A STUDY ON UNDERGRADUATES' PREFERENCES BETWEEN CHATGPT VS GOOGLE IN THE LEARNING ENVIRONMENTS

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ABSTRACT

As technology continues to shape educational environments, it is critical to understand undergraduate students' preferences for learning tools. This study explored undergraduate students' preferences for using ChatGPT and Google in their learning environments and their role in the undergraduate learning environment. The study used a quantitative methodology, and 50 questionnaires were distributed to undergraduate students between the ages of 18 and 26. Using Uses and Gratification Theory (UGT) as a theoretical framework, we used descriptive and cross-tabulation analysis to explore students' preferences for ChatGPT and Google and their impact on undergraduate learning outcomes. The study found that undergraduate students, especially males, preferred ChatGPT for its quick response and creativity. With a balanced preference among females, Google was favoured for search accuracy and voice search. Students used Google for research and study, while they found ChatGPT helpful in writing papers and understanding lectures. Most undergraduates are open to AI tools in education for improved learning and access to information. The study concluded that both ChatGPT and Google have unique strengths and that undergraduate students would choose the right tool for their specific needs. Future educational strategies should consider the effective integration of both tools to maximise their academic potential and better support student learning and development.

Keywords: ChatGPT, Generative AI, Google, Search engine, Uses and Gratification

Subject Area: L7-991 Education (General)

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LIST OF ABBREVIATIONS

Abbreviations	
AI	Artificial Intelligence
DV	Dependent Variables
GPT	Generative Pre-trained Transformer
IV	Independent Variables
LLM	Large Language Models
UGE	Uses and Gratification Expectancy
UGT	Uses and Gratification Theory
VLEs	Virtual Learning Environments

CHAPTER 1

INTRODUCTION

1.1 Background of study

Recent technological advancements have significantly transformed higher education, with artificial intelligence (AI) and enhanced search engine functionalities at the forefront of this evolution. Tools such as AI and search engines have become indispensable for students seeking information and support for their academic endeavours. Among these innovations, ChatGPT, developed by OpenAI and Google, the leading search engine globally, exemplify how technology can cater to various aspects of the learning process through its distinct features and benefits.

Wu et al. (2023) highlight that ChatGPT is an advanced AI chatbot that provides detailed natural language responses and showcases a remarkable ability to recall and continue conversations. This represents a significant leap over its predecessors, attributing its success to the progressive development of the Generative Pre-trained Transformer (GPT) language models from GPT-1 to GPT-4. These models have benefited from breakthroughs in deep learning, unsupervised learning techniques, command fine-tuning, multi-tasking capabilities, contextual knowledge, and reinforcement learning incorporating human feedback. Contrastingly, Google dominates the search engine landscape by leveraging extensive internet information, personalised by analysing user data, including search histories and location. This personalisation delivers search results that align more with the user's preferences and needs, as Levy and Myers (2021) discussed.

1.2 Research Gap

Despite the widespread integration of AI-driven chatbots like ChatGPT and traditional search engines like Google in educational settings, there remains a lack of comprehensive research that directly compares students' preferences for these tools regarding their effectiveness in supporting learning outcomes. While Wu et al. (2023) emphasise the advanced conversational capabilities and context-aware responses of ChatGPT, and Levy and Myers (2021) highlight Google's strength in delivering personalised search results, limited studies investigate how undergraduate students perceive and utilise these tools in learning environments.

Specifically, there is a gap in understanding which tool students prefer for various academic tasks, how these preferences influence their learning outcomes and the broader implications of these preferences for academic performance and engagement. Addressing this gap is essential to better inform educators and developers about optimising AI and search engine technologies for educational purposes.

1.3 Problem Statement

The accelerated evolution of technology has profoundly transformed the educational domain, equipping students with an array of tools to augment their learning journey. Amid the challenges posed by the COVID-19 pandemic, digital technology has emerged as a cornerstone in sustaining and advancing the educational framework. Digital technologies, as detailed by Haleem et al. (2022), have initiated a paradigm shift within education, elevating its role from a straightforward disseminator of knowledge to a multifaceted collaborator, mentor, and evaluator. The integration of interactive platforms, constructive feedback mechanisms, and various digital methodologies, including PowerPoint presentations, video lectures, and e-learning modules, has accompanied this shift in the teaching and learning processes.

Within this digital revolution, tools such as the artificial intelligence language model ChatGPT and the search engine Google have assumed critical roles in undergraduate learning environments. Nonetheless, an examination of undergraduate students' preferences, usage levels, and the subsequent effects on learning outcomes regarding these tools reveals a significant knowledge gap. Gaining a deeper understanding of these aspects is essential for educators and educational establishments aiming to fine-tune student learning experiences and engagement levels.

This study explored the following key factors: frequency of use of ChatGPT and Google, factors influencing user preference (e.g., functional features), purpose of use, and their role in enhancing the learning experience. This study aims to assess the impact of these digital tools on learning outcomes in undergraduate courses, as well as undergraduate students' acceptance of integrating AI into their education. Through this study, we hope to delve into the critical role of these technological tools in contemporary education and suggest practical strategies to enrich the undergraduate learning environment.

1.4 Research Questions

1. What are undergraduate preferences for ChatGPT and Google in the learning environment?
2. What are ChatGPT and Google's impacts on undergraduate learning outcomes?

1.5 Research Objectives

1. To examine undergraduate preferences regarding ChatGPT and Google in learning environments.
2. To examine the impacts of ChatGPT and Google on undergraduate learning outcomes.

1.6 Significance of study and scope of research

This study explores undergraduate students' preferences for using ChatGPT and Google in their learning environment, intending to understand their inclination towards these two tools and their impact on learning. The study will examine undergraduate students' preferences for ChatGPT and Google in their learning environments, including frequency of use, factors that influence preference (e.g., functional features), the purpose of use, and the extent to which it enhances the learning experience. The study's results will provide valuable insights for educators and institutions to help them effectively enhance the educational experience through technology and provide guidance for further research in related fields.

1.7 Keywords definition

The following terms are operationally defined according to their usage in this study:

ChatGPT

In Ray's (2023) research, ChatGPT is highlighted as an advanced AI language model developed by OpenAI. It is considered a significant improvement in conversational AI, featuring several key enhancements over previous models. These include improved contextual understanding, reduced bias, and the ability to be fine-tuned for specific scientific domains. ChatGPT addresses many challenges in conversational AI, such as maintaining context and coherence in conversations, handling ambiguity, providing personalised experiences, improving common-sense reasoning and emotional intelligence, ensuring ethical considerations, enhancing robustness and security, integrating with other modalities, handling out-of-distribution queries, and improving scalability and efficiency.

Recent studies have shown that ChatGPT has impressive cognitive capabilities, with a Linguistic-Semantic IQ of 147 (99.9th percentile), and it performs well on various standardised

tests. Its versatility and advanced natural language processing capabilities make it a valuable tool in different fields, including healthcare, medicine, education, and mental health counselling. However, the use of ChatGPT also raises ethical issues that need to be addressed, such as the potential risk of generating biased or inappropriate content, the risk of misuse in academic environments, and the need for responsible development and deployment of the technology.

Generative AI

García-Peñalvo (2023) defines generative AI as models that generate novel, previously unseen information based on training data, thus creating content that mimics human quality. It has become a fascinating and rapidly growing area within the broader field of AI. Its popularity has surged due to the realistic and creative results it produces, impacting fields as diverse as medicine, education, art, music, marketing, and software development. GenAI involves the development of models, such as ChatGPT, DALL-E-2, and Midjourney3, which belong to the Large Language Models (LLM) category. These models enable end users to easily create human-like text, realistic images, and music.

Google

According to Hall & Hosch (2023), Google is an American search engine company founded in 1998 by Larry Page and Sergey Brin, now a subsidiary of the leading holding company Alphabet Inc. Google handles more than 70% of the world's online search requests, is a central part of the online experience for most Internet users and is one of the world's leading brands.

Google began as a search company but has since expanded its offerings to encompass more than 50 Internet services and products, from email and online document creation to mobile phone and tablet software. Despite the diversification of its product portfolio, Google's success remains rooted in its original search tools, with most of Alphabet's 2016 revenue coming from Google

adverts based on user search requests. Alongside Apple, IBM, and Microsoft, Google is one of the four most influential companies in the high-tech market and is the world's most widely used search engine.

Search engine

According to Lutkevich (2022), a search engine is a complex set of programmes designed to systematically discover, index, and search for information from the vast databases of the World Wide Web according to user-specified criteria. Google is a widely used search engine that operates in three stages. Firstly, crawling involves continuously exploring web pages to discover new and updated content using algorithms determining which pages are crawled and how often. After crawling, the indexing stage processes and analyses textual content, tagging it with attributes and metadata to understand topics and eliminate duplication. Finally, when a user enters a query, the search engine searches its index. It ranks the results based on page authority, backlinks, and keywords, presenting the most relevant results on the search engine results page. Specialised and country or region-specific search engines may adjust their focus, while some organisations use search engines to index and retrieve content specifically from their websites.

Uses and Gratifications

Kasirye (2022) discusses the Uses and Gratifications theory, which Katz and Blumler developed in the early 1940s. The theory aims to understand why individuals choose specific media, the needs that drive their media use, and the gratifications they derive from it. It assumes that audiences actively select the media they consume and suggests that the media influences behaviour through psychological factors. Additionally, the theory emphasises that individuals have control over their media choices. The theory categorises needs into affective, cognitive,

personal, integrative, and tension-free categories, providing a framework for understanding the importance of these needs in shaping media consumption patterns.

