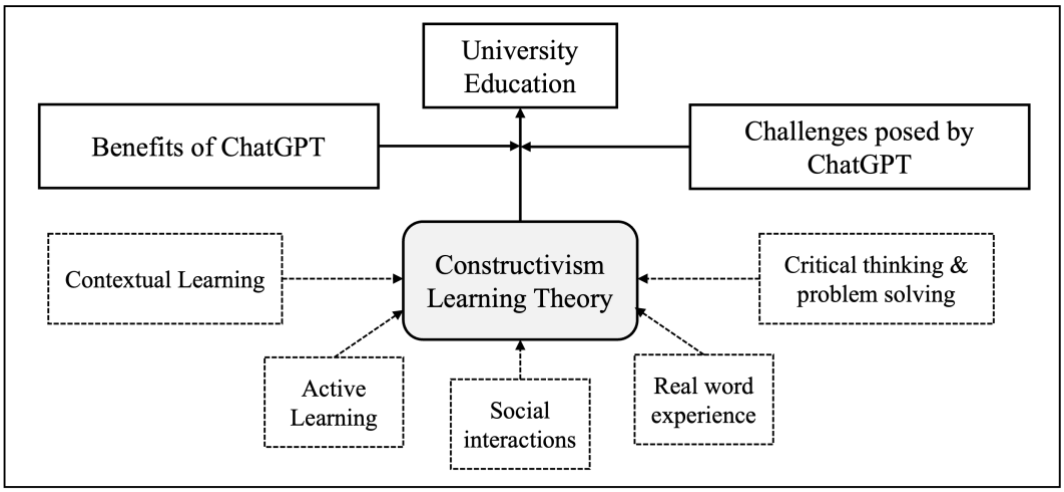

Figure 2: The integrated framework of benefits and challenges of ChatGPT in higher education (Source: modified from Rasul et al., 2023)

While some scholars argue that technologies are not in a position to contribute to the learning experience as described by the constructivist theory, others hold contrary view. For example, Rasul *et al*. contend that recurrent use of ChatGPT hinders not only accomplishing the learning outcomes that result from students' reflections on their experiences but also effective collaborative learning activities.[33] On the other hand, Hasanein and Sobaih claim that ChatGPT offers the possibility to foster a constructivist learning experience in which students construct their own knowledge by enabling experimenting with ideas, asking questions, and obtaining immediate feedback.[34] This is supported by Adar and Kandemir and Makewa.[35] It is evident therefore that contradicting perceptions exist concerning the contribution of ChatGPT in terms of either constructing or destroying education.

METHODOLOGY

A cross-sectional quantitative research design was employed in this study in which data was collected from students in two Tanzanian Universities; the Moshi Co-operative University (MoCU) in Kilimanjaro region and the Nelson Mandela African Institution of Science and Technology (NM-AIST) in Arusha. The choice of the two Universities was based on their unique features. MoCU was selected because it has the composition of academic programmes from certificate to PhD level. Although it has some students pursuing ICT programmes, most of the MoCU students are in business, humanities and social science programmes. This ensured obtaining opinions from not only undergraduate students (including those at lower levels (i.e., certificate and diploma)) but also students who are not taking science and technology programmes. On the other hand, NM-AIST offers only postgraduate programmes in science and technology. Unlike MoCU, NM-AIST was selected purposely to obtain the opinions of postgraduate students pursuing science and technology programmes.

With a combined population of about 9,000 students at each University, the study used a sample size of 200 students as suggested by Israel, with a precision level of ±7%. Data was collected using a questionnaire which consisted of both closed-ended and open-ended questions.[36] The questionnaire was developed in Google Forms and the link was shared with respective students through their

[33] Rasul et al., "The Role of ChatGPT in Higher Education: Benefits, Challenges, and Future Research Directions."
[34] Ahmed M Hasanein and Abu Elnasr E Sobaih, "Drivers and Consequences of ChatGPT Use in Higher Education: Key Stakeholder Perspectives," *European Journal of Investigation in Health, Psychology and Education* 13, no. 11 (2023): 2599–2614.
[35] N. Adar and M. C. Kandemir, "M-Learning Tools for Palm Device: M-Test and m-Exercise ," in *[Paper Presentation]. In 8th International Educational Technology Conference* (Eskisehir: Anadolu University, 2008); L. N. Makewa, "Constructivist Theory in Technology-Based Learning," in *Technology-Supported Teaching and Research Methods for Educators* , ed. L. N. Makewa, B. M. Ngussa, and J. M. Kuboja (IGI Global, 2019), 268–87.
[36] Glenn D Israel, "Determining Sample Size," 1992.

