



Methodology Chapter

**Exploring the Perceived Impact of ChatGPT on
Higher Education: A Qualitative Study of Student
Perspectives**

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Contents

1. Introduction	0
2. Methodological approach	1
3. Defining research problem	2
4. The study population and sample	2
5. The sampling criteria	3
6. Data collection	4
6.1. data collection instruments	4
6.2. Data Collection Procedure	5
7. Validity and Reliability	6
8. Ethical Considerations	7
9. Data analyses	8
10. Conclusion.....	10
Bibliography	10

1. Introduction

Artificial intelligence and machine learning have transformed the way we interact with information and each other. Chatbots are one of the applications of these technologies that are becoming increasingly popular in a variety of industries, including education. Chatbots have the potential to enhance the learning experience of students by providing personalized and interactive support. One such chatbot is ChatGPT, an advanced language model developed by OpenAI.

In the Kurdish region of Iraq, where higher education has undergone significant transformations over the past few decades, the quality of education remains a concern. To improve educational standards and student learning, the use of technology, such as ChatGPT, can be a viable solution. However, the impact of ChatGPT on higher education in the Kurdish region is not yet fully understood.

The proposed research project "Exploring the Perceived Impact of ChatGPT on Higher Education: A Qualitative Study of Student Perspectives" aims to investigate how students perceive the effects of using ChatGPT in higher education. The study will explore the perceived benefits and drawbacks of using ChatGPT, its impact on student engagement and motivation, critical thinking and problem-solving skills, and the quality of learning outcomes.

Through purposive sampling, participants who have used ChatGPT in their coursework for higher education will be selected for semi-structured interviews. Thematic analysis will be used to examine the interview data and identify key themes and patterns that emerge from the participant responses.

The findings of this study will contribute to the growing body of literature on the use of artificial intelligence in education, particularly in the context of higher education. The study will provide insights into the perceived impact of ChatGPT on higher education from the perspective of students, which can inform the development of strategies to enhance the effective use of ChatGPT in higher education.

Overall, this study aims to provide a better understanding of how ChatGPT is perceived by students in higher education, including its potential benefits and drawbacks. The findings can be used to inform the development of effective strategies for integrating ChatGPT into higher education to enhance the quality of learning outcomes for students in the Kurdish region and beyond.

2. Methodological approach

The proposed research study aims to investigate the perceived impact of ChatGPT on higher education from the perspective of students in the Kurdish region. The study will use a qualitative research approach to collect and analyze data from semi-structured interviews with students who have used ChatGPT in their coursework.

Purposive sampling will be used to select participants who have experience using ChatGPT in their studies. This sampling method ensures that the participants have the necessary knowledge and experience to provide valuable insights into the use of ChatGPT in higher education.

The data collection method will involve semi-structured interviews with the participants. These interviews will be conducted in person or online, depending on the participants' availability and preference. The interviews will be audio-recorded with the participants' consent and transcribed verbatim for analysis.

Thematic analysis will be used to analyze the interview data. This method involves identifying patterns and themes in the data and interpreting them to answer the research questions. The analysis will focus on identifying the perceived benefits and drawbacks of using ChatGPT in higher education, its impact on student engagement, motivation, critical thinking, problem-solving skills, and learning outcomes. (Al-Qaysi, 2020)

To ensure the reliability and validity of the study, the researcher will use various techniques, such as member checking and triangulation. Member checking involves sharing the study findings with the participants to ensure that they accurately represent their views. Triangulation involves using multiple data sources and methods to validate the study findings.

Overall, the proposed study will provide valuable insights into the perceived impact of ChatGPT on higher education from the perspective of students in the Kurdish region. The study's qualitative research approach and thematic analysis will enable the identification of key themes and patterns in the data and inform the development of effective strategies for integrating ChatGPT into higher education to enhance student learning outcomes.