The research evaluates undergraduates' preferences between ChatGPT and Google in learning environments, highlighting the transformative role of AI and search engine technologies in education. It undertakes a quantitative approach to gauge students' inclination towards ChatGPT or Google, utilising the Uses and Gratification Theory to understand their engagement and learning outcomes. Preliminary findings guide the integration of AI technologies in educational settings and inform on the efficacy of ChatGPT and Google among undergraduates. The introduction outlines the study's background, emphasising the significance of AI and search engines in enhancing academic endeavours, and frames the problem statement around the necessity of understanding student preferences to optimise learning experiences. The study looks to address the gap in research regarding the effects of these tools on undergraduate education by investigating their usability, perceived usefulness, and satisfaction, ultimately assessing their impact on academic performance and engagement.

CHAPTER 2

LITERATURE REVIEW

2.0 Chapter Overview

The use of digital tools in educational settings has been a critical area of research. This research specifically looks at how tools like ChatGPT and Google affect how students learn and what they prefer. The focus is exploring how undergraduate students view integrating ChatGPT and Google into their learning environments and how these tools impact their learning outcomes based on the Uses and Gratifications Theory.

2.1 Technological Tools in Education

In the realm of education, the integration of technology spans from straightforward tools like Google's search engines to sophisticated applications of Artificial Intelligence (AI), such as ChatGPT. These technologies enrich the educational experience by providing immediate access to information and fostering interactive learning spaces. Introducing new tech shifts the academic framework, prompting educators to refine their teaching strategies. Research by García and Secades in 2014 illustrated the effectiveness of these digital tools, particularly in Virtual Learning Environments (VLEs), noting their capacity to bolster interactions between teachers and students, whether in real-time or asynchronously, thereby enhancing educational outcomes.

Google has emerged as a foundational educational tool, offering resources like Google Search, Google Scholar, and Google Classroom. These platforms facilitate quick retrieval of information, support distance learning, and offer a suite of tools for collaborative education. However, despite its capabilities, the vastness of Google's search results—cluttered with advertisements and unrelated information—sometimes poses learning challenges, suggesting the

need for optimisation to better cater to educational needs. The proposal includes tailoring search outcomes to align with Bloom's Taxonomy and refining the interface to reduce distractions, aiming to make Google an even more compelling educational resource.

Parallelly, AI applications like ChatGPT are transforming the educational landscape by providing personalised academic assistance and generating tailored content, which promotes engaging learning experiences. ChatGPT, acting as a virtual tutor, offers custom advice and feedback to students, thus enhancing teachers' capabilities to handle queries efficiently. This saves educators' time and amplifies engagement within the learning environment. Additionally, ChatGPT assists in evolving teaching methods and educational practices by providing insightful feedback, making it a valuable tool for demystifying AI technologies in academic settings. This exposure is crucial for increasing AI literacy and understanding its societal impacts (Su & Yang, 2023).

Supporting this, a study by Bettayeb et al. (2024) highlights ChatGPT's myriad benefits in education, such as fostering an understanding of AI technologies, delivering personalised support, and boosting student engagement through tailored feedback. Despite its advantages, the study also points to the importance of addressing ethical concerns and bias within AI models, advocating for guidelines on user education, privacy measures, and responsible usage.

The introduction of tools like ChatGPT in education marks a shift in the educator's role—from solely delivering content to acting as a facilitator of a more personalised and diverse learning experience. As educators integrate these tools, navigating the ethical considerations involved in students' use of technology is crucial. By addressing these issues and leveraging the advantages of AI, educational institutions are well-placed to prepare students for future

challenges, enhance student engagement, and promote the responsible use of AI in academic contexts.

2.2 Student Preferences for Educational Technologies

Students' engagement and preferences towards educational technology are deeply influenced by several key factors, namely accessibility, reliability, high-quality content, and the relevance of the technology to their learning experiences. According to Pechenkina and Aeschliman (2017), while students are generally supportive of technology and learning innovations, their actual use of educational technology tends to be selective, primarily engaging with tools that are seamlessly integrated into their coursework or with which they already have familiarity and find beneficial.

The research underscores the notion that digital literacy and students' perceptions of technological proficiency play critical roles in how they interact with and leverage educational technology. These perceptions and practical skills significantly affect students' readiness to utilise technology, suggesting that a foundational level of digital literacy and confidence with technology could enhance students' engagement with educational tools.

Pechenkina and Aeschliman (2017) highlight that the relevance and perceived usefulness of the technology to the student's immediate learning needs are paramount. Students show a preference for technologies that not only align with their coursework but are also easy to access, reliable, and of high quality. This includes technologies that offer high-definition content, are compatible with their devices, and feature user-friendly learning management systems.

Moreover, students value technologies directly beneficial to improving their academic performance, such as online quizzes and revision tools. Despite their recognition of the benefits associated with educational technology, students still strongly prefer a balanced approach that includes traditional face-to-face interactions, like live lectures and group discussions.

The research also indicates that students must be more cautious about adopting new or unfamiliar technologies. The apprehension stems from a fear that experimenting with unknown tools could lead to poor academic outcomes. Consequently, there is a visible inclination towards sticking with familiar technologies, highlighting the importance of ease and familiarity in students' adoption of educational tools.

In sum, students' effective use of educational technology is influenced by a complex interplay of factors, including digital literacy, the relevance and quality of the technology, its alignment with learning needs, and a blend of technology-supported learning with traditional teaching methods. Understanding these dynamics is essential for educators and institutions aiming to implement educational technologies that truly enhance the student learning experience.

2.2.1 Comparative Studies in ChatGPT and Google

Google Search and ChatGPT are prominent tools in digital communication, each harnessing advanced technologies to serve specific purposes. Google Search, known for its sophisticated algorithms, excels in organising and ranking web pages to deliver highly relevant results. This involves a multi-stage process where automated crawlers index new pages, algorithms extract essential data (keywords and media), and then rank pages based on various factors, including relevance and user location, to enhance the search experience. Continuous machine learning and AI updates make Google's system complex and groundbreaking (Wallis, 2023).

On the other hand, ChatGPT, as highlighted by Samarth (2023), offers a different form of advancement. It focuses on generating conversational text through deep learning, simulating human-like interactions by leveraging vast textual databases. Utilising reinforcement learning, this AI model fine-tunes its responses to offer a more interactive user experience. While ChatGPT shines in generating dialogues and can be particularly adept in languages like

Mandarin, Google Search provides a comprehensive platform for information discovery and cataloguing data across the internet to furnish users with a list of relevant websites. The accuracy of ChatGPT's responses can vary, given that they are based on pre-existing knowledge, which sometimes leads to inaccuracies. Conversely, Google delivers more accurate results by directly sourcing information from the web.

Exploring the distinctions and roles of ChatGPT and Google provides insights into their contributions to digital communication, information retrieval and their influence on educational practices and student preferences.

Xu et al. (2023) delved into how users interact with ChatGPT and Google Search, focusing on behavioural and performance differences in information-finding tasks. The study discovered that while ChatGPT users generally spent less time on tasks, there was no significant difference in task performance between the two groups. ChatGPT excelled in answering straightforward questions and providing general solutions but needed more fact-checking. Interestingly, both tools' user trust levels were similar, yet ChatGPT was perceived to offer higher information quality, leading to better user satisfaction. However, it is crucial to note that over-reliance on ChatGPT can sometimes propagate misinformation, underscoring the potential for inconsistent results. This comparison sheds light on the nuanced performance of AI tools versus search engines, emphasising the importance of integrating chatbot technology into information retrieval systems to understand user preferences better and improve digital communication tools.

Understanding these technologies' roles and differences enriches our grasp of their impact on information access and pedagogy, urging further research into AI-driven dialogue systems and their implications on user behaviour and digital literacy.

2.3 Impact of Technological Tools on Learning Outcomes

Technological educational tools significantly enhance student engagement and academic performance by improving information retention, critical thinking, and problem-solving abilities. Online resources offer in-depth study options and personalised learning paths, notably raising achievement levels. For example, the Scottish Department of Education, as presented in the literature by Kumar (2024), found that pupils' numeracy skills improved significantly due to integrating technology into the learning process. However, the successful use of technology in education depends on the effectiveness of the instructional design, the teacher's readiness and its alignment with the educational objectives.

A 2023 study by Miller et al. emphasises the importance of recognising diverse learning styles (visual, auditory, and kinesthetic) for successfully integrating technology into educational environments and accurately assessing outcomes. By catering to these varied styles, technology facilitates more engaging, visual, and interactive learning experiences. Implementing project-based and cooperative learning strategies further enriches these experiences, as these methods encourage applying learned skills in realistic scenarios, fostering more profound interest and better outcomes. Teachers play a crucial role in linking these projects to learning objectives and clarifying the expected time commitments, thus enhancing student comprehension and engagement.

The digital era has transformed traditional classroom settings, prompting educators to leverage online platforms to create compelling educational content. This shift introduces opportunities for more vivid, engaging, and collaborative learning experiences that resemble real-life contexts, augmenting student interest and academic outcomes, simplifying group coordination and enhancing communication through technology, and bolsters cooperative

learning experiences. The diverse range of technological resources accommodates various learning preferences and styles, facilitating immersive and interactive learning scenarios that engage students, improve access to extensive information sources, and promote adaptive learning environments.

However, technical obstacles, information overload, and digital distractions impede learning. Additionally, technological access and digital literacy skills disparities may exacerbate educational inequities. Therefore, it is imperative to thoughtfully integrate technology with a strong focus on academic objectives while addressing these barriers. Further investigation is necessary to fully grasp the long-term effects of evolving technological tools on diverse student groups and their learning outcomes. In summation, while technology holds the promise of positively influencing education, its incorporation into learning environments demands a comprehensive approach to optimise benefits and overcome potential hindrances, as suggested by Kumar in 2024.