WhatsApp groups. After 200 responses were received, the form was then set to not accepting responses to allow data analysis to start. Responses in the Google Form were downloaded in a .csv file and entered into SPSS for a comprehensive analysis. Data analysis included descriptive statistics whereby the computation of frequencies, percentages, means, and Standard Deviation (SD) facilitated descriptions of various aspects of the study.

RESULTS AND DISCUSSIONS

Demographic data of respondents

The study was conducted at MoCU and NM-AIST involving 200 respondents. A total of 151 (75.5%) respondents were drawn from MoCU and 49 (24.5%) from NM-AIST. The variation was a result of varying numbers of students in the two Universities, with MoCU having a bigger portion of students (constituted around 90% of all students). The majority of the respondents involved in the study were male, 61.0%, while 39.0% were females. The number of males exceeded that of females because males were pretty much more proactive in responding to the shared questions. The survey accepted only the first 200 responses without putting into consideration who had responded. This response rate is similar to that of a study by Deutskens *et al*. which like this study involved an online survey of students in which its final sample consisted of more male than female respondents.[37]

Regarding the age of respondents, the findings revealed that 1.5% of respondents were below 18 years, 38.0% were between 18 and 24 years, 27.5% between 25 and 30 years, 19.0% between 31 and 35 years and 15.0% were above 35 years. Thus, most of the respondents (38.0%) were between the 18 and 24 years age group. This was attributed to the fact that the study consisted of both undergraduate and postgraduate students, and the age of 18 to 24 is mostly for undergraduate students who are more in numbers as compared to postgraduates. This group, along with between 25 and 30 years, is the active group of internet users as per Statista which entails their suitability in this kind of research.[38] Further, about 47.0% of respondents were pursuing Bachelor's degree programmes, 30.0% Masters programmes, 17.5% PhD programmes and the remaining 5.5% were pursuing non-degree programmes (i.e. Certificate and Diploma programmes) (Table 1).

Table 1: Demographic data of respondents

Variable	Category	Frequency	Percentage
University	MoCU	151	75.5
	NM-AIST	49	24.5
	Total	**200**	**100.0**
Gender	Male	122	61.0
	Female	78	39.0
	Total	**200**	**100.0**
Age (years)	Below 18	3	1.5
	18-24	76	38.0
	25-30	55	27.5
	31-35	38	19.0
	Above 35	28	14.0
	Total	**200**	**100.0**
Level of study	Non-degree programme	11	5.5
	Bachelor degree	94	47.0
	Masters programme	60	30.0
	PhD	35	17.5
	Total	**200**	**100.0**

[37] Elisabeth Deutskens et al., "Response Rate and Response Quality of Internet-Based Surveys: An Experimental Study," *Marketing Letters* 15 (2004): 21–36.
[38] Statista, "Global User Demographics of ChatGPT in 2023, by Age and Gender."

ChatGPT usage

Usage status

The study sought to establish whether respondents were using ChatGPT or not. The findings revealed that the majority of them 163 (81.5%) were using it while 36 (18.0%) never used it. One respondent (0.5%) was not sure whether he had been using ChatGPT or not. The uncertain respondent was treated as never used, making the total number of those who have never used ChatGPT to be 37 respondents (18.5%). Since the majority of the respondents were using ChatGPT, it suggested that the majority of them were in the right position to provide perspectives with regard to whether the tool is building or destroying education.

