Scrutinizing the Effects of ChatGPT on Writing Skills among Rwandan University Students: The Case of AUCA

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Abstract

A language serves the role of passing across messages. It is a tool without which communication among people is broken. Whether it is in technology, business, and whatever, languages play an important role in propelling what is done in these areas. In this framework, the study at hand assessed the fructification of language education in the era of AI Technology. The researcher was interested more in whether AI contributes more to the teaching of languages or whether it maims the expected results in language teaching. The focus was on the impartment of language writing skills. As it should be understood, languages are the backbones of any development humans may rejoice for. The study used the descriptive research design with quantitative and qualitative methodologies. A questionnaire was given to 115 respondents who were purposively sampled to take part in the study. Apart from this, the unstructured interview was also used. The results revealed that overreliance on AI may affects students' critical thinking and creativity. It was recommended that students should use ChatGPT responsibly to avoid falling victims of addiction.

Keywords: *AI Technology; Education; Critical Thinking; Writing Skills; Language*

Introduction

ChatGPT is an artificial intelligence (AI) chatbot built on top of OpenAI's foundational large language models (LLMs) like GPT-4 and its predecessors. This chatbot has redefined the standards of artificial intelligence, proving that machines can indeed "learn" the complexities of human language and interaction. (Marr, 2023).

With the ability to learn human language, this technology is currently the source of many academicians as most of them believe that it renders their tasks lighter. Almost every invention and

human realization can be traced via ChatGPT. It is as if the entire planet is connected to the technology. Information from all countries seem to be uploaded into the system in such a way that whenever inquiry is made, more texts display instantly.

OpenAI released an early demo of ChatGPT on November 30, 2022, and the chatbot quickly went viral on social media as users shared examples of what it could do. Stories and samples included everything from travel planning to writing fables to code computer programs. Within five days, the chatbot had attracted over one million users. (Marr, 2023).

Statistics have it that this technology has attracted the attention of many people from around the globe since its inception. Among those attracted by this technology are students from various countries across the globe. Many students believe that the technology came in handy and that it hastens their tasks especially when they have to complete assignments. With regard to this, the study explored whether reliance on ChatGPT cannot lead to poor academic results in terms of language learning in as far as university students are concerned.

Research Objectives

The research had both main and the specific objectives as captured below:

Main Objective

The study aimed at finding out the effects of ChartGPT on language writing skills among university students.

Specific Objectives

The study intended to achieve the following specific objectives:

- To establish the effects of ChartGPT on language writing skills among AUCA students;
- To determine the advantages of ChartGPT in language writing skills among AUCA students.

Research Questions

In the framework of trying to achieve the above objectives, the researcher asked the following questions:

- ✓ What are the effects of ChartGPT on language writing skills among AUCA students?
- ✓ What are the advantages of ChartGPT in language writing skills among AUCA students?

Hypotheses

One alternative hypothesis and one null hypothesis were formulated to tentatively answer the above questions:

- ➢ ChartGPT offers many advantages in language writing skills among AUCA students.
- ➢ ChartGPT has no negative effects on language writing skills among AUCA students;

Problem Statement

Since December 2015, ChartGPT has continues to amaze human beings from all walks of life. The world of academics is among those that seem to marvel at the technological advancements of this AI system. This technology is believed to react at a faster pace whenever it is asked to have a say on

something. The truth is, it hardly fails to have a say on anything irrespective of the field. Besides, this is the technology that is on many students' lips in their campuses. the question here is to know whether this technology has come to completely replace human ingenuity. Language teaching encompasses a number of things such as vocabulary practice, simulating conversations, look grammatical rules, essay writing, poetry, to mention but a few. All these genres of language teaching can be found on ChartGPT. Asking the technology to provide you with an essay on a given topic, it will be done in a blink of an eye. The problem thus is to know whether this technology does not affect students in one way or another. Whether it is free from side effects.

Methodology

The study was both quantitative and qualitative in that the questionnaire and interview were used as data collection instruments.

Population of the Study

The researcher considered the staff and students of AUCA as the total population of the study. However, the questionnaire was solely answered by the students as the study sought to find out how ChatGPT is used among students and the effects it has on them. Besides, the study engaged teachers in an interview.

Sample Size

Through purposive sampling, 115 respondents were taken to represent their peers in the study. These are the students who were conversant with the use of technological tools. After their selection, they were given copies of the questionnaire to answer the questions.