2.3.1 Google's Impact on Learning Outcomes

The rapid growth of technology has made modern information technology an integral part of education. Google, a leading global technology company, is at the forefront of this shift, offering many services and tools that significantly enhance the learning environment. Yechkalo (2013) defines the learning environment as an artificially constructed system that includes the student, the teacher, and pedagogical aids, with modern information technology playing a pivotal role. This comprehensive system is designed to fulfil educational goals efficiently. Through its innovative offerings, Google has not only transformed access to information and dissemination of knowledge but also brought forth challenges like privacy, security, and information filtering concerns.

This analysis delves into Google's influence on learning outcomes, examining its educational applications' potential and challenges. Leveraging Google Docs, Classroom, and Drive enables multimedia lectures, computer-oriented workshops, and collaborative projects, underscoring Google's pedagogical potential. These tools facilitate a cloud-based learning ecosystem where students and teachers can collaborate and access educational resources from anywhere, thus significantly enhancing educational efficiency and outcomes.

Levy & Myers (2021) highlight that while improving access to information, Google's search engine and personalised algorithms also contribute to 'filter bubbles' and the 'echo chamber effect,' which can narrow exposure to diverse viewpoints. Moreover, Google's products' data collection and analysis practices, aimed at personalising the learning experience, raise significant privacy concerns. Despite these challenges, tools like Google Classroom have been embraced to integrate technology into learning environments seamlessly.

In conclusion, Google's array of services and tools has fundamentally impacted learning outcomes, offering unprecedented access to information and collaborative opportunities. However, this comes with the imperative to carefully address privacy issues and the potential for an echo chamber effect. Balancing the benefits of Google's technology with these concerns is crucial for optimising learning outcomes in today's digital age.

2.3.2 ChatGPT’s Impact on Learning Outcomes

The impact of ChatGPT on higher education presents significant opportunities and notable risks, affecting learning outcomes in many ways. Research by Dempere et al. (2023b) highlights that ChatGPT can offer considerable benefits such as research support, automated grading, and improved human-computer interaction. These AI assistants have the potential to enhance student collaboration and self-regulation by raising awareness and providing a database of interventions.

However, ChatGPT concerns include threats to online test security, potential plagiarism, and broader societal and economic repercussions, like job loss and AI-induced anxiety. The ability of ChatGPT to replicate human-written texts exacerbates these issues, particularly compromising the authenticity of learning outcomes and facilitating cheating in academic settings.

Zhao et al. (2023) provide a balanced view, emphasising that while ChatGPT can bolster students' motivation, critical thinking, and self-led learning through personalised support, it also risks disseminating incorrect information and undermining academic integrity. The duo points out the need for proper regulation to maintain the quality of education while leveraging ChatGPT's benefits.

Echoing this sentiment, Jemmy et al. (2023) discuss the dual impact of ChatGPT on learning outcomes. Positive aspects include making study materials more accessible and stimulating faster completion of assignments, potentially increasing student engagement. Conversely, the drawbacks highlighted include decreased interaction between students and educators, a lack of tailored learning experiences, and the possibility of spawning inaccurate responses or promoting academic laziness due to over-reliance on technology.

These insights underline that incorporating ChatGPT into higher education requires careful consideration and strategic implementation. Educational institutions must establish comprehensive norms and guidelines to maximise the benefits while mitigating the risks. This will ensure that ChatGPT enhances the educational experience without compromising the principles of academic integrity and the authenticity of learning outcomes, maintaining the overall quality of education in the digital age.

2.4 Uses and Gratification Theory

The Uses and Gratification Theory (UGT) proposes that audiences actively engage with media to satisfy specific needs and objectives. Central to this theory are several key ideas: First, audiences deliberately select media to fulfil particular aims, including entertainment, information access, and building social connections. Secondly, individuals pick the media content that aligns best with their personal needs and values. Additionally, media competes with other sources, like face-to-face communication, to meet these audience needs. Importantly, audiences are self-aware regarding their motivations for using media and can articulate these reasons to researchers. Lastly, it is up to the audience, not researchers, to assess the value of media content. This theory has been applied broadly across various media types to understand media usage patterns, including television, newspapers, video games, and the Internet (Ruggiero, 2000).

2.4.1 Uses and Gratification Theory Applied to Educational Technology

The Uses and Gratifications Theory (UGT) offers a compelling framework for understanding the motivations behind educators' and students' engagement with Web 2.0 technologies and social networking sites in educational settings. This theory is instrumental in uncovering why teachers incorporate Web 2.0 tools into their teaching practices, as Can et al. (2019) highlighted. Their research indicates that educators selectively use these technologies for cognitive enhancement, social integration, emotional fulfilment, and personal integration. This selective utilisation underscores the importance of grasping educator motivation to optimise Web 2.0 tools in higher education.

Further expanding the theory's application, Karimi (2014) investigated the motivations driving students from diverse cultural backgrounds at higher education institutions to use social networking sites. The study revealed that cultural differences significantly influence students' motivations, enriching the discourse on new media use in education. This insight into user

motivations is crucial for adopting technology effectively, suggesting a broader application of UGT in educational technology choices.

A similarly enlightening application of UGT is seen in the study by Peters and Bodkin (2021), which explores college students' use of mobile apps for educational purposes. By framing their research around UGT, they delved into the types of apps students use, their usage patterns, and their underlying motivations, which include seeking information, personal identity, entertainment, and integration. This research aligns with prior findings on UGT, showing that students employ a variety of educational apps not just for informational purposes but significantly for entertainment and integration, which they deem pivotal to their academic success.

These studies collectively provide a deeper understanding of why specific educational tools are preferred over others, highlighting the diversity of learners' needs and preferences. This insight is invaluable for educators and technology developers striving to create effective educational platforms tailored to the varied needs of learners and, hence, enhance the academic experience. UGT is a robust tool for understanding and improving the adoption and impact of educational technologies in learning environments.

2.5 Theoretical Framework

The study delves into the preferences of undergraduate students regarding incorporating ChatGPT and Google into their academic environments, focusing on how these digital tools influence their academic performance, engagement, and satisfaction. Grounded in the Uses and Gratifications Theory (UGT), the research aims to identify the motivations behind students' selection of specific digital tools for academic tasks and the subsequent impact on their learning outcomes. This exploration seeks to understand why students favour specific platforms over others for activities such as research, writing, studying, and understanding lecture materials, driven by the gratifications they seek in their educational pursuits.

Mondi et al. (2007) describe UGT as a theory that unravels individuals' reasons and methods to select particular media to satisfy their diverse needs. UGT emphasises the user's active role in choosing media based on personal desires, providing insights into the motivations behind media consumption. The Uses and Gratifications Expectancy (UGE) concept builds on this foundation by introducing the concept of "expectancy," where users' beliefs and evaluations about the gratifications a medium offers critically influence their engagement. This adds complexity to our understanding of media use by emphasising the role of expectations formed through prior beliefs and evaluations in directing media usage.

A critical difference between UGT and UGE is the focus on expectations. UGE delves into the cognitive processes behind media selection, highlighting how expectations guide users' media behaviour and influence their perceptions of a medium's value. This approach offers a dynamic view of media use, suggesting that users constantly adjust their media behaviour based on evolving expectations and experiences, contrasting with UGT's more linear perspective.

UGE's predictive nature is precious in educational contexts. Its ability to forecast the integration success of media into educational settings surpasses the foundational insights provided by UGT, making UGE well-suited for anticipating the impacts of media in education.

The study utilises UGT as a conceptual framework to investigate the interaction between undergraduate students and digital platforms like ChatGPT and Google within educational settings. It aims to uncover the reasons behind students' platform preferences and the specific gratifications they seek, affecting learning outcomes. According to UGT, students select media based on needs fulfilment, such as cognitive, affective, personal integrative, social integrative, and entertainment needs. This perspective is vital for understanding the choice of digital tools in education and the array of gratifications students pursue.

Expanding on UGT, the UGE framework provides a deeper analysis of students' perceptions and evaluations of the gratifications offered by these platforms, examining how these perceptions affect usage patterns and intentions for academic purposes. By exploring students' beliefs about the advantages and limitations of ChatGPT and Google, UGE highlights how expectations may shape preferences and behaviours, potentially influencing learning outcomes.

Furthermore, UGE examines how personal circumstances, psychological dispositions, social contexts, and learning needs influence students' choices and usage of digital tools. These factors play a crucial role in shaping students' beliefs about the effectiveness of ChatGPT and Google, thereby impacting their perceived learning experiences. UGE's predictive capability enables assessing the potential success of integrating these tools into learning environments and

identifying key use dimensions.