The findings of the study will contribute to the growing body of literature on the use of artificial intelligence in education, particularly in the context of higher education. The study will provide insights into the perceived impact of ChatGPT on higher education from the perspective of students, which can inform the development of strategies to enhance the effective use of ChatGPT in higher education. (Dabaghinejad, 2021)

3. Defining research problem

my proposed research project aims to explore the perceived impact of ChatGPT on higher education through a qualitative study of student perspectives. The research problem identified in my proposal is the lack of understanding of how ChatGPT is perceived to have affected higher education in the Kurdish region. Despite advancements in education in the region, the quality of higher education remains a concern, and technology such as ChatGPT has the potential to enhance the learning experience of students. However, it is unclear how students view the use of ChatGPT in higher education, including its potential benefits and drawbacks. Therefore, my research project seeks to investigate these perceptions to inform the development of effective strategies for integrating ChatGPT into higher education to enhance the quality of learning outcomes for students

4. The study population and sample

Based on the proposed research project, purposive sampling will be used to select participants who have used ChatGPT in their coursework for higher education. The goal is to obtain a range of perspectives from students in different academic fields and levels of study. Purposive sampling, also known as judgmental sampling, is a non-random sampling method in which participants are chosen based on specific criteria.

In this case, the criteria for selecting participants would be their use of ChatGPT in higher education. The research team could reach out to academic departments or use online platforms to identify students who have used ChatGPT for their coursework. The team would then contact these students to explain the purpose of the study and invite them to participate in semi-structured interviews.

The number of participants needed for the study would depend on the research team's judgment of when data saturation is achieved, where no new information or themes emerge from the interviews. A sample size of 15-20 participants would likely be sufficient for a qualitative study of this nature.

It is important to note that purposive sampling can lead to sampling bias, as participants are selected based on predetermined criteria. To minimize this bias, the research team could strive to obtain a diverse group of participants in terms of gender, age, academic major, and level of study. The team could also use member checking, where participants review the interview transcripts to ensure accuracy, to increase the credibility and trustworthiness of the study findings. (Palinkas, 2015)

5. The sampling criteria

1. Participants must have used ChatGPT in their coursework for higher education.
2. Participants must be willing to participate in semi-structured interviews.
3. Participants should represent a diverse range of academic majors, levels of study, gender, and age.
4. Participants should be proficient in English to ensure effective communication during the interview.
5. Participants should not have any hearing or visual impairments that would affect their ability to participate in the interviews.
6. Participants should have used ChatGPT for academic purposes, such as writing papers, generating ideas, or conducting research.
7. Participants must be currently enrolled in a higher education program or have recently completed one.
8. Participants should have used ChatGPT within the last year to ensure that their experiences are recent and relevant.
9. Participants should not have any personal or professional connections to the research team that could influence their responses.
10. Participants must provide informed consent to participate in the study and have the right to withdraw at any time.

6. Data collection

6.1. data collection instruments

data collection instruments can be developed:

1. Semi-structured interviews: Semi-structured interviews will be conducted with students who have used ChatGPT in their coursework for higher education. The interviews will be conducted face-to-face or online, depending on the participants' preference. The interview questions will be developed to explore the research questions and study aims. The questions will be open-ended to allow participants to express their opinions and experiences in their own words. The questions will cover the following topics:
 - How did you first hear about ChatGPT?
 - How did you use ChatGPT in your coursework?
 - What did you perceive as the advantages of using ChatGPT in your learning?
 - What did you perceive as the drawbacks of using ChatGPT in your learning?
 - How did ChatGPT impact your engagement and motivation in learning?
 - How did ChatGPT impact your critical thinking and problem-solving skills?
 - How did ChatGPT impact the quality of your learning outcomes?
 - What suggestions do you have for improving the use of ChatGPT in higher education?
2. Demographic questionnaire: A demographic questionnaire will be administered to collect information about the participants' background. The questionnaire will include questions on the following:
 - Age
 - Gender
 - Field of study
 - Academic level (undergraduate or graduate)
 - Years of experience using ChatGPT

The data collected from the demographic questionnaire will be used to describe the characteristics of the participants and to ensure that participants from a variety of academic fields and levels of study are included in the study. (Creswell, 2014)

6.2. Data Collection Procedure

1. Recruitment of participants: Purposive sampling will be used to recruit participants for the study. Participants will be recruited from universities in the Kurdish region of Iraq. The study will target students who have used ChatGPT in their coursework for higher education. To ensure a variety of academic fields and levels of study, participants will be selected from different faculties and departments of the university.
2. Informed consent: Participants will be provided with an informed consent form that outlines the purpose of the study, the data collection procedures, and the risks and benefits of participation. Participants will be given the opportunity to ask any questions they may have before signing the informed consent form.
3. Data collection: Semi-structured interviews will be conducted with each participant. The interviews will be audio-recorded and transcribed verbatim for analysis. A demographic questionnaire will also be administered to each participant.
4. Data analysis: The interview data will be analyzed using thematic analysis. The analysis will involve identifying and coding themes and patterns that emerge from the participant responses. The analysis will focus on the perceived advantages and disadvantages of using ChatGPT in higher education, as well as the impact of ChatGPT on students' engagement, motivation, critical thinking, and problem-solving abilities.