Literature Review

More about AUCA

The acronym AUCA stands for the Adventist University of Central Africa which was first established in north western Rwanda in 1978 to serve the Francophone constituency of the then Africa-Indian Ocean Division. The institution grew and served well, but had to be closed in 1994 when the genocide against the Tutsi started in the country. Two years later, higher education in the Division was reorganized into four campuses across the Division, with a central administrative headquarters at the Division[1].

Literature about ChatGPT

The incorporation of artificial intelligence (AI) into education has heralded a transformative era in the way students learn and faculties teach. Among the burgeoning array of AI tools, ChatGPT stands out as a versatile and powerful resource. Developed by OpenAI, ChatGPT is an AI-driven conversational model that generates human-like responses. (Hasanein and Sobaih, 2023).

On the one hand, many educators fear the program threatens academic integrity, encouraging new methods of cheating and plagiarism. Because of the program's simplicity, accessibility, and convenience, students have been using it to generate answers to homework and even entire essays, claiming the chatbot's writing as their own. (Blose,2023).

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[1] Retrieved from https://adventistuniversities.com/places/adventist-university-of-central-africa/ on 19 May, 2024.
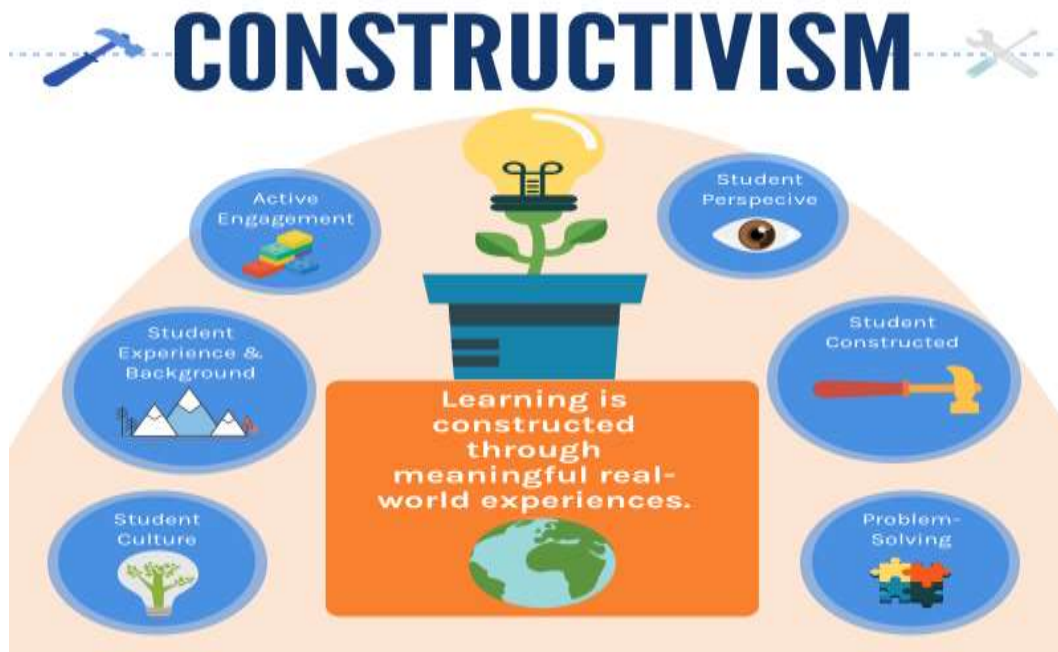
On the other hand, there were other prominent key challenges concerning using ChatGPT in education. These challenges include reliability issues, the reliance on biased data , the limitation of knowledge to information available up to 2021 , relying on inaccurate or fabricated content, including fictitious citations , and over-reliance on ChatGPT might have negative impact students' critical thinking and problem-solving abilities . (Hasanein and Sobaih, 2023).

While the tool may be able to provide quick and easy answers to questions, it does not build critical-thinking and problem-solving skills, which are essential for academic and lifelong success. (Heaven, 2023).

The AI chatbot helps students practice their **reading comprehension** skills by providing tailored questions and feedback on their answers. The tool can improve critical thinking and analytical skills if applied correctly. Assisting students in **language learning** is yet another essential feature of ChatGPT. Learners can use the tool to understand grammar, undertake vocabulary and pronunciation exercises, translate phrases, or provide real-time translations. (Onojescu and Purcariu, 2024).

Theoretical Perspective

This study draws on constructivism theory. The latter was developed by Jean Piaget who believes that children create their own learning through using their prior knowledge and through discovery learning. His research was based on observing the memory processes of children. In his research, he found that students go through 4 stages of development when learning new content including schema (sequence), adaptation, assimilation (making connections), and accommodation. He believed that learning is based on student background knowledge, experiences, perceptions, and perspective and that intelligence changes as we grow[2].

