FUTURITY
Education

Investigating ChatGPT: A Threat or Benefit to Higher Education?

Philani Brian Mlambo

Master's in Technology Education, Lecturer, Faculty of Arts and Design, School of Education, Durban University of Technology, Pietermaritzburg, South Africa, https://orcid.org/0000-0001-6370-2075

*Corresponding author: *PhilaniM7@dut.ac.za.*

Abstract. Over the past years, technology has been on the rise and this rise has necessitated the need for technology developers to be on their toes in ensuring that new technologies are developed to keep up with the fast-paced technology rise. Consequently, the rise in artificial intelligence brought ChatGPT which has been seen as the most advanced chatbot that has ever been created. However, scholars have mixed views about ChatGPT in the context of higher education which has compelled the need to investigate ChatGPT to gauge whether it is a threat or a benefit to higher education. This study aimed to investigate lecturers' views about ChatGPT, ascertain whether ChatGPT is a threat or benefit to higher education, and get lecturers' views if whether or not ChatGPT can be used as an official academic tool to support both lecturers and students in doing their academic work. To carry out the objectives of this study, a qualitative research approach was employed, and data was collected through semi-structured interviews. Data collected was analysed using a thematic analysis. Furthermore, convenience sampling was used to select eight (8) lecturers to gather their in-depth understanding of ChatGPT. Findings of this study indicate that lecturers view ChatGPT as a source of information. Findings further revealed that there are mixed views among lecturers on whether ChatGPT is a threat or benefit to higher education. This study recommends that there should be guidelines and policies to guide the usage of ChatGPT so that students and lecturers will not misuse it.

Keywords: artificial intelligence; chatbot; technology; forth industrial revolution; lecturers.

Introduction

Technology adoption has been growing at an exponential pace recently and this is owing to the world moving to the fourth industrial revolution (4IR). The 4IR direction that the world is taking has compelled all sectors across the globe to migrate to digital as a way of saving money, improving production and efficiency. This shift affects every industry, including education. This was demonstrated during the COVID-19 era, when schools and universities were closed to stop the virus's spread. This compelled educational sectors to come up with alternative ways to keep education alive and that resulted in a rise in usage of conference meetings applications such as Zoom, Skype and Microsoft Teams (MS Teams). This is an indication that the world is moving digitally at a fast pace. This transformation further introduced us to Artificial Intelligence (AI), with an aim to simplify people's lives. In support of the aforementioned (Aina & Joshua, 2024; Chan & Tsi, 2023), advance that AI main purpose is to enhance the process of teaching and learning. In November 2022 ChatGPT was introduced which was an upgrade from the earlier version of GPT-3 (Neumann et al., 2023). ChatGPT is the most advanced software to ever been created which provides real time responses (Mhlanga, 2023; Neumann et al., 2023; Rudolph et al., 2023). ChatGPT has been a subject of discussion since its inception in November 2022 as advanced by (Chan & Tsi, 2023). There have been mixed views about ChatGPT in terms of its role it can play in higher education. One view is that it will promote laziness and plagiarism which in turn compromise the integrity of academic writing as this software has been observed to create non existing references when tasked to write an assignment. The same assertion is echoed by Tangermann (2023), who reported that a certain professor was caught using ChatGPT as the paper was full of 'hallucinated' scholarly citations.

Research Problem

Literature have shown that many scholars have different views about ChatGPT. For an example, an article titled '*ChatGPT is fun, but not an author*' by Thorp (2023), outlined that ChatGPT has serious implications in academia as 63% of fake referencing were caught. However, there are some views which paint ChatGPT in good light for example Neumann, Rauschenberger and Schön (2023), argues that ChatGPT assist students in many aspects such as assessment preparation, summarizing literature and paraphrasing text. In the same vein, ChatGPT can be used by lecturers to teach critical writing which is the most crucial skill a student should have (Strzelecki, 2023). The above shows that there are mixed views pertaining the usage of ChatGPT in higher institutions of education as a result this study sought to investigate ChatGPT to gauge whether it is threat or benefit to higher education.

Research Aim and Research Questions

The aims of this study were (1) to investigate whether ChatGPT is a threat or benefit to higher education (2) gauge whether it can be adopted as an academic tool. The conflicting opinions of ChatGPT expressed by numerous academics, lecturers, and university students made this inquiry necessary. The following research questions served as the direction for the investigation to fulfil the goals of this study:

RQ1: What are the lecturers views about ChatGPT in higher education?

RQ2: What are the implications of adopting ChatGPT as an academic software?

Literature Review

What is ChatGPT?

Chat Generative Pretrained Transformer which is commonly known as ChatGPT is an OpenAI chat bot which was introduced to the world on the 30th of November 2022. According to OpenAI (2022), ChatGPT is an innovation that comes after InstructGPT which is trained to follow an instruction in a prompt and provide a detailed response. ChatGPT provides real time communication responses to user's request (Neumann et al., 2023). Based on the above, Neumann, Rauschenberger and Schön (2023) define ChatGPT as the state-of-the-art innovation which can assist higher education in many ways. One of the ways is to assist students with their assessments. ChatGPT is further defined as the largest language model that generates response within a seconds based on prompt by its users (Strzelecki, 2023). Scholars such as (Mhlanga, 2023; Rudolph et al., 2023; Strzelecki, 2023) regard ChatGPT as the innovation of the century in the history of AI because you can prompt ChatGPT to define qualitative research in 2000 words and the response will be given in less than 1 minute.