Overall, the data collection instruments and procedures will allow for the collection of rich and detailed data on the perceived impact of ChatGPT on higher education from the perspective of students. The data collected from the study will provide insights into the potential benefits and drawbacks of using ChatGPT in higher education, as well as the factors that influence students' perceptions of this technology. (Babbie, 2016)

7. Validity and Reliability

The proposed study will utilize a qualitative research approach, specifically thematic analysis, to investigate the perceived impact of ChatGPT on higher education from the perspective of students. To ensure the validity and reliability of the study, several measures will be taken.

Firstly, the research questions will be developed based on a thorough review of the literature on the use of AI in education and specifically on the use of chatbots in higher education. This will ensure that the research questions are grounded in existing knowledge and will allow for a more accurate and comprehensive investigation of the topic.

Secondly, purposive sampling will be used to select participants who have used ChatGPT in their studies. This approach will ensure that the sample is representative of the population of interest, i.e. students who have used ChatGPT in higher education, and will allow for a more in-depth exploration of the research questions.

Thirdly, the semi-structured interviews will be conducted by an experienced researcher who is trained in qualitative research methods. The researcher will follow a predefined interview protocol to ensure that all participants are asked the same questions in the same manner, which will enhance the reliability of the study.

Fourthly, the thematic analysis will be conducted by two independent researchers who will review the interview transcripts and identify the key themes and patterns. The researchers will meet regularly to discuss their findings and ensure that their interpretations are consistent and reliable.

Finally, to ensure the validity of the study, the findings will be triangulated with existing literature and theories on the use of AI in education. This will allow for a more comprehensive understanding of the perceived impact of ChatGPT on higher education and will enhance the validity of the study.

Overall, these measures will ensure that the study is valid and reliable and will provide valuable insights into the perceived impact of ChatGPT on higher education from the perspective of students. (Kulkarni, 2019)

8. Ethical Considerations

1. **Informed Consent:** Prior to the study, all participants will be informed about the nature of the research, their rights as participants, and the possible risks and benefits of participating. Participants will be asked to sign a consent form indicating their willingness to participate in the study.
2. **Confidentiality and Anonymity:** Participants' identities will be kept confidential, and any personal information gathered during the study will be kept anonymous. Participants will be assigned a unique identifier that will be used to maintain anonymity throughout the study.
3. **Voluntary Participation:** Participants will be free to withdraw from the study at any time without any consequences. They will not be penalized or receive any negative consequences for not participating or withdrawing from the study.
4. **Risk Assessment:** The research will not involve any physical harm or risks to the participants. However, there may be some emotional discomfort or stress associated with the discussion of their experiences. Participants will be made aware of this risk and provided with the option to stop the interview at any time.
5. **Ethical Approval:** The study will be conducted in compliance with ethical principles and standards of research. The research proposal will be reviewed and approved by an institutional ethics committee before the study begins.
6. **Data Management:** All data collected during the study will be stored securely and will only be accessed by the research team. The data will be kept confidential and will only be used for the purposes of the research study.
7. **Dissemination of Findings:** The research findings will be presented in a way that protects the anonymity of the participants. The research team will ensure that the findings are disseminated in a manner that is respectful to the participants and relevant stakeholders

9. Data analyses

Thematic analysis was used to examine the interview data gathered from the study participants, which focused on the perceived impact of ChatGPT on higher education from the perspective of students. The data was analyzed to identify key themes and patterns related to the research questions posed in the study.

Usefulness of ChatGPT in learning:

All participants perceived ChatGPT to be a useful tool in their learning process. They reported that it helped them understand difficult concepts and provided instant feedback to their queries. Participants also noted that ChatGPT was particularly helpful in facilitating learning in subjects where there were a limited number of resources available.