Source: Retrieved from https://www.instructionalcoaches.com/portfolio/constructivism/ on 11 April, 2024

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[2] Retrieved from https://www.instructionalcoaches.com/portfolio/constructivism/ on 11 April, 2024.

Data Presentation and Findings

Using SPSS (V.20), the researcher was able to present the data and later on provide the findings. In this section, the data are presented in histograms as generated by SPSS.

Respondents' Gender

Gender has been proven to play a pivotal role in research. Below are data on participants' gender presented using a table and a histogram.

| Gender	Respondents	Percentage
Male	82	71.3%
Female	33	28.7%
Total	115	100%
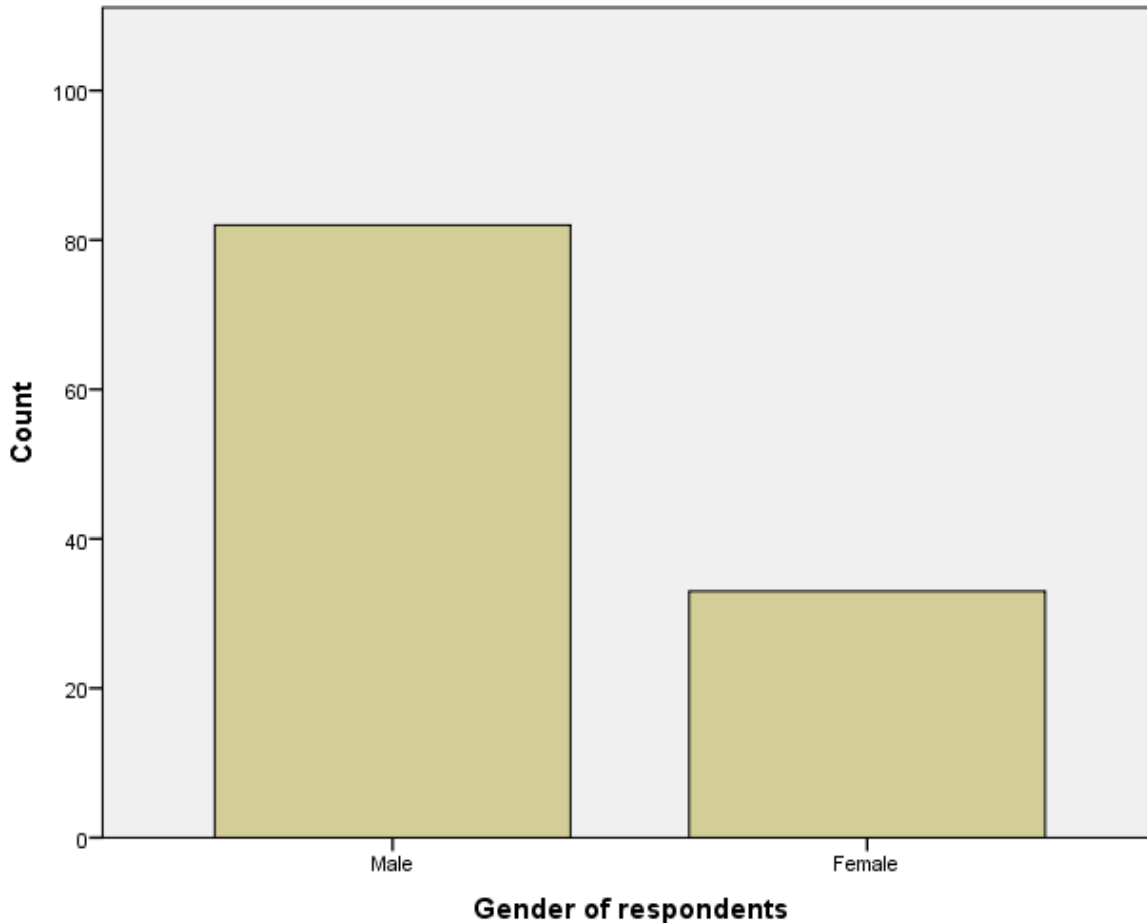
As indicated on the histogram, more male respondents took part in the study. They were 82(71.3%) as opposed to their female counterparts 33(28.7%). The highest number of representation was due to the fact that male students are the ones who confirmed to have knowledge of what ChatGPT is; and the study was solely open to students with knowledge of ChatGPT.