The 37 respondents who never used ChatGPT were asked to indicate reasons for that. About 30% (11) said that they never used ChatGPT because they didn't know how to access it while 9 (24%) were unaware of the tool. Other 6 respondents (16%) indicated that they have never used ChatGPT because it is not good for educational purposes, and other 6 respondents (16%) indicated that they don't have reasons to use it, while 5 respondents (13%) have never used it because they are not interested in it. Although educational purposes were mentioned as one of the reasons for not using ChatGPT, the majority of respondents are not using ChatGPT not because of education-related reasons but rather because they were either unaware of or unable to access it.

Usage frequency

The study went further to establish the extent of use ChatGPT by the user students. To achieve this, a 5-point Likert scale (1-Very often, 2-Often, 3-Average, 4-Rare, 5-Very rare) was used. The findings showed that most of the respondents were average users of ChatGPT. A total of 61 respondents indicated to use ChatGPT on average. This group was followed by 33 respondents who indicated to use ChatGPT often and another 33 who indicated to use it rarely. A total of 22 respondents indicated to use the tool very often while 14 use it very rarely. This implies that the sampled students comprised a blend of both frequent and rare users of ChatGPT which is good for providing balanced perspectives.

In addition to ascertaining the extent of the ChatGPT use, the study went further to establish whether respondents who were using it make use of it for undertaking school work/exams. The study was interested in investigating the use specifically on school work and exams because those are the parameters used in the surveyed universities to evaluate students' academic progress. If ChatGPT is helping students in these aspects, it could imply that students would not bother to invest a great deal of their time in learning as the tool would help them during educational assessments, which would have a long-term effect on the quality of education.

Five aspects with respect to undertaking school work/exams were presented to respondents in which they were asked to rank the extent of the use in each of those aspects. A 6-point Likert scale (1-Very frequently, 2-Frequently, 3-Occasionally, 4-Rarely, 5-Very rarely, and 6-Never used) was employed. As per findings, summarized in Figure 4, a large portion of respondents never used ChatGPT in all of the presented aspects, with the highest number of them never using the tool to undertake class tests and final exams. This was revealed by 135 and 150 respondents who indicated to had never used ChatGPT for undertaking class tests and final exams respectively. On the other hand, although some respondents use ChatGPT during undertaking assignments, a total of 32 and 47 respondents indicated using it very frequently and frequently respectively for that purpose, an equally large portion of them (i.e. 47) never used the tool to undertake assignments. The same trend was observed in the aspects of using the tool in writing research proposals and reports and in writing project reports and term papers. This suggests that, regardless of the presence of ChatGPT, students are still putting up their own efforts in undertaking educational assessments.