ChatGPT is the AI innovation of the century as 2000 words were generated in less than 1 minute and the content generated is of good quality. This is an indication of how good ChatGPT is and how helpful it will be if higher institutions of education could adopt it as an academic tool. Rudolph, Tan and Tan (2023), highlight that ChatGPT is indeed the state-of-the-art language model that that can produce text different from that generated by humans. This state-of-the-art chatbot is unlike other chatbots as it has the ability to continue a conversation in more fluid manner just like having a conversation with a human (Hetler, 2023). Which is a marvel to witness and ChatGPT is a game changer in the history of chatbots. Unlike other academic software's such as Microsoft office, Endnote, Statistical Package for Social Sciences (SPSS) and NVivo which require licencing, according OpenAI (2022) ChatGPT can be used free of charge.

Concerns about using ChatGPT in higher education

The inception of ChatGPT took the world by a storm, as a result many views followed questioning whether ChatGPT is a threat or a benefit to higher education. ChatGPT has been a source of discussions from all social platforms such as Twitter and LinkedIn (Neumann et al., 2023). These discussions have led to some scholars indicating concerns about the adoption of ChatGPT as an academic tool in higher education. For example, an article published online by Wacholz (2023), reports that 17 authors are suing the owner of ChatGPT for copyright infringement. Further concerns about ChatGPT were raised by Tangermann (2023), who reported that a certain Professor was caught after having used ChatGPT to write a paper which was full of errors. The assertions above are an indication that ChatGPT is posing a threat to academic integrity. As a result, the future of genuine creative writing is hanging by a threat owing to ChatGPT. Hetler (2023), advance that ChatGPT can be used in unethical ways such as plagiarism and spreading misinformation. The concerns of using ChatGPT were further brought forward by Faloye (2023), who argued that the inception of ChatGPT is a threat to academic integrity and questions whether in future will people ever write academic research articles.

According to Faloye (2023), the future of article writing, the foundation of academia, is being threatened by ChatGPT. Further concerns about ChatGPT compromising the academic integrity were echoed by (Gleason, 2022; Tangermann, 2023; Thorp, 2023), citing that ChatGPT is creating fake referencing which is termed "hallucinated referencing". The hallucinated referencing is a serious threat to academic integrity. This alone is bringing doubt in adopting ChatGPT as an academic tool as its posses' threat to higher education. The concerns about using ChatGPT are further outlined by Cooper (2023),
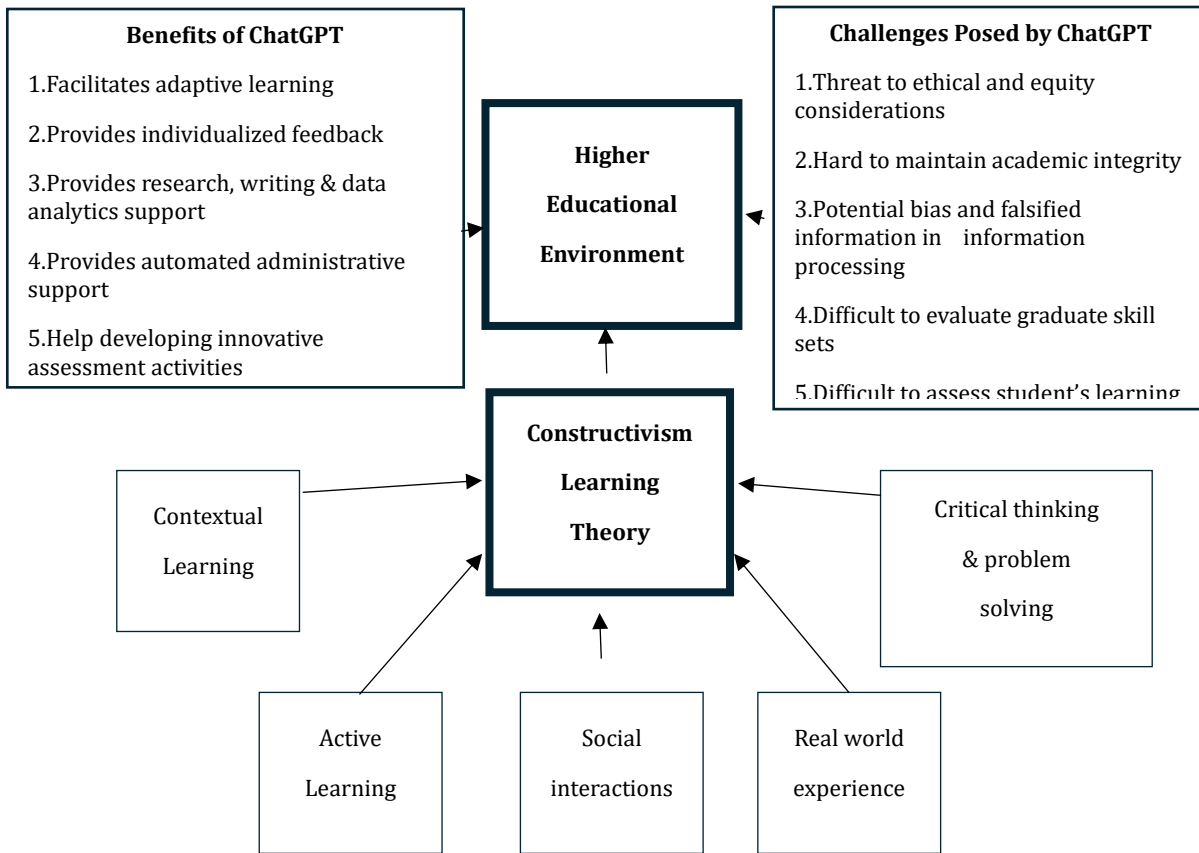
who advance that using ChatGPT comes with ethical issues like copyright infringement and fake citations. However, these concerns were quickly squashed by Chechitelli (2023), who asserts that Turnitin has now been updated to detect an AI content including that of ChatGPT. This simply means that people will not use ChatGPT for academic writing, but they can use it to get an idea of writing an academic work. The future of academic writing is not under threat as put forward by (Faloye, 2023). However, another concern put forth is that ChatGPT is trained on how to respond to user's prompt which may at times produce biased information. This is supported by Cooper (2023), who posits that "AI systems can perpetuate biases that are present in the data they are trained on. This can lead to unequal and unfair outcomes for students, particularly if the bias is related to factors such as race, gender, or socio-economic status." Based on the above it is for that reason this study sought to investigate ChatGPT and gauge whether it can be adopted as the academic tool to be used by all academic stakeholders such as lecturers and students.