Respondents' Age

Age matters a lot while conducting a research study. This is due to the fact that not every human being is eligible to partake in research as respondent. Children who cannot distinguish evil from good for instance cannot take part in a study on language writing such as this one. Below are the statistics on participants' gender.

| Age	Respondents	Percentage
18-25	105	91.3%
26-35	6	5.2%
36-45	4	3.5%
Above 45	115	100%
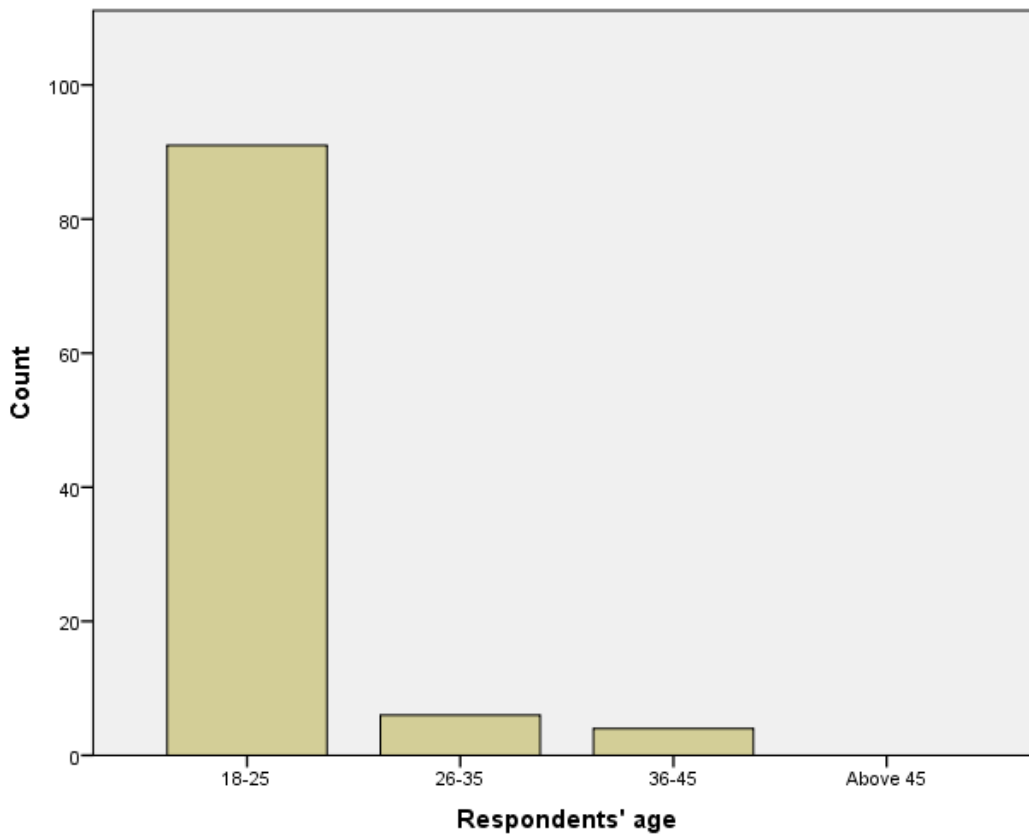
The data presented in the above histogram indicate that more young people took part in the study. Statistically, 105 (91.3%) were aged between 18 and 25 years, 6(5.2%) were aged between 26 and 35 years; whereas the remaining were aged between 36 and 45 years. It is important to note that none of the respondents was aged above 45 years. The youthful respondents were due to the fact that AUCA student community is predominantly young. However, the findings of the study can be reliable since all respondents have the age of majority to distinguish things and make meaningful points.

Whether Respondents Use ChatGPT in Most of Their Language Writing Assignments

The table and histogram below provide data on whether the participants use ChatGPT in most of their language writing assignments.

I use ChatGPT in most of my language assignments	Answers	Respondents and %
	Strongly agree	51 (44.3%)
	Agree	37 (32.2%)
	Neutral	16 (13.9%)
	Disagree	10 (8.7%)
	Strongly disagree	1 (0.9)