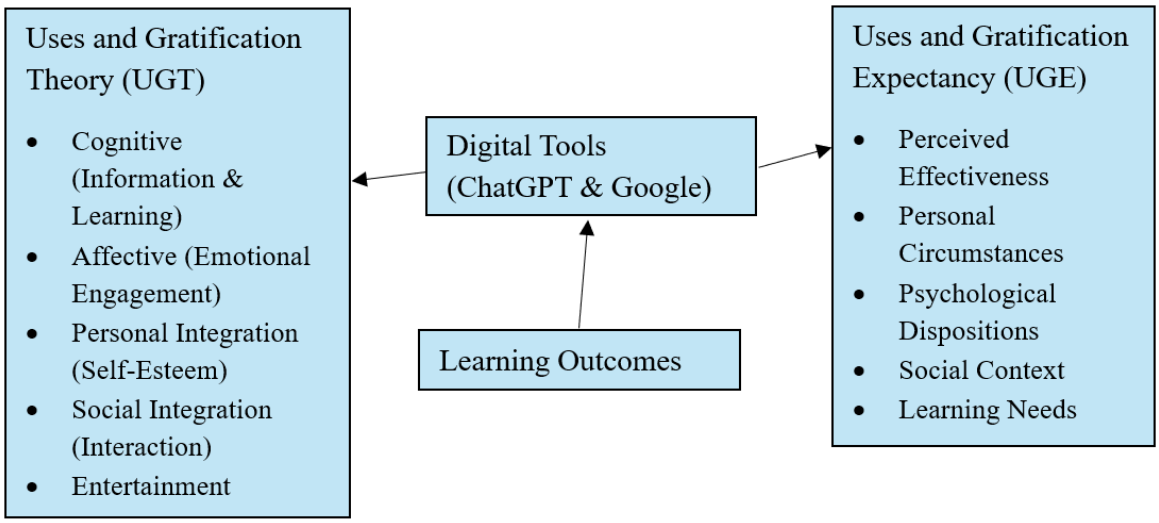

Figure 2.1 Theoretical Framework Concept

2.6 Research Framework

Figure 2.1 illustrates the conceptual framework designed for this study. It details the relationships between independent variables (IV) and dependent variables (DV).

The dependent variables focus on undergraduates' preferences in learning environments, the significance of ChatGPT and Google in their learning processes, and the extent to which these factors enhance the learning experience. On the other hand, the independent variables include gender, age, academic level, frequency of usage, the factors that influence preferences (features), and the purpose of usage.

Subsequently, the study will determine undergraduate students' preference for ChatGPT and Google in their learning environments and how both affect undergraduate learning outcomes. Additionally, it will examine undergraduate students' willingness to integrate AI in education and their reasons for doing so.

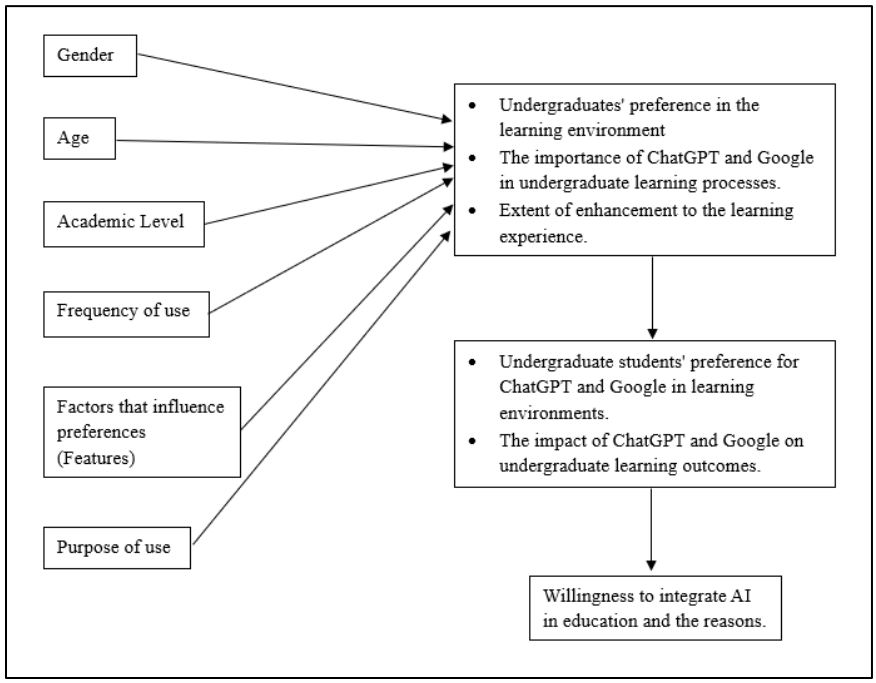

Figure 2.2 Research Framework Concept

2.7 Hypotheses

Hypothesis 1: The more undergraduate students perceive that the academic task requires detailed explanations or content generation (e.g., writing essays or comprehending lecture material), the more likely they are to prefer ChatGPT over Google. Conversely, the more they perceive that the task requires quick access to a wide range of information (e.g., researching academic topics or studying for exams), the more likely they are to prefer Google over ChatGPT.

Hypothesis 2: The more undergraduate students perceive that ChatGPT offers quick responses, natural language interaction, and creative input, the more likely they prefer using ChatGPT over other tools or resources for assignments or research tasks.

CHAPTER 3

METHODOLOGY

3.0 Chapter Overview

This chapter will provide an overview of the research methodology employed in this study, focusing on articulating the study's objectives and the appropriate methods to achieve those objectives. The chapter includes the selection of a quantitative research design, the identification and measurement of variables, the adoption of sampling methods, the use of research instruments, the application of data collection techniques, and the implementation of data analysis methods.

3.1 Quantitative Research

Research paradigms play a crucial role in guiding the nature and conduct of scientific investigation, embodying shared beliefs, values, and assumptions among a community of researchers. These paradigms encompass various beliefs, including ontological (concerning the nature of reality), epistemological (relating to the nature and scope of knowledge), value-based, aesthetic, and methodological aspects, cumulatively constituting a 'research culture'. As outlined by Johnson and Onwuegbuzie (2004), three primary research paradigms dominate the field: qualitative, quantitative, and mixed methods research, each with its distinct beliefs and practices yet sharing an emphasis on empirical observation and measures to enhance validity and minimise bias.

As Abdullah & Raman (2000) described, the strength of quantitative research lies in the fact that it uses statistical data analysis to detect causal relationships between variables, is more concerned with objectivity and validity, employs techniques such as surveys, questionnaires, and

experiments to collect data, and provides descriptive and analytical summaries of the data. It aims to test hypotheses and theories using a structured, logical and quantitative approach. However, quantitative research needs to allow respondents to freely express their opinions and feelings, ambiguities in questionnaires that cannot be clarified after distribution, and be subject to non-response survey questions.

In contrast, qualitative research employs naturalistic, ethnographic and case study methods to explain phenomena through the meanings people ascribe to them, using techniques such as participant observation, semi-structured interviews and interpretive procedures, which allow for a more in-depth understanding of the characteristics of a single situation and consider the transactional nature of the participant's experiences and the learning environment. Although qualitative research is often described as 'soft', non-rigorous and subjective, relying more on the researcher's impressions and judgements and potentially subject to superficiality and distortion of observations and conclusions, it remains an essential tool for understanding educational issues. In summary, quantitative and qualitative methods have their strengths and weaknesses and can be used alone or in combination (e.g., triangulation) to provide a more comprehensive understanding of educational issues.

This study examines undergraduate students' preferences for ChatGPT and Google within their learning environments. It exemplifies applying quantitative research methods involving numerical data collection and statistical analysis to investigate behavioural responses and preferences. This approach allows for testing hypothesised causal relationships, making predictions, and generalising findings across populations. Quantitative research aims to characterise, predict, or control variables of interest by employing structured observations,

questionnaires, and experiments, testing pre-established theories against the empirical evidence collected (Sreekumar, 2024).

3.2 Variables and Measurement

In research, variables are essential elements that require careful definition, measurement, and control. As Kaur (2013) posits, variables can change or exist in multiple forms, representing attributes or characteristics within a study. These can range from independent and dependent variables, central to experimental designs, to different types, such as active, attribute, continuous, discrete, and categorical variables. It is crucial for quantitative research to precisely define variables in measurable terms to ensure the validity and reliability of the study.

Variables can significantly impact the outcomes of research. For instance, external variables may influence the study results if they are not adequately controlled. Additionally, demographic variables describe the study sample, which helps assess its representativeness. The measurement of variables is also varied and can be classified into nominal, ordinal, interval, and ratio scales, each offering a different level of detail and precision.

Building on Kaur's framework, Kaur and Mittal (2021) highlight the significant roles of independent and dependent variables in research. Independent variables, which the researcher can manipulate or alter, are considered the cause or antecedent in an experimental setting. They are essential in observing the effect on dependent variables, which serve as the outcome or effect. This dynamic between independent and dependent variables is fundamental in establishing a causal link within research, underscoring the need to understand how one variable can influence another.

Overall, the role of variables in research cannot be overstated. From their classification to their measurement and control, variables form the foundation for valid and reliable research.

Understanding the nuances of variables, including their types and relationships, is crucial for conducting substantive research that can contribute meaningful insights to the field.

This study examines undergraduate students' preferences for using ChatGPT and Google in their learning environments and the impact of these two tools on their learning outcomes. Multiple independent variables were analysed, including gender, age, academic level, frequency of use, factors influencing preference (e.g., functional features), and purpose of use.

As two different tools, ChatGPT and Google offer their own unique features and usage experiences and thus can be used as independent variables in a comparative study. Their functional differences in information retrieval, question answering, dialogue generation, and content creation may influence undergraduate students' usage preferences and, thus, the dependent variable in the study. In addition, the purpose of using these tools (i.e. researching academic topics, writing essays or reports, studying for exams and understanding lecture material) may also influence students' tool choices, making this one of the potential preference influences. Personal characteristics such as academic level and grade level of undergraduate students as external variables may impact their preference for ChatGPT and Google. These characteristics are associated with the frequency of tool use, which may further influence students' evaluation and preference for these tools.