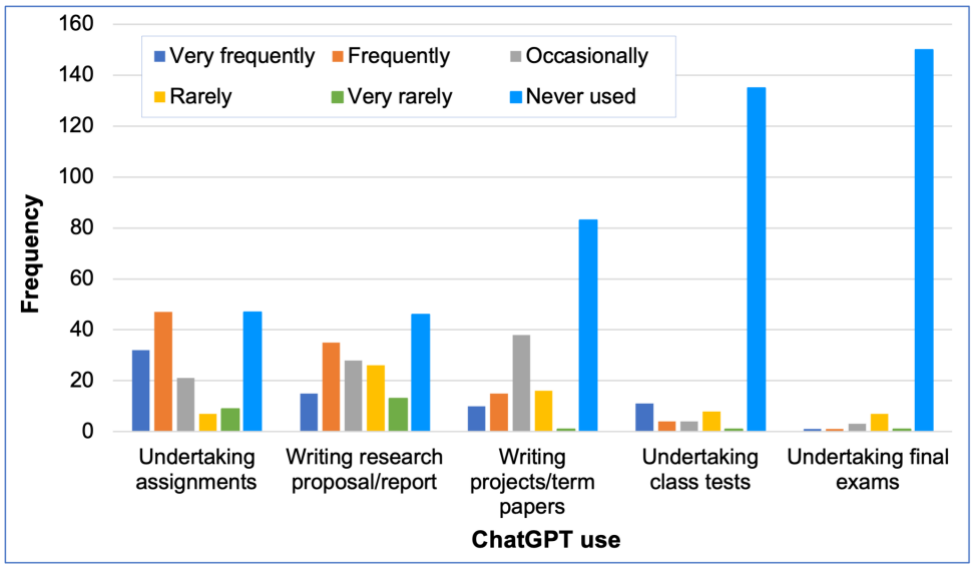

Figure 3: Specific use of ChatGPT

Impacts of ChatGPT on education

Positive impacts

In order to establish respondents' perceptions of the positive impacts of ChatGPT on their education, six (6) potential positive impacts as extracted from Rasul *et al*. (2023) and slightly adjusted were presented to them. Respondents were then asked to provide their opinions on whether they agree or not agree on each of the presented impacts on a scale of 1 to 5 (1-Strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree). The findings on the mean response values as shown in Table 2 range from 2.17 to 3.56. The highest mean response value is below the disagree region. Similarly, all SDs were around 1 which was close to the expected value. This means that most MoCU and NM-AIST students generally perceive that ChatGPT has got positive impact on their education.

Table 2: Positive impacts of ChatGPT to University students

Potential positive impact	Mean	Standard Deviation
Enables students to accomplish tasks quickly	2.20	1.118
Improves accessibility to education	2.17	0.914
Increases performance in studies	2.53	1.044
Helps in exam preparations	2.69	1.188
Increases innovation and creativity	3.44	1.176
Increases independent and critical thinking	3.56	1.171

When opinions of students on each of the presented potential positive impacts were plotted on separate histograms, four of them (Figure 4 (A) to (D)) were slightly positively skewed. On the other hand, two impacts (i.e. increased innovation and creativity, and increased independent and critical thinking) are negatively skewed as Figure 5 (E) and (F) show. This implies that most of the respondents perceive ChatGPT as useful in terms of helping students accomplish tasks on time, increasing accessibility to education, increasing performance in study and helping in exam preparations. On the other hand, they feel that ChatGPT neither increases their innovation and creativity nor boosts independent and critical thinking. This is in line with a study by Hasanein and Sobaih which argued that the use of ChatGPT can diminish students' critical thinking and problem-solving abilities.[39]

[39] Hasanein and Sobaih, "Drivers and Consequences of ChatGPT Use in Higher Education: Key Stakeholder Perspectives."