Respondents' use of ChatGPT in all language writing assignments
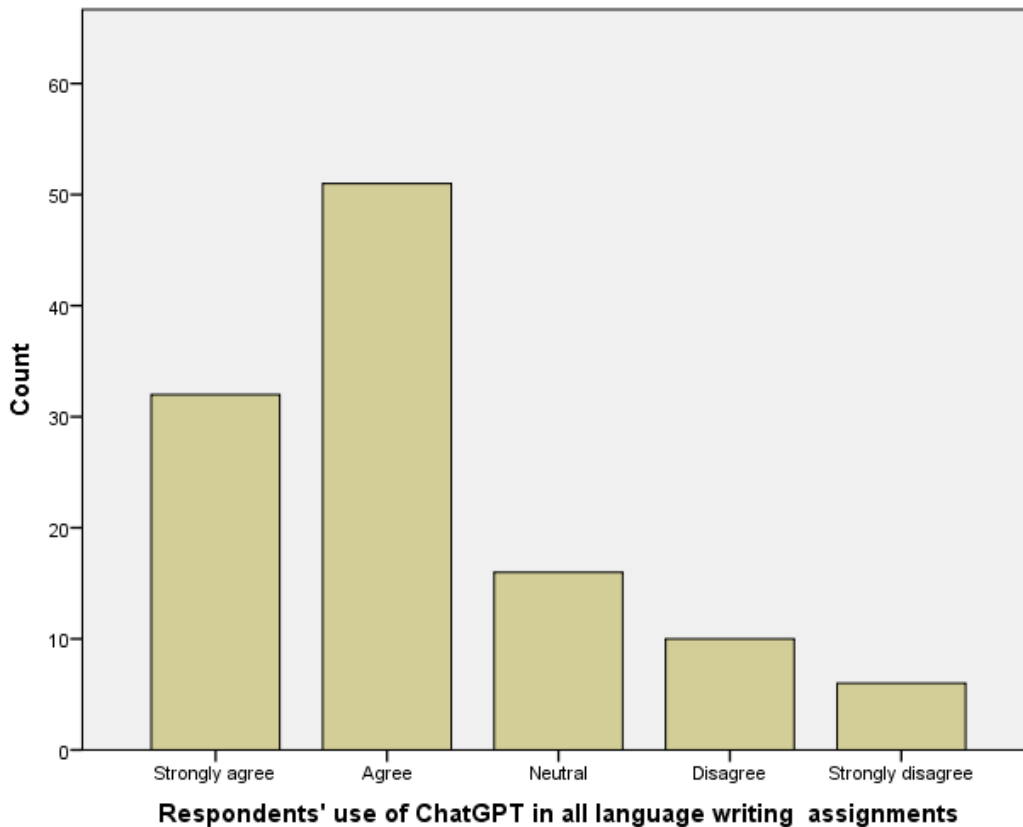
A big number of respondents confirmed using ChatGPT in most of their language writing assignments. As presented on the histogram, 51(44.3%) strongly agreed that they use ChatGPT is most of their language writing assignments, 37(32.2%) agreed to the statement, whereas the smallest percentage opted for neutrality, disagreement and strong disagreement. This therefore implies that ChatGPT has become the very first resort for students while completing their language assignments. This is scary since language writing assignments are mostly geared towards boosting learners' critical thinking and creativity.

With tendency to always consult ChatGPT before using their brain therefore, learners may end up becoming lazy, hence affecting the ability to think critically and creatively.

This concurs with what some scholars said where they argue that *over-reliance on ChatGPT might have negative impact students' critical thinking and problem-solving abilities*. (Hasanein and Sobaih, 2023). These findings gave rise to the rejection of the second hypothesis which stated that ChartGPT has no negative effects on language writing skills among AUCA students.

Accordingly, the excessive dependence on ChatGPT during assignments may fuel the practice of cheating among students as they already know that their right-hand tool can easily and swiftly handle what they perceive as time-consuming assignment. This revelation agrees to the statement by Nashwan, Sadallah and Bouteraa (2023) that *the use of ChatGPT in academic settings is a controversial issue, leading to a severe concern about academic integrity and AI-assisted cheating, while scholarly communities still lack clear principles on using such innovation in academia.*

Relatedly, one respondent was quoted saying, "*Our students have completely changed ever since ChatGPT was known on the campus. Nowadays, they no longer submit their assignments too late. Most of them meet submission deadlines. If for example you ask them to write an essay of ten pages and submit it the following day, they'll all meet that deadline, and we suspect ChatGPT to be behind this.*"

Whether ChatGPT Saves Time

The table and histogram below elucidate more on participants' perceptions about the ability of ChatGPT to save time.