The focus of the study shifted to the dependent variables, i.e., undergraduate students' preference for ChatGPT or Google in the learning environment, the importance of the tools in the learning process, and the extent to which they enhanced the learning experience. The importance of the tools in the learning process reflects students' subjective evaluations of ChatGPT and Google, demonstrating their preference for or reliance on the two tools in the learning process, which points directly to the outcome variable of the study. On the other hand, the degree of

enhancement of the learning experience measures students' subjective perception of the learning outcomes after using these tools, i.e., the extent to which the tools enhanced the learning experience. This usually reflects the outcome or output of the study rather than factors influencing preferences. Finally, undergraduate students' preferences for tools in specific learning situations (e.g. completing assignments or conducting research) are also the main behaviours and outcomes that this study hopes to explain.

In addition, this study will explore the willingness of undergraduate students to incorporate AI into their education and the underlying reasons for their attitudes. The findings will provide valuable insights for researchers and educators in understanding students' acceptance of AI technologies in education. Moreover, it will aid in improving educational tools and teaching methods.

3.3 Sampling Method

This study focused on exploring the learning tool preferences among 18-25-year-old undergraduate students; the convenience sampling method was employed. Sedgwick (2013) describes convenience sampling as a non-probability sampling technique where subjects are selected based on availability rather than random selection from the broader population. While not capturing a sample that perfectly mirrors the target demographic, this approach does not intrinsically compromise a clinical trial's internal validity. This is particularly true if the participants within the convenience sample are randomly allocated into either the intervention or control groups of the study. The primary appeal of convenience sampling lies in its straightforward, uncomplicated implementation, making it a frequent choice in various research contexts, including clinical trials.

This study used a convenience sampling method to investigate undergraduate students' preferences and use of ChatGPT and Google as educational resources. A questionnaire was designed and distributed to 50 undergraduates to collect data. Through statistical analyses, we will compare undergraduate students' preferences for ChatGPT and Google, assess the impact of these tools on learning outcomes, and assess their willingness to integrate AI into their education. This analysis aims to gain insight into undergraduate students' preferences for digital tools and their impact on learning outcomes. It also explores undergraduate students' attitudes towards applying AI to education.

3.4 Research Instruments

As per Roopa and Satya (2012), questionnaires play a significant role in gathering quantitative data and comprehending participants' perspectives. Hence, it is crucial to carefully plan the questionnaire design, including question types, sequence, and wording, to gather relevant and valuable information. Designing an effective questionnaire demands thorough consideration, substantial effort, and planning across multiple stages. Different types of questions, conditional, matrix, closed, and open-ended, can be employed based on the survey's purpose.

This study plans to gather data using closed-ended questions. The questionnaire will include Likert scales, multiple-entry measures, and varied content inputs to offer respondents different response options. This approach aims to capture the nuances of the constructs being evaluated. According to Kadir et al. (2014), providing a range of options in a questionnaire allows respondents to express the extent to which a statement applies to them rather than being limited to a simple yes/no answer. The questionnaire will consist of four sections: A - demographic information, B - preferences for ChatGPT and Google in the learning environment,

C - the impact of ChatGPT and Google on undergraduate learning outcomes, and D -willingness to integrate AI in education.

Section A will gather basic information about the respondents, such as their gender, age, and academic level, using multiple-choice questions. Section B will focus on understanding respondents' preferences for ChatGPT and Google, explicitly addressing Research Objective 1, which aims to explore undergraduate students' perceptions and preferences for integrating ChatGPT and Google into their learning environment. This section will also use a multiple-choice question and multiple-choice grid format for respondents to indicate their perceptions and preferences. Section C will evaluate the impact of ChatGPT and Google on undergraduate learning outcomes, corresponding to Research Objective 2. Like Section B, this section will use a multiple-choice grid format for respondents to express their thoughts on each question. Section D will gather data on the willingness of undergraduate students to integrate AI into education using a multiple-choice grid to collect their desires and reasons.

3.5 Data Collection Method

This research will involve an online survey using Google Forms to gather information from respondents. The survey consists of three sections: Section A will collect demographic information, Section B will explore respondents' preferences, Section C will assess the impact of ChatGPT and Google on undergraduate learning outcomes, and Section D will examine the willingness to integrate AI into education. The survey link or QR code will be shared with respondents via WhatsApp. After data collection, a summary of the data collected from the Google form will be transferred to Excel for further analysis.

3.6 Data Analysis Method

In this study, the data will be processed by combining descriptive analysis of Google Forms and cross-tabulation analysis of SPSS. First, variables such as gender, age, academic level, tool preference, frequency of use, preference influencing factors (e.g., functional features), purpose of use, and the extent to which it enhances the learning experience will be analysed through descriptive statistics. Then, cross-tabulation was used to explore the relationship between demographic factors (e.g., age, gender, and academic level) and ChatGPT and Google tool preferences and to analyse undergraduate students' willingness to integrate AI into their education to enrich the findings.

CHAPTER 4

FINDING AND ANALYSIS

4.1 Descriptive Analysis

4.1.1 Demographic

4.1.1.1 Gender

Figure 4.1 illustrates the gender distribution of respondents. The survey had more female respondents, with 40 females representing 80% of the total respondents, while the remaining 20% consisted of 10 males.

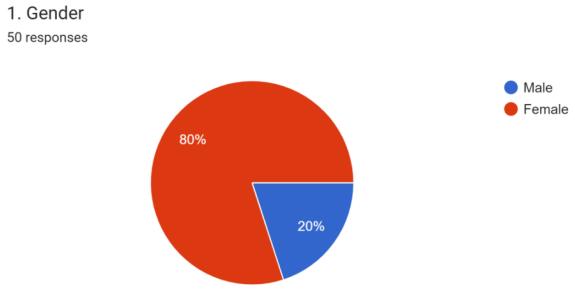

Figure 4.1

4.1.1.2 Age

In Figure 4.2, the age distribution of the respondents in the study is depicted. Out of the 50 eligible respondents, 36% were in the 18 to 21 age group, totalling 18 respondents. The 22 to 25 age group had a higher percentage of respondents, with 32 respondents making up 64%.

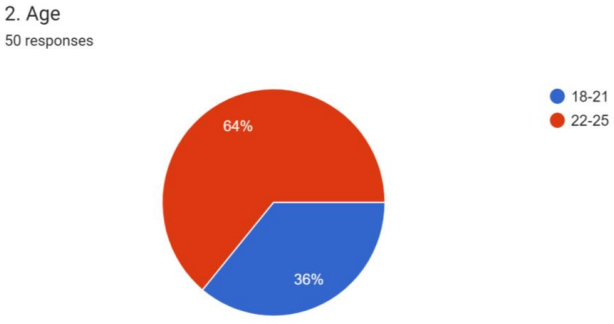

Figure 4.2

4.1.1.3 Academic Level

Figure 4.3 displays the academic level of the 50 eligible respondents in this study. All respondents are undergraduates, representing 100% of the total. The Foundation programme did not account for this percentage.

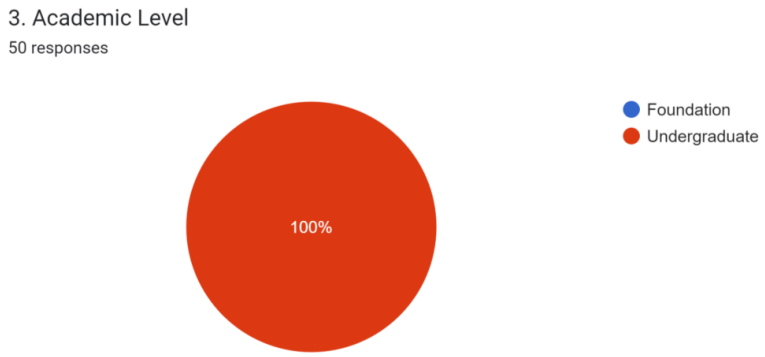

Figure 4.3

4.1.2 Preferences of Undergraduate Students

4.1.2.1 What is your preference when working on an assignment or conducting research?

Figure 4.4 illustrates the students' technology tool preferences for completing assignments or conducting research. The study offered two options: ChatGPT and Google. Of 50 respondents, 28 (56%) chose ChatGPT, while the remaining 22 (44%) preferred Google.

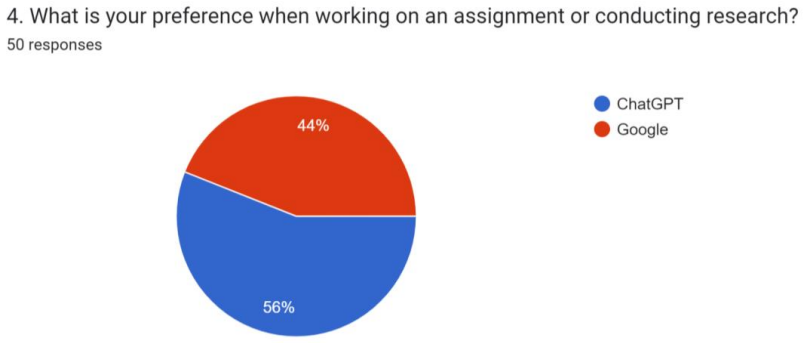

Figure 4.4

4.1.2.2 How frequently do you use for learning purposes?

Figure 4.5 shows the frequency of use for two digital tools, ChatGPT and Google, across five categories: "Never," "Rarely," "Occasionally," "Frequently," and "Always." For ChatGPT, 2 respondents reported never using the tool, while 3 reported rare use. The number of users increases significantly, with 16 respondents falling into the "Occasionally" and "Frequently" categories. A total of 13 respondents indicated that they always use ChatGPT.