Benefits of using ChatGPT in higher education

The aim of every innovation is to make people's live very easy; this applies to technology as well. The advancement of technology over the past years was through assisting people to have better lives. The migration of the world to the fourth industrial revolution (4IR) compelled innovators to produce technologies that could match the current demand. Consequently, the world was introduced to AI which later introduced ChatGPT. There have been intense discussions around the use and adoption of ChatGPT as an academic tool. Much to the delight of students about using ChatGPT as an academic tool, this was reported in a study done by (Baidoo-Anu & Ansah, 2023; Rice et al., 2024; Strzelecki, 2023) citing that it assists in summarising literature. In the same vein, the ability of ChatGPT to summarize literature is mentioned by Editorials (2023) as one of the benefits of using ChatGPT. Cooper (2023) asserts that students are now familiar with ChatGPT and are happy to use it as a tool to assist them academically. Based on the assertions above, ChatGPT is indeed a revelation to higher education.

This is supported by Cooper (2023), who cites that ChatGPT can be used to compose poems, code for computer programs, and write stories which is of benefits to language and Information Technology (IT) students. Some other benefits and challenges of using ChatGPT in higher education are indicated in Figure 1 below.

Figure 1. *Benefits and challenges of ChatGPT*

Benefits of ChatGPT		Challenges Posed by ChatGPT
1.Facilitates adaptive learning	Higher Educational Environment	1.Threat to ethical and equity considerations
2.Provides individualized feedback		2.Hard to maintain academic integrity
3.Provides research, writing & data analytics support		3.Potential bias and falsified information in information processing
4.Provides automated administrative support		4.Difficult to evaluate graduate skill sets
5.Help developing innovative assessment activities		5.Difficult to assess student's learning

Constructivism Learning Theory — Contextual Learning, Critical thinking & problem solving, Active Learning, Social interactions, Real world experience

Source: *(Rasul et al., 2023)*

Figure 1 above depicts the host of benefits as well as challenges associated with ChatGPT. Another benefit associated with use of ChatGPT is the

editing of text which entails rephrasing of sentences for better flow, and word choice (Cooper, 2023). Cooper (2023), further advance that the *ChatGPT prompt-rewrite* command is very helpful to those researchers who write long sentences as this command will assist in shortening and clarifying these long sentences. The above assertions are an indication that ChatGPT can be a very helpful tool to be used in higher education. To further show the benefit associated with the use of ChatGPT, Hetler (2023) posits that ChatGPT can be used to code computer programs and check for bugs in code and this is very helpful to IT students as programming can be difficult sometimes. Some other benefits highlighted by Hetler (2023) are: summarizing articles, rephrasing of text for better understanding, simplify complex topics, solve Mathematics problems, and summarize literature. All the above are ways students and lecturers could use ChatGPT for with an aim to make their academic journey easy. (Strzelecki, 2023; Xu et al., 2024), further outlines that ChatGPT can be used to develop assignments, essay writing and critical reflection which are very helpful tools as developing assignment can be a daunting task for lecturers. The ability to assist in essay writing is of benefit to students as it can be a tricky task for students to write academic essays. The above shows how ChatGPT can be of benefit to lecturers and students which this study sought to investigate from lecturers.