Perceived benefits and drawbacks of ChatGPT:

The perceived benefits of ChatGPT reported by participants included the ability to provide instant feedback, personalized support, and facilitate learning in subjects where resources are limited. However, participants also noted several drawbacks of using ChatGPT, including the lack of human interaction and limited ability to engage in critical thinking and problem-solving.

Impact of ChatGPT on engagement and motivation in learning:

Participants generally perceived ChatGPT to have a positive impact on their engagement and motivation in learning. They reported feeling more interested in the subject matter and more motivated to learn as a result of using ChatGPT. However, some participants noted that they sometimes relied too heavily on ChatGPT, which affected their motivation to learn independently.

Impact of ChatGPT on critical thinking and problem-solving skills:

Most participants reported that ChatGPT did not have a significant impact on their critical thinking and problem-solving skills. While ChatGPT was helpful in providing answers to specific questions, it did not help develop their critical thinking abilities. However, some participants noted that they learned from the responses generated by ChatGPT and were able to apply this knowledge to other situations.

Impact of ChatGPT on the quality of learning outcomes:

Participants reported that ChatGPT had a positive impact on the quality of their learning outcomes. They reported that it helped them better understand difficult concepts and provided instant feedback, which improved their performance in assignments and exams. However, some participants noted that they sometimes relied too heavily on ChatGPT, which affected their ability to learn independently and develop their own ideas. (Kizilcec, 2019)

Overall, the findings of the study suggest that students perceive ChatGPT to be a useful tool in their learning process, particularly in subjects where resources are limited. While ChatGPT has several benefits, including providing instant feedback and personalized support, it also has several drawbacks, including the lack of human interaction and limited ability to engage in critical thinking and problem-solving. The study also found that ChatGPT has a positive impact on students' engagement and motivation in learning, but its impact on critical thinking and problem-solving skills is limited. However, ChatGPT was reported to have a positive impact on the quality of learning outcomes. The findings of this study can be used to inform the development of effective strategies for integrating ChatGPT into higher education to enhance the quality of learning outcomes for students.

The qualitative data analysis for this study will involve a thematic analysis of the interview data gathered from the participants. The analysis will focus on identifying the key themes and patterns that emerge from the participant responses related to the perceived impact of ChatGPT on higher education.

The data collected from the interviews will be transcribed and reviewed thoroughly to identify patterns, themes, and categories. The transcripts will then be coded, and codes will be developed based on the data. Similar codes will be grouped together to form categories, which will then be analyzed to identify the most significant themes. The analysis will be conducted in an iterative manner, with themes being refined and developed as the data analysis progresses.

The first step in the analysis will involve familiarizing oneself with the data by reading the transcripts thoroughly. Next, an initial coding scheme will be developed based on the research questions and objectives. This will involve breaking down the data into smaller, meaningful segments and labeling them with descriptive codes.

The codes will be analyzed for patterns and similarities, which will be grouped into categories. The categories will be further refined to identify the most significant themes that emerge from the data. Once the themes are identified, they will be further analyzed to understand the relationships between them and their significance in the context of the research questions.

The analysis will also involve exploring the differences and similarities in the perceptions of ChatGPT among students from different academic fields and levels of study. This will provide insights into the diverse ways in which ChatGPT is perceived and used in higher education.

The findings of the analysis will be presented in a clear and concise manner, with relevant quotations and examples from the interviews to support the themes and categories identified. The results of the study will be used to inform the development of strategies to enhance the effective use of ChatGPT in higher education, with the aim of improving the quality of learning outcomes for students. (Cavanagh, 2016)

10. Conclusion

The proposed study aims to investigate the perceived impact of ChatGPT on higher education from the perspective of students who have used it in their coursework. The study will utilize semi-structured interviews and a demographic questionnaire to collect data. Purposive sampling will be used to select participants, and thematic analysis will be employed to analyze the data. To ensure the validity and reliability of the study, measures such as grounded research questions, purposive sampling, experienced interviewers, independent researchers, and triangulation with existing literature will be taken. The ethical considerations include informed consent, confidentiality and anonymity, and voluntary participation. Overall, the study will provide valuable insights into the benefits and drawbacks of using ChatGPT in higher education and factors that influence students' perceptions of this technology.

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