In contrast, no respondents reported never using Google. Only 3 respondents reported rare use of Google, while 12 use it occasionally. The frequency increases further, with 16 respondents frequently using Google and 19 always relying on it. Although both tools are commonly used, Google shows a higher and more consistent usage level among respondents.

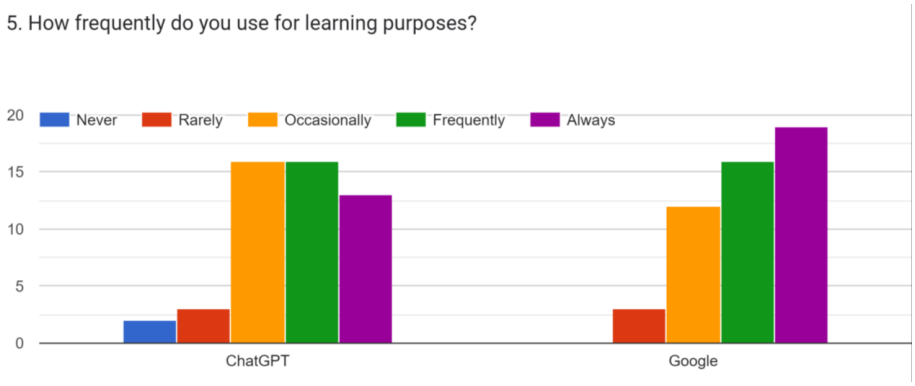

Figure 4.5

4.1.2.3 What features do you think each possesses?

The comparison in Figure 4.6 highlights the differences between ChatGPT and Google across various attributes. ChatGPT excels in quick responses with a rating of 42, compared to Google's 8, indicating its strength in providing immediate answers. It also leads in natural language interaction with a rating of 34, significantly higher than Google's 16, highlighting its ability to engage in more conversational exchanges. Regarding creativity, ChatGPT has a rating of 38, far surpassing Google's 12, suggesting it is more capable of generating creative content.

However, Google outperforms ChatGPT in search accuracy and access to a vast information database, with 35 and 37 respondents, respectively, compared to ChatGPT's 15 and 13. Google also leads in voice search capability, 35 against ChatGPT's 15, showing its strength in handling voice-based queries. Both tools are on par in learning recommendations with 25 respondents each, while ChatGPT slightly edges out Google in providing structured search results, with 27 respondents against Google's 23. In summary, ChatGPT is stronger in response speed, natural language processing, and creativity, whereas Google is superior in search accuracy, information breadth, and voice search capabilities.

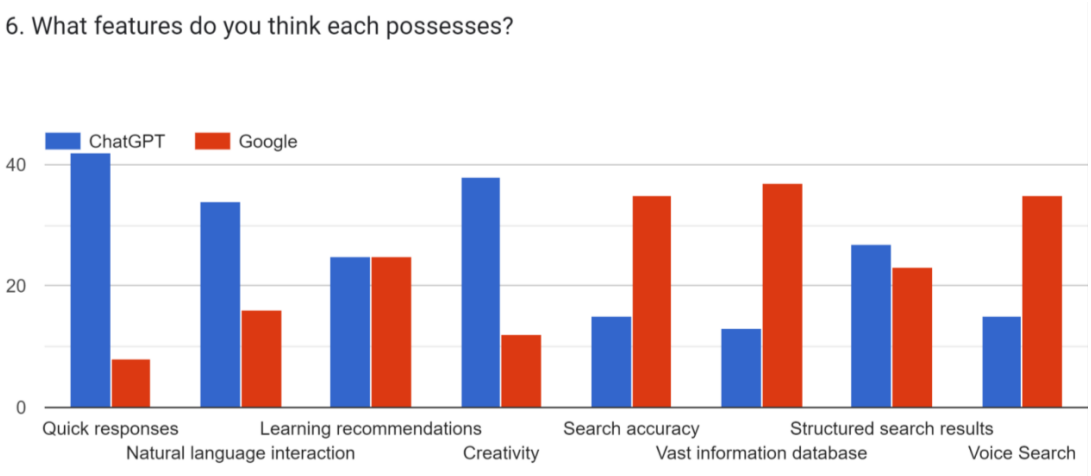

Figure 4.6

4.1.3 Impact of ChatGPT and Google in Undergraduate Learning Environments

4.1.3.1 What do you use for the following purposes?

Figure 4.7 displays the primary usage of ChatGPT and Google in academic settings. Based on the data, when using ChatGPT, students most frequently use it for writing essays or reports (35%), understanding lecture material (28%), studying for exams (23%), and researching academic topics (20%). On the other hand, Google is mainly used for researching academic topics (30%), followed by studying for exams (27%), understanding lecture material (22%), and writing essays or reports (15%).

The data suggests that students favour ChatGPT for writing and understanding academic content, while Google is primarily relied upon for research and exam preparation. This difference indicates that ChatGPT may be more helpful for generating and comprehending content, while Google is perceived as a more effective tool for gathering information and preparing for assessments.

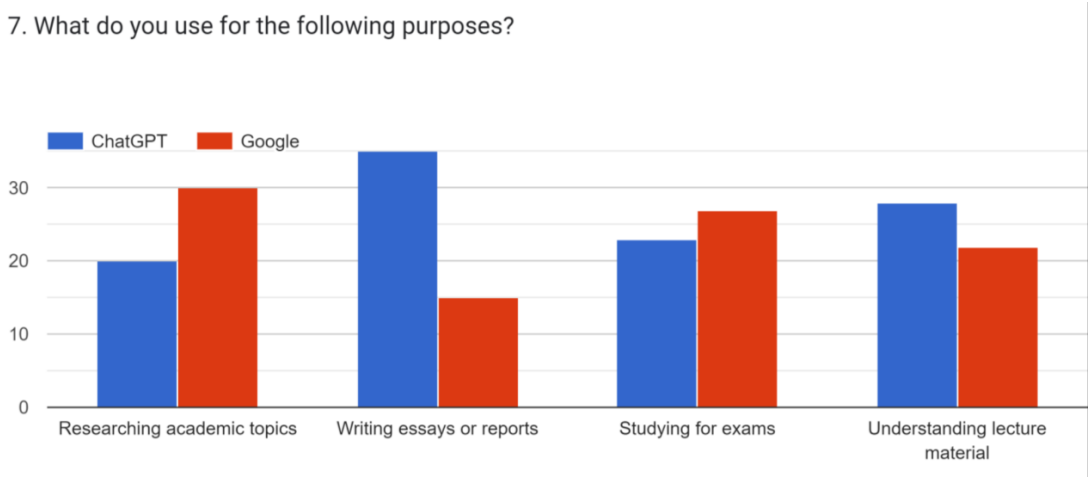

Figure 4.7

4.1.3.2 How important are they in your learning process?

The data from Figure 4.8 shows the perceived importance of the learning process as reported by respondents on ChatGPT and Google. On ChatGPT, most respondents (23) consider the learning process to be "Very important," followed by 12 who find it "Moderately important" and 10 who view it as "Extremely important." A small number of respondents find it "Slightly important" (3) or "Not important at all" (2).

On Google, the distribution is slightly different, with the largest group (19) rating the learning process as "Extremely important," followed by 18 who consider it "Very important." There is a smaller group that deems it "Moderately important" (8) and "Slightly important" (5), and no respondents rated it as "Not important at all." This suggests a consensus on the significance of the learning process, although Google users tend to rate it as more critical compared to ChatGPT users.

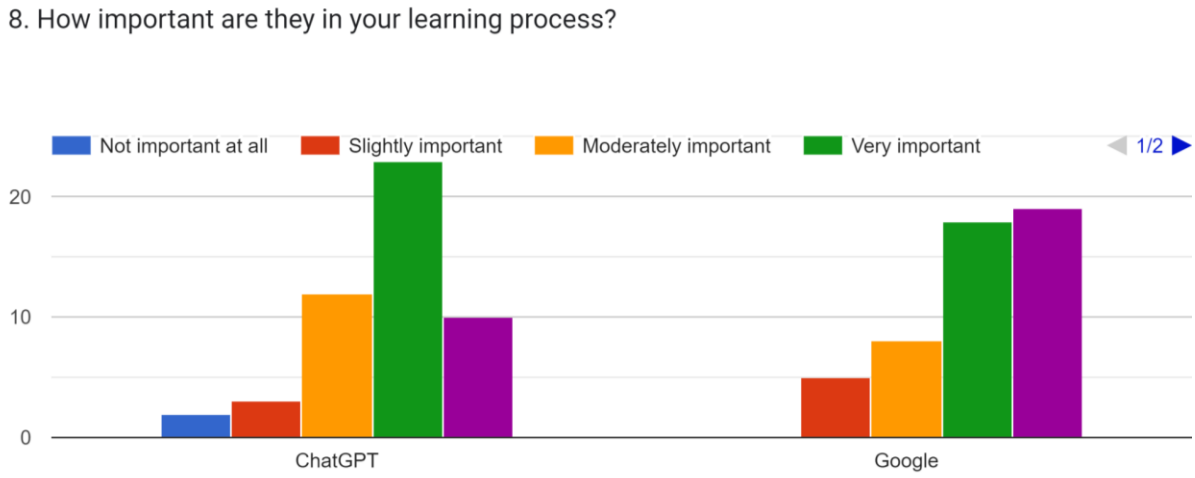

Figure 4.8

4.1.3.3 How far does it enhance your learning experience compared to traditional methods?

Figure 4.9 shows the impact of ChatGPT and Google on learning compared to traditional methods. For ChatGPT, most respondents found it beneficial, with 19 as "Very much" and 13 as "Extremely." A smaller group found it moderately helpful, with 14 choosing "Moderately." Very few indicated minimal or no benefit, with only 2 each selecting "Not at all" and "Slightly."