Theoretical framework

One of the objectives of this study was to get the lecturers view about the adoption of the chatbot ChatGPT as an academic tool that can be used to assist both lecturers and students such as Endnote, SPSS, NVivo and Turnitin. As a result, Perceived Characteristics of Innovation (PCI) as can be seen below in figure 2, was adopted as a model that underpinned this study. This framework was chosen because it speaks to the intention to adopt new tools. In the context of this study, ChatGPT is the tool under investigation which the researcher used to gather the lecturers view about the potential adoption of ChatGPT as an academic tool to improve the lives of students and lecturers when undertaking academic work.
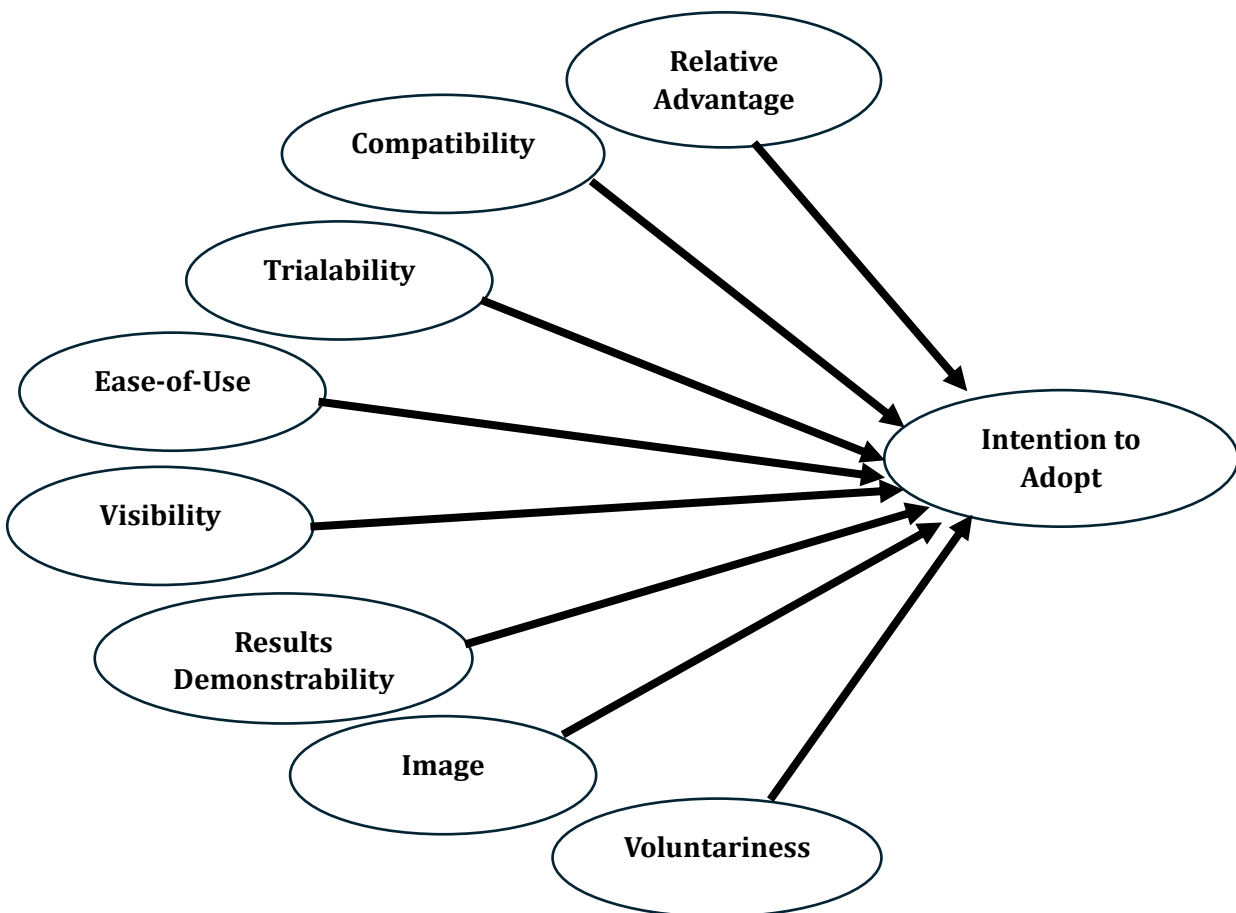

Figure 24

Perceived Characteristics of Innovation Model

Source: *(Moore & Benbasat, 1996)*

Figure 2 above shows PCI model that underpinned this study. The above model consists of eight (8) constructs which can be seen above in figure 4. But to meet the objectives of this study only two were adopted which are (1) Relative Advantage which is defined by Moore and Benbasat (1996) as "the degree to which an innovation is perceived as being better than its precursor". In the context of this study, this construct was used gauge the advantages of adopting ChatGPT as an academic tool. The second construct is (2) Ease-of-Use which according to Moore and Benbasat (1996), "which is the degree to which an

279

innovation is perceived as being easy to use". This construct was used in this study to gather lecturers view about the easiness of using ChatGPT.

Materials and Methods

Research Design

A research design is a blueprint for how a researcher would collect data and analyse it to provide valid answers (Faloye et al., 2020). Furthermore, a research design is defined as the researcher's general plans that would provide answers to the research questions that underpin the research study (Faloye et al., 2020). Since a descriptive design is a research design used to gather information on social issues, it addresses questions like "what, who, where, why, and how." Descriptive research was used in this study to gather information about the phenomena under investigation.

Research Paradigm

According to Becker, Bryman and Ferguson (2012), "a research paradigm is a set of beliefs and precepts that, for scientists in a particular discipline, influence what should be studied, how the research should be conducted, and how the results should be interpreted". Furthermore, important relationship between a paradigm and methodological implications can be seen in the choice of research question(s), participant selection, data collection tools and collection procedures, as well as data analysis (Favaretto et al., 2020). The choice of a paradigm implies a near certainty about specific methodologies. Kivunja and Kuyini (2017), advance that positivism, interpretivism and critical theory are paradigms normally used in research studies. This study sought to investigate ChatGPT and gauge whether it is a benefit or threat to higher education using a qualitative approach; hence, this study employed the interpretivism paradigm. The interpretivist paradigm was employed because the aim of the study was to investigate ChatGPT and getting lecturers view about ChatGPT. Rehman and Alharthi (2016) advance that "interpretivism research relies mostly on verbal data; hence, this study used semi-structured interviews to exploit the advantages of interpretivism research".

Research Approach

According to Creswell (2014), "research approaches are plans and procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation". Furthermore, Creswell (2014) asserted that there are three research methodologies: the qualitative, quantitative, and mixed method approaches. Qualitative research is the process of collecting, analysing, and interpreting non-numerical data, whereas quantitative research has to do with data collected and expressed numerically (Saul, 2019; Solutions, 2017). Bhandari (2020) asserts that qualitative research collecting data that is non-numerical and it is used because its gather in depth information into a phenomenon under investigation. This study sought to investigate ChatGPT and gauge whether it is a benefit or threat to higher education through engaging with face-to-face lecturers, consequently a qualitative approach was deemed relevant.

Sampling and participants

Sampling is the process of choosing certain individuals or a small portion of the population to gather information from an estimate the characteristics of the entire population. According to (Sharma, 2017; Taherdoost, 2016), there are two different types of sampling techniques: probability and non-probability sampling. In the context of study, a convenience sampling w which falls under non-probability sampling used to select eight (8) lecturers from a school of education. Convenience was used

because of its ability to gather data from readily available participants which in the process saves time. As outlined by Taherdoost (2016), choosing participants for a convenience study means finding those conveniently and immediately accessible. This sample technique was adopted since it is affordable and enables researchers to get around many potential obstacles.