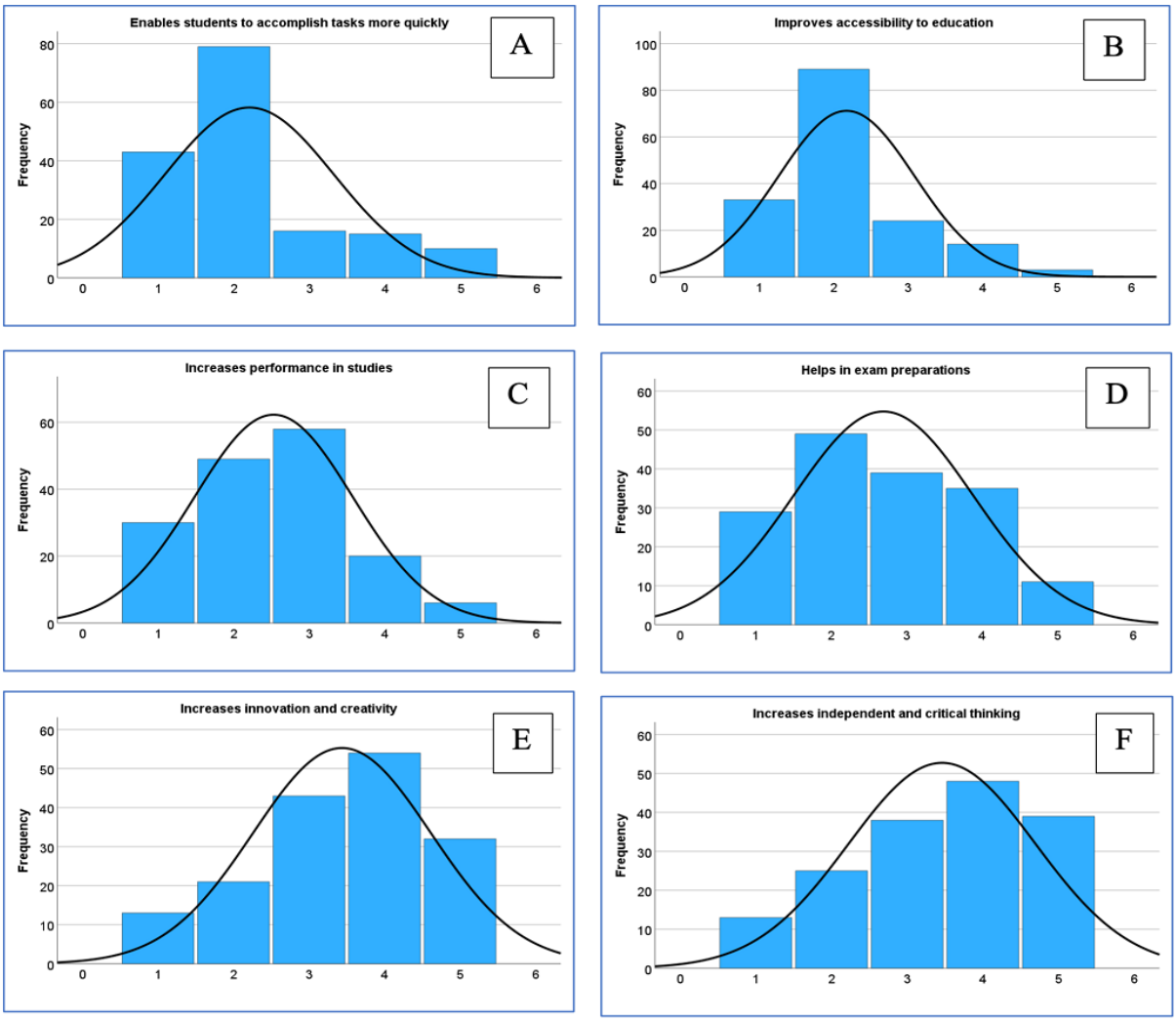

Figure 4: Potential positive impacts of ChatGPT on University students (1-Strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

Negative impacts

Regarding the negative impacts of ChatGPT on education, six items as obtained and modified from Rasul *et al*. were presented to respondents to give their perspectives on each of the items on a scale of 1 to 5 (i.e., 1-Strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree).[40] It can be determined from the mean values as shown in Table 3 that students agree that ChatGPT can bring about the presented negative impacts. That was so because all of the mean values were less than 2.5, the agreed region. SDs were found also to be close to the mean. This means that most of the students agreed that ChatGPT could have a negative impact on their education.

Table 3: Potential negative impacts of ChatGPT on University students

Potential positive impact	Mean	Standard Deviation
Reduces academic integrity	2.44	1.095
Diminishes critical thinking	2.31	1.220
Reduces creativity	2.31	1.193
Reduces self-dependency	2.10	1.126
Encourages academic dishonesty	2.27	1.175
Promotes Laziness	2.13	1.179

[40] Rasul et al., "The Role of ChatGPT in Higher Education: Benefits, Challenges, and Future Research Directions."

Further analysis of potential negative impacts as per students' perception of each of the impact was done with the help of bar charts with skew lines. As shown in Figure 5 (A) to (F) all of the charts were positively skewed, implying that there was a positive inclination of respondents towards agreeing on the presented negative impacts.