Similarly, Google received positive feedback, with 21 respondents rating it as "Very much" and 13 as "Extremely." This indicates a strong perception of its effectiveness. Like ChatGPT, Google had 13 respondents rate it as "Moderately" enhancing their learning experience. "Not at all" and "Slightly" were chosen by 1 and 2 respondents, respectively. Both tools significantly enhance the learning experience, with Google having slightly higher favourable ratings than ChatGPT.

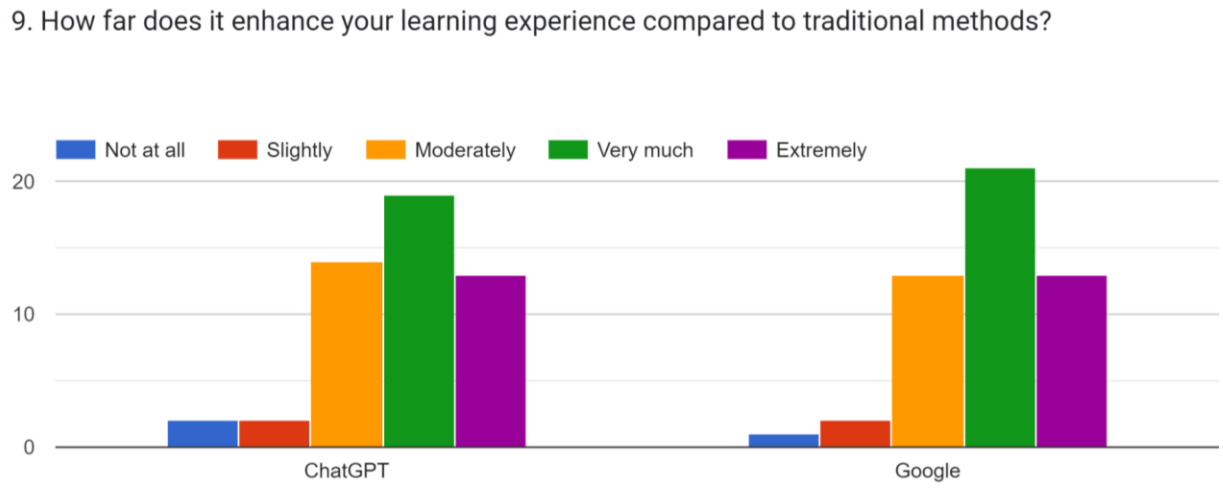

Figure 4.9

4.1.4 Willingness to Integrate AI in Education

4.1.4.1 Would you prefer an increased integration of AI tools like ChatGPT and Google in your future learning environments?

Figure 4.10 shows respondents' preferences regarding the increased integration of AI tools such as ChatGPT and Google in their future learning environments. Most respondents, 48 individuals (96%), expressed a positive inclination toward adopting AI in education. This indicates a strong recognition of the potential benefits of these tools, including enhanced learning experiences and access to vast information resources.

Conversely, a small minority of only 2 respondents (4%) indicated a preference against further integration of AI, possibly reflecting concerns about overreliance on technology or its impact on traditional learning methods. Overall, the data highlights a significant preference for embracing AI in educational settings among the surveyed group.

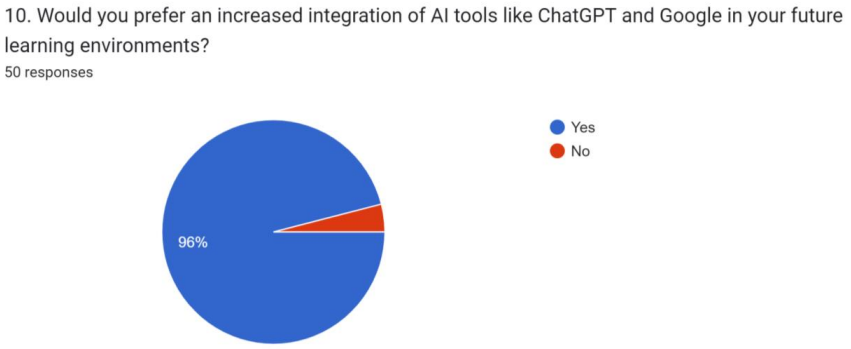

Figure 4.10

4.1.4.2 If **YES**, why do you prefer integrating AI tools like ChatGPT and Google in your learning environments?

Figure 4.11 demonstrates why undergraduates prefer integrating AI tools like ChatGPT and Google into their learning environments. 48 of 50 respondents, accounting for 47.9% (23 respondents), believe these tools make learning more efficient. A significant proportion, amounting to 37.5% or 18 respondents, have indicated they value artificial intelligence for its ability to provide quick and accurate information, highlighting the importance of accessing immediate and reliable resources for their studies. A smaller group, 12.5% (6 respondents), prefer these tools for enhancing their overall learning experience, highlighting their role in improving engagement and understanding. Only 2.1% (1 respondent) recognise the dual benefits of improving the learning experience and making learning more efficient, indicating a rare but holistic appreciation of AI's capabilities in education.

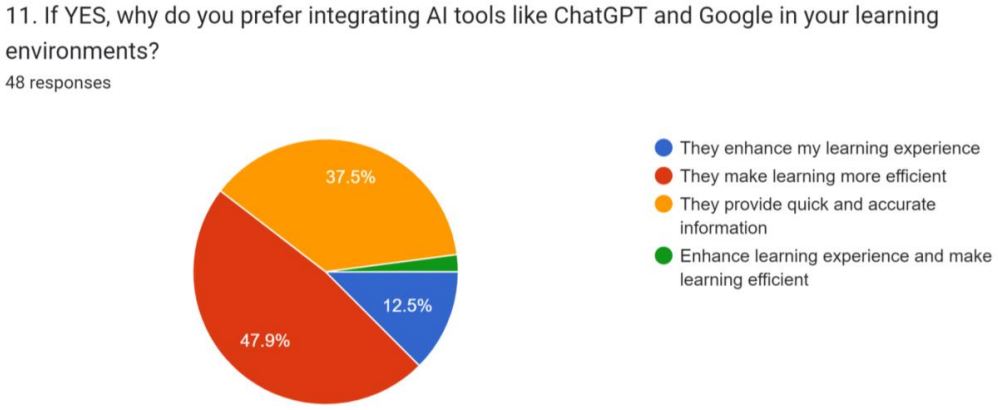

Figure 4.11

4.1.4.3 If **NO**, why do you **NOT** prefer integrating AI tools like ChatGPT and Google in your learning environments?

According to Figure 4.12, out of the 50 respondents, 2 indicated that they do not prefer integrating AI tools such as ChatGPT and Google in their learning environments. Out of these respondents, 50% (1 respondent) believe that these tools are unnecessary for their learning needs, while the remaining 50% (1 respondent) feel that AI tools reduce the development of critical thinking skills. Interestingly, none of the respondents cited that AI tools complicate learning. This indicates that the main issues are unnecessary and detrimental to critical thinking rather than complex problems.

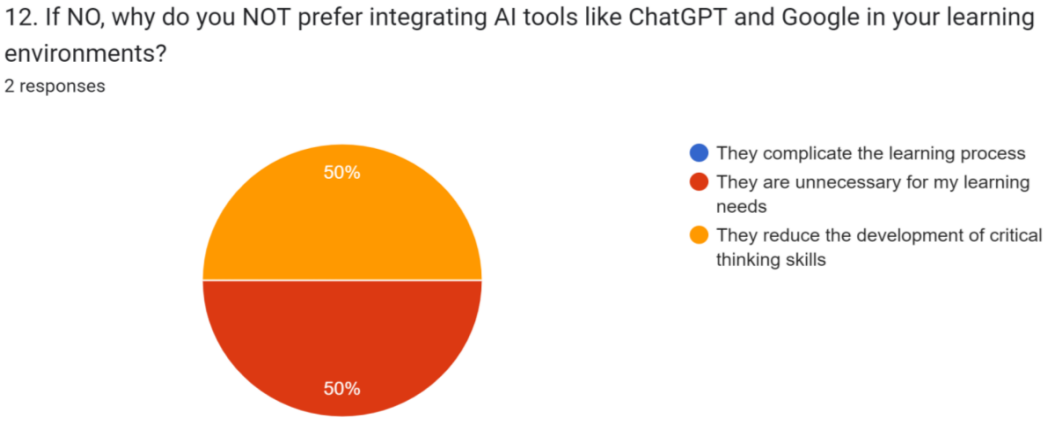

Figure 4.12

4.2 Cross-tabulation Analysis

4.2.1 Gender vs. Preferences in Learning Tools

Figure 4.13 shows the analysis of gender and learning tool preference, which revealed a clear pattern between male and female respondents. Among male respondents, 70% preferred ChatGPT, while 30% chose Google, indicating a strong preference for ChatGPT among males for their learning needs.

In contrast, female respondents had a more balanced preference, with 52.5% preferring ChatGPT and 47.5% preferring Google. Although ChatGPT remained slightly more prevalent among females, the difference was less pronounced than in males.

ChatGPT was the more popular tool among males and females, with 56% choosing it, while 44% preferred Google. However, there was a clear gender trend, with males showing a stronger preference for ChatGPT, while females had a more balanced approach between ChatGPT and Google. This suggests that gender may influence the choice of learning tools, with males preferring AI-driven options and females showing a more balanced approach between AI and traditional search engines.