Data collection

A qualitative study normally collects data through interviews, observations and data analysis (Bhandari, 2020; Bhat, 2020). Consequently, semi-structured interviews were used to collect data from the lecturers to investigate the phenomena at hand which was to investigate ChatGPT to gauge whether it is a benefit or threat to higher institutions of education. Bhat (2020) further mentions that interviews are used to gather first-hand information through one-on-one discussion with the participants and invite the opportunity to draw in-depth information from the participants. In the framework of this study, one-on-one conversations with the participants were employed during interviews to acquire a deeper understanding of the subject at issue. Interviews are the oldest method of collecting a qualitative data which signifies its reliability in getting accurate and trustworthy data, hence the researcher used interviews to gather data.

Data analysis

This qualitative study gathered data using semi-structured interviews, as a result a thematic analysis was used to analyse the data. Bhatia (2018) asserts that data analysis is essential to research because it allows a researcher to move from a mass of collected data to more simplified and meaningful insights. Caulfield (2019) asserts that developing themes is a method of qualitative data analysis. Caulfield (2019) adds that a researcher looks at the data to find recurring trends and patterns before developing themes. Research used a tape recorder during the interviews where English was used as the medium of instruction, after data was collected, it was then subjected to transcription after that themes were taken out. The six processes of data analysis defined by (Braun & Clarke, 2006). These steps are as follow: (1) Data familiarization; (2) Coding; (3) Theme generation; (4) Theme review; (5) Theme definition; (6) Writing up.

Ethical clearance

Ethics in research plays an important role in ensuring a smooth data collection process and protecting participant privacy. In this study, ethical approval was obtained from the Durban University of Technology (DUT) Ethics Committee. A gatekeeper's letter was also acquired from DUT which allowed the researcher to conduct the study on lecturers. Upon receiving the gatekeepers and clearance letter, the researchers issued informed consent letters so that lecturers could consent for their participation. After data collected the data was kept safe and to be destroyed after three years. Since the interviews were conducted online on Ms Teams the data is kept safe in the secured folder on cloud storage.

Results

As stated above in the methodology section only eight (8) lecturers form part of the sample. These eight (8) lecturers were selected through engaging with them and realising that no more new information was emerging and this stage in qualitative study is known as data saturation point. Table one (1) below shows the biographical information of the eight (8) lecturers who took part in this study.

Table 1. Lecturers' biographical information

Name of Lecturer	Gender	Highest Qualification	Experience
Lecturer A	Female	Masters	3
Lecturer B	Female	PhD	15
Lecturer C	Male	Masters	5
Lecturer D	Female	Masters	23
Lecturer E	Female	PhD	16
Lecturer F	Male	PhD	17
Lecturer G	Male	Honours	1
Lecturer H	Male	Masters	1

Source: *authors own development*

Table 1 above shows the participants that took part in the study. It is notable that there was a balance in terms of gender as there were four (4) males and four (4) females. The experience of the lecturers ranged from 1 year to the highest of 23 years which shows that the sample had well-seasoned lecturers as well as those who are still fresh in the field. Table 1 above also shows that the qualifications of the lecturers ranged from Honours to PhD.

The above participants were subjected to semi-structured interviews to aid in responding to the research questions of this study which are (1) What are the lecturers views about ChatGPT in higher education? (2) What are the implications of adopting ChatGPT as an academic software? These questions were responded to using data acquired from the semi-structured interviews and this data was analysed using thematic analysis. From the data collected only six (6) themes emerged which are: (1) ChatGPT is the source of information; (2) positive and negative impact; (3) plagiarism and falsified information; (4) ChatGPT can never replace human lecturers; (5) ChatGPT a bit of both; and (6) importance of training and guidelines on how to use ChatGPT. Below these themes are discussed as to how they relate to research questions, and they were identified during the interviews.

Table 2. Theme 1

Theme 1: ChatGPT is the source of information	
When lecturers were asked about their understanding of what ChatGPT is they had interesting things to say. Below are the lecturers' responses to the question that was posed to them.	
Lecturer	**Response**
Lecturer A	*"ChatGPT is an AI tool to search for information on any topic online."*
Lecturer C	*"ChatGPT is a form of AI where you can request information."*
Lecturer B	*"I understand ChatGPT to be a tool that can be used for a variety of purposes, such as finding information for teaching and learning, giving ideas on how to go about research and research dimensions, developing course content, and helping in advancing my pedagogy."*
Lecturer H	*"ChatGPT is a popular data generating transformer that can be for academic, business and research purposes."*

Source: *authors own development*

Table 3. Theme 2

Theme 2: Positive and negative impact	
Lecturers were further questioned about their perception about the potential impact ChatGPT will have in higher education and below is how they responded:	
Lecturer	**Response**
Lecturer C	*"I think ChatGPT is a good tool when used well, by doing so it can have a positive impact in higher education."*
Lecturer G	*"It can have a negative impact on the quality of work produced and have a potential to produce a brilliant yet a clueless graduate."*
Lecturer F	*"ChatGPT impact can be measured as positive or negative. It depends on whoever is using it and how it has been used."*
Lecturer H	*"ChatGPT is an educational technology resource with the potential to profoundly improve higher education in many ways."*

Source: *authors own development*

Table 3. Theme 3

Theme 3: Plagiarism and falsified information	
Lecturers were also asked about the ethical issues associated with ChatGPT in higher education. Below is how they responded:	
Lecturer	**Response**
Lecturer H	*"One of the key ethical concerns with adopting ChatGPT in academics is data privacy and security."*
Lecturer E	*"Ethical concern is that students copy the information as is without really giving thought to what they are writing and that results in plagiarism"*
Lecturer A	*"ChatGPT has a tendency to not acknowledge sources of information and that is a form of plagiarism."*
Lecturer C	*"Ethical issue about ChatGPT is with plagiarism"*
Lecturer B	*"Students are very ignorant and negligent as they take information from ChatGPT as their assignments which results in higher similarity index"*