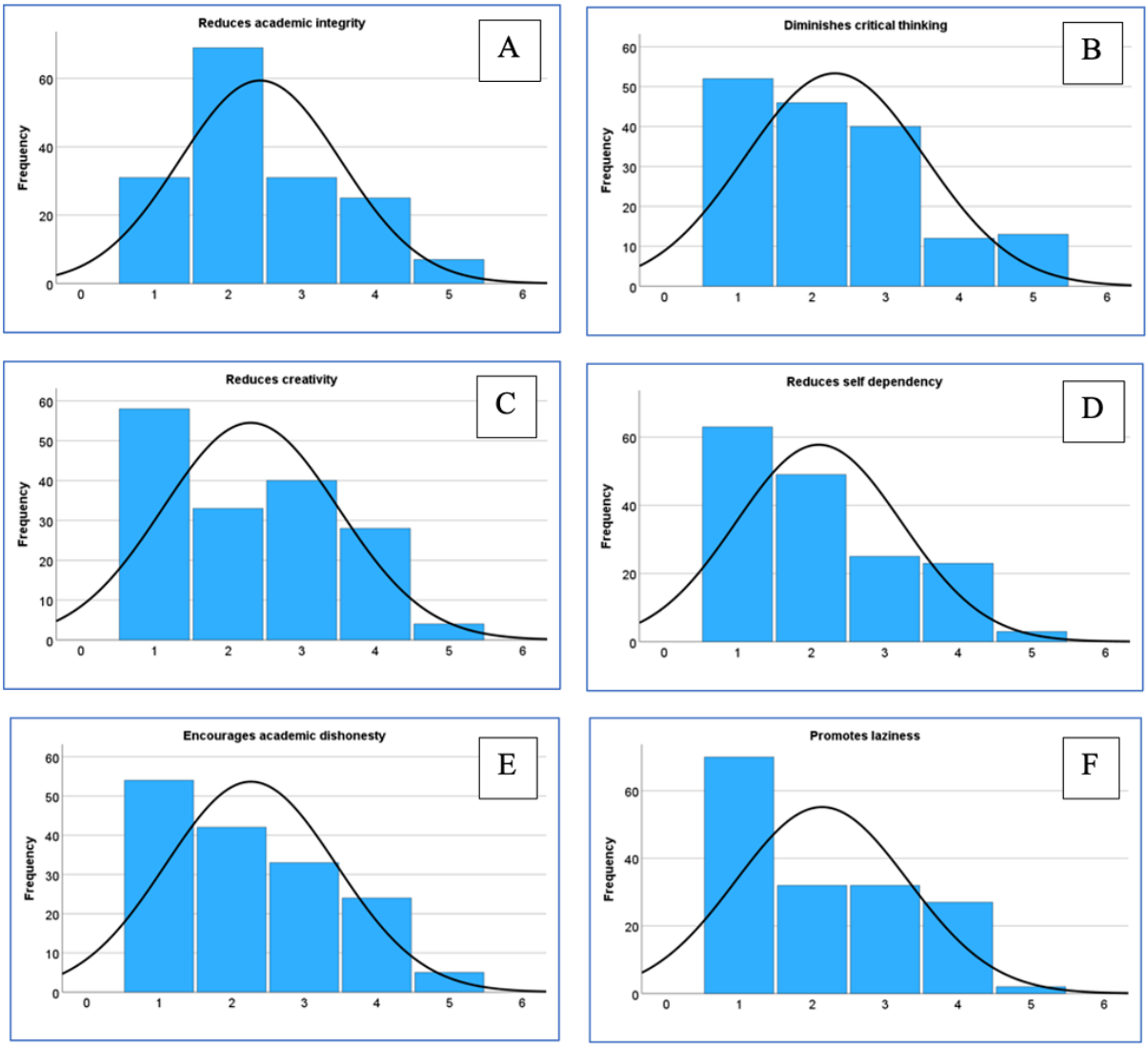

Figure 5: Potential negative impacts of ChatGPT on University students (1-Strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly disagree)

In spite of the level of skewness, as Figure 5 shows, changes slightly from one impact to another, the overall picture is that students feel that ChatGPT is associated with some negative impacts on their education. This finding concurs with several other studies which showed that the tool is associated with many negative impacts.[41]

Effects of ChatGPT on Respondents

After providing their viewpoints on both the positive and negative impacts of ChatGPT, respondents were asked to indicate how the tool has affected them personally. To achieve this, respondents were asked to agree on either one of the two options provided. The first was on whether the tool has helped them directly to improve in studies, and the next was whether the tool has brought more negative

[41] Tlili et al., "What If the Devil Is My Guardian Angel: ChatGPT as a Case Study of Using Chatbots in Education"; Adeshola and Adepoju, "The Opportunities and Challenges of ChatGPT in Education"; Huallpa, "Exploring the Ethical Considerations of Using Chat GPT in University Education"; Ajlouni, Wahba, and Almahaireh, "Students' Attitudes Towards Using ChatGPT as a Learning Tool: The Case of the University of Jordan."

impacts to their education. The findings showed that out of 163 students who were using ChatGPT, only six had a feeling that ChatGPT has brought more negative impacts to their education while the remaining 157 students hailed the tool. This implies that, regardless of the prevailing potential negative impacts of ChatGPT, the tool is still helping students improve their studies.