ChatGPT saves time	Answers	Respondents and %
	Strongly agree	70 (60.9%)
	Agree	34 (29.6%)
	Neutral	3 (2.6%)
	Disagree	5 (4.3%)
	Strongly disagree	3 (2.6)

Ability of ChatGPT to save time during assignments
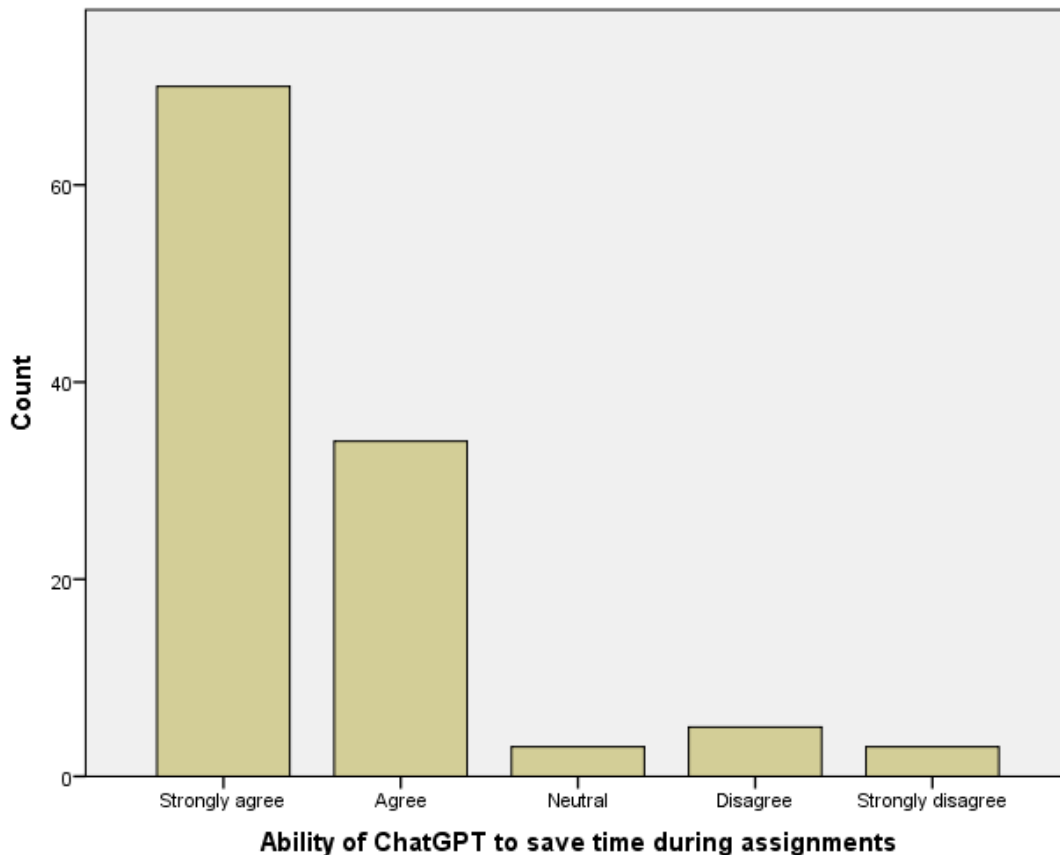
Most of the respondents agreed and strongly agreed that ChatGPT has the ability to save time during the completion of language writing assignments. This was confirmed by 70(60.9%) who strongly agreed, and 34(29.6%) who agreed. The remaining 11(9.5) chose neutrality, disagreement and strong disagreement. This is corroborated by Iyolita and Muhammad (2023) where they argue that *ChatGPT allows for quicker and more efficient support to students by offering pre-written responses to common questions. This model is able to answer Frequently Asked Questions (FAQ) to support students and teachers effectively while accessing any online portal related to education.*

Clarity of Answers Generated by ChatGPT

Clarity is an integral part in writing. If one writes illegibly or without respecting punctuation marks, they confuse their readers.