Source: *authors own development*

Table 4. Theme 4

Theme 4: ChatGPT can never replace human lecturers	
During the semi-structured interviews, the lecturers were also about their views if whether ChatGPT can replace human lecturers. All the interviewed lecturers were of the view that ChatGPT or any other form of AI will never replace human lecturers. Below is how they responded:	
Lecturer	**Response**
Lecturer B	*"No. There is nothing on planet earth in this humanity that will replace a lecturer. However, lecturer feel threatened by their lack of knowledge; and unwillingness to learn."*
Lecturer C	*"No, it can never replace human lecturers, there's still a need for lecture-student relation, because some content found by students might need lecturer's intervention."*
Lecturer E	*"No, students still need that face-to-face interaction."*
Lecturer F	*"I do not think there are potential replacement of human lecturers. ChatGPT can be used as a support tool to acquire information."*

| Lecturer G | *"I do not think Chat GPT can replace human lecturers because it is the human lecturers who feed the web with research which is then collected and rephrased by Chat GPT to be fed into users."* |

Source: authors own development

Table 5. Theme 5

Theme 5: ChatGPT a bit of both	
When lecturers were asked if ChatGPT is a threat or benefit to higher education, mixed responses emerge. Below are how the lectures responded:	
Lecturer	**Response**
Lecturer G	*"It is a threat to the authenticity of the work and a benefit to producing notes without having to worry about copyrights"*
Lecturer E	*"It is neither a threat nor extremely beneficial, it has its advantages and disadvantages*
Lecturer C	*"A benefit because it gives us access to content for better understanding"*
Lecturer A	*"It is both, dependence on AI is a threat to human ability. The benefit is on accessing information in the shortest possible time."*
Lecturer D	*"ChatGPT is a threat because language skills must be mastered with practice and use. Future language teachers must be able to remember, understand and apply grammar and punctuation to the classroom."*

Source: authors own development

Table 6. Theme 6

Theme 6: Training and guidelines on how to use ChatGPT	
After lecturers voiced their views about ChatGPT, they were further asked about the recommendations they have for higher institutions of education who are thinking about adopting ChatGPT. All lecturers were of the view that ChatGPT is not going anywhere so it is better to know how to live with it. Below is how they responded:	
Lecturer	**Response**
Lecturer H	*"Training of students on how and when to use it. training of lectures on how to evaluate ChatGPT associated tasks for true learning outcomes and results."*
Lecturer A	*"Training and robust periodic engagements with students, support staff and academics needs to be in place so that this works for us and not against us for the common good."*
Lecturer D	*"Proper policies and procedures should be in place to implement it."*
Lecturer E	*"Institutions should place restrictions on its use."*
Lecturer F	*"Provide guidelines for when, where and how these chatbots may be used."*
Lecturer B	*"Higher education should go for it but have systems in place for human development and systems to curb its misuse."*

Source: authors own development

Discussion

Based on the above responses it is evident that ChatGPT is a versatile tool that can be utilized for many different purposes under the sun. From what lecturers said about ChatGPT, it was also clear that ChatGPT is a tool that is very useful in getting information for any purposes ranging from business to academic purposes. Lecture's view about ChatGPT were in line with the literature above. (Neumann et al., 2023; Strzelecki, 2023) postulate that ChatGPT is a state-of-the-art invention that aid in providing information to both lecturers and students such as assessment preparation, summarizing literature and

teach academic writing skill. Therefore, as the lecturers alluded above indeed ChatGPT is regarded as the source of information.

Based on the lecturer's response above there are mixed ideas about the potential impact ChatGPT will have on higher education. Some are saying ChatGPT is a tool that will have a positive impact while others are saying it will have a negative impact in higher education. Those lecturers who think that ChatGPT will have a positive impact in education align with (Cooper, 2023; Hetler, 2023; Rasul et al., 2023) who all perceive ChatGPT to be a tool that has a positive impact in higher education. The authors above mentioned that ChatGPT can be used for adaptive learning, students getting knowledge themselves, compose poems and can also be used to rewrite some sentences for better grammar and sounding. Better grammar was mentioned by lecturer D who said *"ChatGPT assist in improved writing in terms of grammar."* Therefore, ChatGPT can be seen to have a positive impact in higher education as mentioned by some lecturers. However, some voiced their concerns about ChatGPT that it will have a negative impact in higher education. Another negative impact is that ChatGPT makes it hard to maintain academic integrity and to evaluate students' skill sets (Rasul et al., 2023). The same was voiced by Faloye (2023) in a LinkedIn post that ChatGPT is a threat to academic integrity.

Most lecturers are raising plagiarism as the ethical issue that is associated with ChatGPT. Not only students are plagiarising but lecturers as well of which shows that not only students should be taught about ChatGPT but lecturers too. This concern about plagiarism is also echoed by Tangermann (2023) who put forward that a certain professor was caught to have published a paper that was done by ChatGPT. In the same vein, Thorp (2023) cited that over 63% of fake referencing were caught when using ChatGPT which still point out to ethical concern of plagiarism mentioned by the lecturers above. Hetler (2023) further mentioned ChatGPT can be used in unethical ways such as plagiarism and spreading misinformation. This signals that ChatGPT is perceived by many as being unethical in some instances.

In line with the above responses from the lecturers, the literature revealed that ChatGPT does not have the potential to replace lecturers. In support of the above, ChatGPT will never replace lecturers, but it can only be used as a tool to supplement learning (Ausat et al., 2023). It is further argued that ChatGPT can only be a tool but not a direct substitute for a lecturer (Ausat et al., 2023).