Should ChatGPT be allowed in universities?

Most of the respondents believe that universities should not ban the use of ChatGPT. This was expressed by 74.2% of 163 respondents using ChatGPT who indicated that ChatGPT should be allowed in universities but their use should be regulated. On the other hand, 12.3% of respondents opined that ChatGPT should be banned from universities, while 13.5% opined that ChatGPT should be allowed unconditionally, as summarized in Table 3.

Table 3: Respondents opinion on whether or not ChatGPT be allowed in universities

Opinion	Frequency	Percent
Should be allowed unconditionally	22	13.5
Should be allowed but regulated	121	74.2
Should be banned from universities	20	12.3
Total	**163**	**81.5**

The findings as shown in Table 3 show that although it is true that there are negative impacts of ChatGPT on education, if the use of ChatGPT is regulated, it stands to bring about positive impacts. This is in line with Dempere *et al*. who argued that while it is true that risks of deteriorating students' independent thinking exist, banning ChatGPT from academic institutions should not be the answer.[42] In addition, studies by Malinka *et al*. and Rudolph *et al*. recommended that instead of banning ChatGPT, universities should teach students to use it responsibly.[43] Thus, under regulatory environments, it is reasonable to say ChatGPT would contribute to building rather than destroying education. That could also play a part in supporting the constructivist theory of learning as presented in the integrated framework by Rasul *et al*.[44] However, if it is used unregulated, it is likely to reduce academic integrity, diminish critical thinking, reduce creativity and students' self-dependency, encourage academic dishonesty and foster laziness in students, which altogether would contribute to destroying the meaning of education.

RECOMMENDATIONS

To continue harnessing the positive potentials of the tool, the study recommends first of all that ChatGPT should not be banned in universities. However, universities need to consider regulating the use of ChatGPT in education. Areas like critical thinking and, the ability to evaluate, change and add value to existing knowledge should be encouraged in any learning endeavor among students, especially those in higher learning institutions. ChatGPT, through the proper regulation, should focus on building a firm foundation for education.

That could be achieved by formulating and operationalizing special policies or guidelines on the use of ChatGPT in education. As part of implementing the proposed policy and/or guidelines, it is important for universities to not only implement plagiarism detection software but also talk with students about academic integrity, especially in this AI era. Students should be taught to use AI in a good way. Universities should also consider redesigning assignments by constructing questions that demand a high level of thinking rather than questions that entertain memorization. There is also a need for more detailed research work to be done on the proper ChatGPT trajectory.

[42] Dempere et al., "The Impact of ChatGPT on Higher Education."
[43] Malinka et al., "On the Educational Impact of Chatgpt: Is Artificial Intelligence Ready to Obtain a University Degree?"; Rudolph, Tan, and Tan, "War of the Chatbots: Bard, Bing Chat, ChatGPT, Ernie and beyond. The New AI Gold Rush and Its Impact on Higher Education."
[44] Rasul et al., "The Role of ChatGPT in Higher Education: Benefits, Challenges, and Future Research Directions."

CONCLUSION

Since its launch in November 2022, ChatGPT has gained popularity and wide use amongst various groups of users, the majority of them being University students. Students use ChatGPT for a variety of reasons including helping them in preparation for exams, undertaking assignments, and during the research proposal development and report writing. There are also a few instances in which students use ChatGPT during class tests and final exams. With the prevailing use, the tool can bring both positive and negative impacts. Regarding positive impacts, ChatGPT can enable students to accomplish tasks more quickly, improve access to educational materials and resources, and potentially increase students' performance. Although there are also negative impacts, it was established that if ChatGPT is used positively it stands to build rather than destroy education. The majority of respondents in the study areas, for example, admitted that the tool has helped them to improve in studies. Nevertheless, if it is not used in a good way it can bring negative impacts such as reducing academic integrity, diminishing critical thinking, reducing creativity and students' independence, encouraging academic dishonesty, and fostering laziness in students which would contribute to destroying education.

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