There is clarity in texts (essays) generated by ChatGPT	Answers	Respondents and %
	Strongly agree	70 (60.9%)
	Agree	34 (29.6%)
	Neutral	3 (2.6%)
	Disagree	5 (4.3%)
	Strongly disagree	3 (2.6)
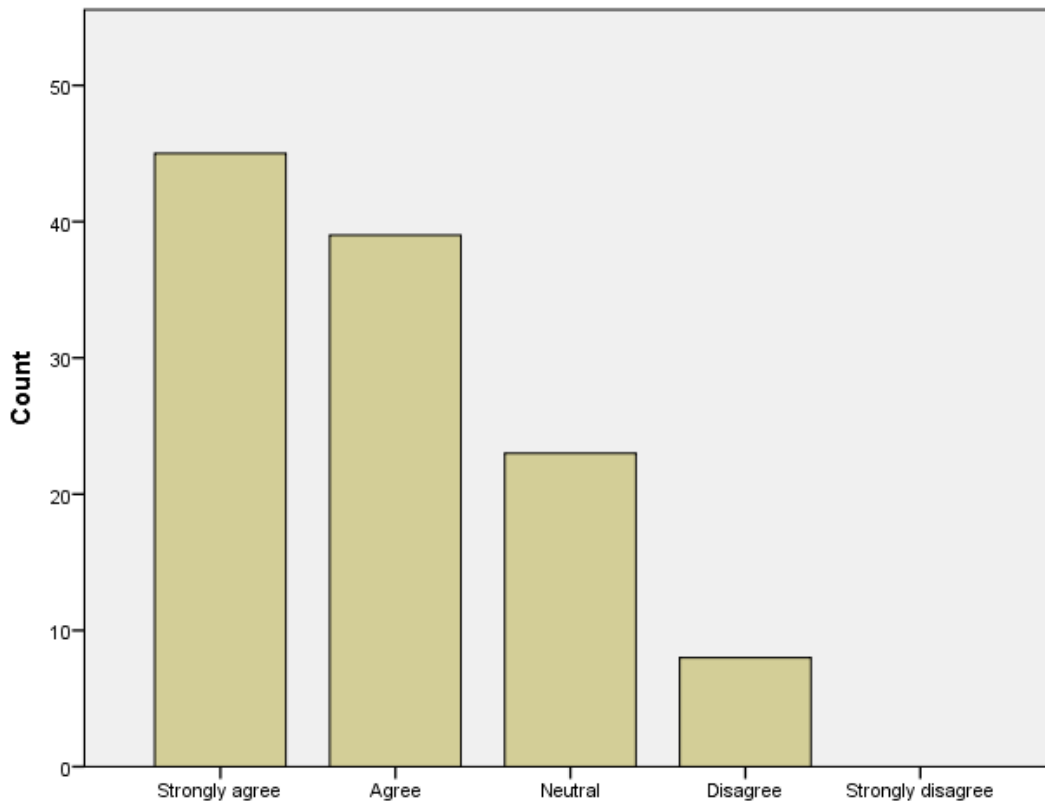
Perceptions of respondents on clarity of answers given by ChatGPT

The histogram shares perceptions of respondents on whether ChatGPT provides clear explanations and meaningful texts. On this, 45(39.1%) respondents strongly agreed, 39(33.9%) agreed, 23(20%) were neutral, while 8(7%) were disagreed. This justifies the highest level of trust that students

put in this AI technology. One respondent was quoted saying, " *ChatGPT provides clear texts in such a way that one doesn't need any adjustments before submitting it to the levtuer for evaluation. The texts are legibly clear and well-polished*." This is in concurrence with what Xames and Shefa (2023) say: "*ChatGPT may generate ideas, synthesize existing works, identify context for the researchers; check article quality, format, plagiarism, and eligibility for the editors; and evaluate the novelty, quality, clarity, conciseness, coherence, and even the strength and weakness of an article for the reviewers*".

These findings led to the confirmation of the first hypothesis which stated that ChartGPT offers many advantages in language writing skills among AUCA students.

Whether ChatGPT Should Be Banned

The researcher wanted to find out participants' take on banning ChatGPT. Below are the findings in table and histogram.