Based on the above it is clear that lecturers have mixed views about whether ChatGPT is a threat or benefit to higher education. Those who view it as a threat are in line with Faloye (2023) who mentioned that ChatGPT is a threat to academic integrity and wonder if in future people will ever write academic articles since most people are now relying on ChatGPT for creativity. The same was echoed by (Gleason, 2022; Tangermann, 2023; Thorp, 2023; Wacholz, 2023) who put forth that ChatGPT is a threat to higher education for reasons such as creating fake references, biased in some instances and copyright infringement. ChatGPT is further perceived as a threat to ethical and equity considerations (Ausat et al., 2023). Above are all the reasons levelled against ChatGPT which makes it a threat in higher education. However, some lecturers perceived ChatGPT to be a benefit to higher education. This is in line with some other authors such as (Editorials, 2023; Rasul et al., 2023; Strzelecki, 2023) who claim that ChatGPT is a benefit to higher education as it assist with summarizing of literature, compose poems for English students, assist with coding and help developing innovative assessment activities.

All the lecturers above argue that students and lectures should be trained on how to use ChatGPT ethically. Furthermore, guidelines should be put in place to guide against the improper usage of ChatGPT. Lecturers' views are in line with Lund and Wang (2023) who advance that there must be guidelines in place to ensure that ChatGPT is used in a proper manner. In the same vein, "educational institutions can

mitigate the disruptive effects of this technology and promote academic integrity by developing clear policies and guidelines and designing assessments that include limited AI-generated text" (Adeshola & Adepoju, 2023, p. 1). Furthermore, lecturers should be subjected to developmental programs so that they can be able to use ChatGPT in a proper manner (Ausat et al., 2023). By doing so lecturers will be better positioned to advise students about when and how to use ChatGPT.

Conclusion

The findings above showed that lecturers view ChatGPT as a useful source of knowledge which can be accessed with ease as the literature did show that information from ChatGPT can be generated within a short period of time. The findings further showed that lecturers have mixed views about the way they perceive the impact of ChatGPT. A portion of lecturers were of the view that ChatGPT has a positive impact while other lecturers had contrasting views.

From the findings above it was also evident that all lecturers are concerned that ChatGPT being used by students unethically which will results in plagiarised work and in some cases, information provided by ChatGPT is falsified. The above concern led lecturers to recommend that all institutions of higher education who are willing to adopt ChatGPT should have guidelines and policies in place to guide against using ChatGPT unethically.

Just like any other technology innovation there are issues of it replacing human lecturers in the classroom. However, all the interviewed lecturers were of the idea that ChatGPT has no potential to replace human lecturers. One lecturer when asked about ChatGPT replacing lecturers said: *"I do not think there are potential replacement of human lecturers. ChatGPT can be used as a support tool to acquire information."* This was an indication that lecturers view ChatGPT only as a supporting tool to teaching and learning. Lastly, the findings revealed that lecturers have mixed views about the adoption of ChatGPT in higher education as some lecturers perceive ChatGPT to be a threat citing that it takes away creativity from the students as students become lazy to think for themselves and use ChatGPT instead. On the contrary, other lecturers indicated that ChatGPT is a benefit to higher education as it is another source of information that will assist both lecturers and students.

Recommendations and future research

Based on the findings above, lecturers indicated that ChatGPT is a very useful tool but when used in an ethical manner. Therefore, this study recommends that institutions of higher education should have guidelines and policies that governs the use of ChatGPT. These policies and guidelines will ensure that ChatGPT is used ethically. The concern of using ChatGPT ethically was established during the interviews as most lecturers mentioned that ethical concern is through not using ChatGPT in a proper manner which results in plagiarism.

This study used only eight (8) lecturers from one institution which makes it difficult to generalise these findings. Furthermore, ChatGPT is used by both lecturers and students in higher education so views from both parties would have been a best way to go about this study. As a result, future studies involving ChatGPT should be conducted on both lecturers and students to get views from both stakeholders that make up teaching and learning in higher education. A larger sample should be looked at in future studies so that findings can be generalised across all South African institutions of higher education.

Acknowledgements

The author would like to express gratitude to all the lecturers who took part in this study.

Conflict of Interest

The author declares no conflict of interest.

References

Adeshola, I., & Adepoju, A. P. (2023). The opportunities and challenges of ChatGPT in education. *Interactive Learning Environments*, 1-14. https://doi.org/10.1080/10494820.2023.2253858

Aina, M., & Joshua, W. (2024). Impact of ChatGPT in Higher Education Learning. *JILTECH: Journal International of Lingua & Technology*, *3*(1).

Ausat, A. M. A., Massang, B., Efendi, M., Nofirman, N., & Riady, Y. (2023). Can chat GPT replace the role of the teacher in the classroom: A fundamental analysis. *Journal on Education*, *5*(4), 16100-16106.

Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, *7*(1), 52-62. https://doi.org/10.61969/jai.1337500

Becker, S., Bryman, A., & Ferguson, H. (2012). *Understanding research for social policy and social work 2E: themes, methods and approaches*. policy press.

Bhandari, P. (2020). An introduction to qualitative research. *Noudettu osoitteesta https://www. scribbr. com/methodology/qualitativeresearch/#:~: text= Qualitative% 20research% 20involves% 20collecting*, *20*.

Bhat, A. (2020). *Qualitative research: Definition, types, methods and examples*. https://www.questionpro.com/blog/qualitative-research-methods/

Bhatia, M. (2018). *Your guide to qualitative and quantitative data analysis methods*. Retrieved 26 May from https://humansofdata.atlan.com/2018/09/qualitative-quantitative-data-analysis-methods/

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Caulfield, J. (2019). *How to Do Thematic Analysis | Step-by-Step Guide & Examples*. Retrieved 14 September from https://www.scribbr.com/methodology/thematic-analysis/

Chan, C. K. Y., & Tsi, L. H. (2023). The AI Revolution in Education: Will AI Replace or Assist Teachers in Higher Education? *arXiv preprint arXiv:2305.01185*.