ChatGPT should be banned	Answers	Respondents and %
	Strongly agree	6 (5%)
	Agree	7 (6%)
	Neutral	2 (1.7%)
	Disagree	48(41.7%)
	Strongly disagree	52 (45.2%)
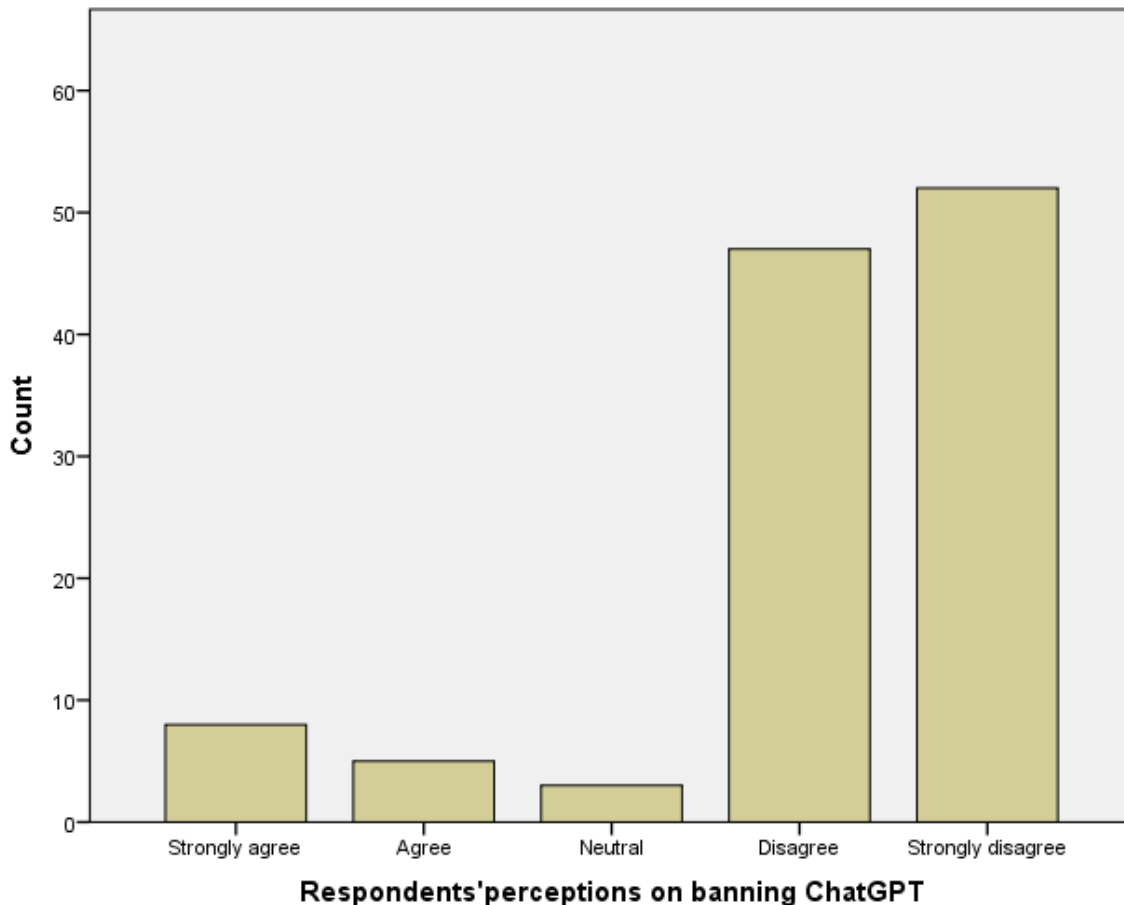
The question on whether ChatGPT should be banned faced a high level of opposition as 48(41.7%) disagreed, 52(45.2) strongly disagreed. The remaining percentage, which is very small, represents the number of respondents who find no problem with the banning of ChatGPT. This indicates how many students have become addicted to ChatGPT. They find it their supporting companion in accomplishing their assignments and exercises in a clear, coherent and faster manner.

This reluctance to ban ChatGPT in academia is shared by scholars such as Harrison, Hurd &Brinegar (2023). who put it that *instead of banning technology from school, we could also lean into entrusting that teachers are equipped with the skills to modify assessments where programs like ChatGPT could not be readily used to complete assignments*.

In line with this, one of the teachers who were interviewed said, "*I once cracked a joke that ChatGPT was going to be banned, and all my students looked at me in bewilderment, and I realized that they liked it a lot*."

Conclusion

The study has been able to show the merits and demerits of ChartGPT on students' writing skills. As the findings disclosed, ChartGPT is not bad when used responsibly. Also, it has been revealed that the overreliance on this AI technology is likely to bring about disastrous results in students 'learning since it affects their critical thinking and problem-solving skills. On the other hand, this technology continues to pose a serious problem because it cannot be cited as a source of information while students are justifying the source of their data. Studying languages therefore is at stake if this AI technology is not used wisely. The study has indeed shown how this AI technology breeds laziness and complacency among students as they believe that everything will be found there. Thus, the study has made a clarion call to all learners and teachers/lecturers that writing skills should be done through learners' active engagement so that they may fully grasp the rules pertaining to writing sentences, paragraphs and essays. However, despite the negative effects the technology may have, the respondents dismissed the idea of banning it whereby 48(41.7%) disagreed, 52(45.2) strongly disagreed as a sign of their strong reliance on ChatGPT, something that is likely to weaken learners' writing skills.

Recommendations

Following revelations that ChartGPT poses some problems in students' language learning, the study recommended the following:

- Students should be constantly briefed about the dangers posed by overreliance on ChartGPT;

- Universities' language lecturers should introduce classroom-based offline exercises and assignments to properly assess their learners' critical thinking and problem solving skills.

- Learners should use ChartGPT responsibly to avoid reaching the level of addiction where reversibility proves impossible.

- The constructivism theory, which underscores that problem-solving and active engagement of learners are very key in language learning, should be observed if learners are to master writing skills.

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