Chechitelli, A. (2023). *Sneak preview of Turnitin's AI writing and ChatGPT detection capability*. Turnitin. Retrieved 01 October 2023 from https://www.turnitin.com/blog/sneak-preview-of-turnitins-ai-writing-and-chatgpt-detection-capability

Cooper, G. (2023). Examining science education in chatgpt: An exploratory study of generative artificial intelligence. *Journal of Science Education and Technology*, *32*(3), 444-452. https://doi.org/https://doi.org/10.1007/s10956-023-10039-y

Creswell, J. (2014). The selection of a research approach. *Research design: Qualitative, quantitative, and mixed methods approaches*, 3-24.

Editorials, N. (2023). Tools such as ChatGPT threaten transparent science; here are our ground rules for their use. *Nature*, *613*(612), 10.1038.

Faloye, S. (2023, 23 March). *Tonight I asked #chatgpt to write 2000 words literature review on my current research. The result is amazing. The question is; will anyone be writing research article in future? I wonder what the future of academic writing holds. My stand is #chatgpt is a threat to academic integrity* Retrieved 23 September 2023 from https://www.linkedin.com/in/samuel-faloye-733268132/recent-activity/all/

Faloye, S. T., Ajayi, N. A., & Raghavjee, R. (2020). Managing the Challenges of the Digital Divide Among First Year Students: A Case of UKZN. 2020 IST-Africa Conference (IST-Africa),

Favaretto, M., De Clercq, E., Gaab, J., & Elger, B. S. (2020). First do no harm: An exploration of researchers' ethics of conduct in Big Data behavioral studies. *Plos one*, *15*(11), e0241865. https://doi.org/10.1371/journal.pone.0241865

Gleason, N. (2022). ChatGPT and the rise of AI writers: How should higher education respond. *Times Higher Education. https://www. timeshighereducation. com/campus/chatgpt-and-rise-ai-writers-how-should-higher-education-respond*

Hetler, A. (2023). *ChatGPT*. WhatIs.com. Retrieved 24 September 2023 from https://www.techtarget.com/whatis/definition/ChatGPT

Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of higher education*, *6*(5), 26-41. https://doi.org/10.5430/ijhe.v6n5p26

Lund, B. D., & Wang, T. (2023). Chatting about ChatGPT: how may AI and GPT impact academia and libraries? *Library Hi Tech News*, *40*(3), 26-29. https://doi.org/10.2139/ssrn.4333415

Mhlanga, D. (2023). Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. *Education, the Responsible and Ethical Use of ChatGPT Towards Lifelong Learning (February 11, 2023)*. https://doi.org/10.1007/978-3-031-37776-1_17

Moore, G. C., & Benbasat, I. (1996). Integrating diffusion of innovations and theory of reasoned action models to predict utilization of information technology by end-users. Diffusion and Adoption of Information Technology: Proceedings of the first IFIP WG 8.6 working conference on the diffusion and adoption of information technology, Oslo, Norway, October 1995,

Neumann, M., Rauschenberger, M., & Schön, E.-M. (2023). "We Need To Talk About ChatGPT": The Future of AI and Higher Education. https://doi.org/10.1109/SEENG59157.2023.00010

OpenAI, T. (2022). Chatgpt: Optimizing language models for dialogue. OpenAI. In.

Rasul, T., Nair, S., Kalendra, D., Robin, M., de Oliveira Santini, F., Ladeira, W. J., Sun, M., Day, I., Rather, R. A., & Heathcote, L. (2023). The role of ChatGPT in higher education: Benefits, challenges, and future research directions. *Journal of Applied Learning and Teaching*, *6*(1). https://doi.org/10.37074/jalt.2023.6.1.29

Rehman, A. A., & Alharthi, K. (2016). An introduction to research paradigms. *International Journal of Educational Investigations*, *3*(8), 51-59.

Rice, S., Crouse, S. R., Winter, S. R., & Rice, C. (2024). The advantages and limitations of using ChatGPT to enhance technological research. *Technology in Society*, *76*, 102426. https://doi.org/10.2139/ssrn.4416080

Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning and Teaching*, *6*(1). https://doi.org/10.37074/jalt.2023.6.1.9

Saul, M. (2019). What's the difference between qualitative and quantitative research. In.

Sharma, G. (2017). Pros and cons of different sampling techniques. *International journal of applied research*, *3*(7), 749-752.

Solutions, S. (2017). What is credibility in qualitative research and how do we establish it. In: Retrieved from Statistics Solutions: https://www. statisticssolutions. Com

Strzelecki, A. (2023). To use or not to use ChatGPT in higher education? A study of students' acceptance and use of technology. *Interactive Learning Environments*, 1-14. https://doi.org/10.1080/10494820.2023.2209881

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *How to Choose a Sampling Technique for Research (April 10, 2016)*. https://doi.org/10.2139/ssrn.3205035

Tangermann, V. (2023). Professor Caught Using ChatGPT When Scientific Paper Was Full of Errors. *Futurism*. https://futurism.com/professor-chatgpt-scientific-paper-errors

Thorp, H. H. (2023). ChatGPT is fun, but not an author. *379*(6630), 313-313. https://doi.org/10.1126/science.adg7879

Wacholz, C. (2023). *George R.R. Martin Among 17 Authors Suing OpenAI for Copyright Infringement* https://za.ign.com/george-r-r-martin/182823/news/george-rr-martin-among-17-authors-suing-openai-for-copyright-infringement

Xu, X., Su, Y., Zhang, Y., Wu, Y., & Xu, X. (2024). Understanding learners' perceptions of ChatGPT: A thematic analysis of peer interviews among undergraduates and postgraduates in China. *Heliyon*. https://doi.org/10.1016/j.heliyon.2024.e26239