Gender * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Gender	Male	7	3	10
	Female	21	19	40
Total		28	22	50

Figure 4.13

4.2.2 Age vs. Frequency of Tool Usage

Figure 4.14 and Figure 4.15 compare age and tool usage for ChatGPT and Google, showing that different age groups use these tools in distinct ways.

For ChatGPT, there is a noticeable difference in usage between the 18-21 years and 22-25 years age groups. In the 18-21 age group, most individuals use ChatGPT occasionally (7 respondents), with fewer people using it frequently (5 respondents) or permanently (4 respondents). Rarely and never usage is minimal, with only 1 person in each category. Among the 22-25 age group, there is a clear trend toward more frequent usage, with 11 respondents using it frequently and 9 always using it. Occasional usage is still significant, with 9 respondents, while rare and never usage remains low (2 and 1 respondents, respectively). This suggests that the elder group (22-25 years) use ChatGPT more frequently than the younger group (18-21 years).

The data for Google shows a more robust and consistent usage pattern across both age groups. In the 18-21 age group, the majority always use Google (6 respondents), followed by occasional (5 respondents) and frequent usage (4 respondents). Rare usage is less common (3 respondents), and no one has reported ever using Google. Among the 22-25 age group, the majority also always use Google (13 respondents), with frequent usage (12 respondents) being the next most common. Occasional usage is lower in this group (7 respondents), and no one reported rare or never usage. This indicates that Google is more universally and consistently used across both age groups, with a slight increase in frequency among the older age group.

Overall, the data suggests that while both age groups use Google more uniformly and frequently, ChatGPT usage increases with age, with older participants showing a greater tendency toward frequent and always usage.

Age * Frequent_ChatGPT Crosstabulation

Count

		Age		
		18-21 years	22-25 years	Total
Frequent_ChatGPT	Never	1	1	2
	Rarely	1	2	3
	Occasionally	7	9	16
	Frequently	5	11	16
	Always	4	9	13
Total		18	32	50

Figure 4.14

Age * Frequent_Google Crosstabulation

Count

		Age		
		18-21 years	22-25 years	Total
Frequent_Google	Rarely	3	0	3
	Occasionally	5	7	12
	Frequently	4	12	16
	Always	6	13	19
Total		18	32	50

Figure 4.15

4.2.3 Academic Level vs. Tool Preference for Specific Purpose

Figure 4.16, Figure 4.17, Figure 4.18 and Figure 4.19 sheds light on the tool preferences of undergraduate students when using ChatGPT and Google for specific academic tasks. When researching academic topics, Google is preferred, with 30 respondents choosing it over the 20 who prefer ChatGPT. This suggests that students find Google's search engine more comprehensive or familiar when sourcing academic information.

On the other hand, when it comes to writing essays or reports, ChatGPT emerges as the favoured tool, with 35 respondents opting for it compared to 15 who prefer Google. This indicates that undergraduates might find ChatGPT more efficient for generating content or getting writing assistance, possibly due to its ability to provide context-aware suggestions and coherent text outputs.

The preference is more evenly distributed when studying for exams, with 27 respondents choosing Google and 23 opting for ChatGPT. This close distribution suggests that while Google might be valued for its extensive resources and access to diverse study materials, ChatGPT is also considered a helpful tool for reviewing and understanding exam content.

Lastly, ChatGPT is slightly more favoured in understanding lecture material, with 28 respondents choosing it over 22 who prefer Google. This may imply that students find ChatGPT's interactive nature and ability to explain concepts beneficial for clarifying and reinforcing lecture content.

In conclusion, while Google remains a vital tool for research and studying, ChatGPT is preferred for content creation and understanding tasks, reflecting its growing role as a versatile academic tool for undergraduates.

AcademicLevel * Purpose_Researching_Academic_Topics Crosstabulation

Count

		Purpose_Researching_Academic_Topics		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	20	30	50
Total		20	30	50

Figure 4.16

AcademicLevel * Purpose_Writing_Essays_Or_Reports Crosstabulation

Count

		Purpose_Writing_Essays_Or_Reports		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	35	15	50
Total		35	15	50

Figure 4.17

AcademicLevel * Purpose_Studying_For_Exams Crosstabulation

Count

		Purpose_Studying_For_Exams		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	23	27	50
Total		23	27	50

Figure 4.18

AcademicLevel * Purpose_Understanding_Lecture_Material Crosstabulation

Count

		Purpose_Understanding_Lecture_Material		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	28	22	50
Total		28	22	50

Figure 4.19

4.2.4 Tool Features vs Preference

Figures 4.20-4.26 display user preferences, showcasing the differences between ChatGPT and Google.

ChatGPT is the clear favourite for quick responses, with 25 respondents preferring it over 3 for Google. However, among those who prioritise quick responses, 17 prefer Google, indicating a split preference in this category. Regarding learning recommendations, 19 respondents chose ChatGPT compared to 9 for Google. However, among those who value this feature, 16 prefer Google, showing a competitive edge for Google in this context.

ChatGPT is notably preferred for creativity, with 19 respondents favouring it over 9 for Google. However, those who prioritise creativity tend to lean towards Google, with 16 expressing this preference. The competition is more balanced regarding search accuracy, with 12 respondents preferring ChatGPT and 16 favouring Google. However, among those emphasising this feature, Google is overwhelmingly preferred, with 19 votes compared to 3 for ChatGPT.

Regarding access to vast information, 18 respondents prefer Google, while 10 choose ChatGPT. This preference is further reflected among those who value vast information, where Google dominates with 19 votes against 3 for ChatGPT. ChatGPT is significantly favoured for structured search results, with 20 respondents favouring it compared to 8 for Google. However, among individuals who prioritise structured results, 15 prefer Google, indicating a competitive stance in this area.

Finally, voice search shows Google as the preferred tool, with 18 respondents favouring it 10 for ChatGPT. This preference is also reflected among those prioritising voice search, where 17 respondents favour Google and 5 favour ChatGPT.

In summary, while ChatGPT is favoured for its quick response, creativity, and structured search results, Google stands out in search accuracy, access to vast information, and voice search. The preferences within these categories reveal a nuanced competition between the two tools.

Features_Quick_Response * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Quick_Response	ChatGPT	25	17	42
	Google	3	5	8
Total		28	22	50

Figure 4.20

Features_Learning_Recommendations * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Learning_Recommendations	ChatGPT	19	6	25
	Google	9	16	25
Total		28	22	50

Figure 4.21

Features_Creativity * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Creativity	ChatGPT	22	16	38
	Google	6	6	12
Total		28	22	50

Figure 4.22

Features_Search_Accuracy * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Search_Accuracy	ChatGPT	12	3	15
	Google	16	19	35
Total		28	22	50

Figure 4.23

Features_Vast_Information_Database * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Vast_Information_Database	ChatGPT	10	3	13
	Google	18	19	37
Total		28	22	50

Figure 4.24

Features_Structured_Search_Results * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Structured_Search_Results	ChatGPT	20	7	27
	Google	8	15	23
Total		28	22	50

Figure 4.25

Features_Voice_Search * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Voice_Search	ChatGPT	10	5	15
	Google	18	17	35
Total		28	22	50

Figure 4.26

4.2.5 Importance in Learning Process vs. Tool Usage Frequency

Figure 4.27 and Figure 4.28 indicate that the analysis of tool usage frequency and perceived importance for ChatGPT and Google shows intriguing trends in how these tools are valued and utilised in the learning process.

For ChatGPT, the data shows that the tool is most frequently used by those who find it very important. Among respondents who consider ChatGPT "very important," a significant portion (10 respondents) use it frequently, and another group (8 respondents) uses it always. Similarly, those who rate ChatGPT as "extremely important" tend to use it with the highest frequency, with 17 out of 20 respondents using it constantly, though a small subset of 2 uses it frequently. Interestingly, those who view ChatGPT as "moderately important" also exhibit notable usage, with 6 respondents using it frequently and 1 always, although most (5 respondents) use it occasionally. It is worth noting that respondents who rate the tool as "not important at all" or "slightly important" do not show frequent usage, with some using it only rarely or occasionally.

In contrast, Google is predominantly used by respondents who deem it "very important" or "extremely important." Those who view Google as "extremely important" overwhelmingly use it with high frequency, with 15 out of 19 using it constantly and a small portion (2 respondents) using it frequently. Those who consider it "very important" also display significant use, with 10 respondents using it frequently and 4 always. Interestingly, a moderate importance rating leads to less frequent use, with most respondents (7 out of 8) using it rarely. The data shows minimal usage by those who find Google "slightly important," with most using it only rarely or occasionally.

Overall, the analysis suggests that the perceived importance of both ChatGPT and Google strongly correlates with their frequency of use, particularly for those who rate these tools as "very" or "extremely important." However, Google has a more concentrated usage pattern among its top-rated users, while ChatGPT shows broader usage across varying levels of importance.

Importance_ChatGPT * Frequent_ChatGPT Crosstabulation

Count

		Frequent_ChatGPT					
		Never	Rarely	Occasionally	Frequently	Always	Total
Importance_ChatGPT	Not important at all	2	0	0	0	0	2
	Slightly important	0	2	1	0	0	3
	Moderately important	0	0	5	6	1	12
	Very important	0	0	10	8	5	23
	Extremely important	0	1	0	2	7	10
Total		2	3	16	16	13	50

Figure 4.27

Importance_Google * Frequent_Google Crosstabulation

Count

		Frequent_Google				
		Rarely	Occasionally	Frequently	Always	Total
Importance_Google	Slightly important	2	0	3	0	5
	Moderately important	0	7	1	0	8
	Very important	0	4	10	4	18
	Extremely important	1	1	2	15	19
Total		3	12	16	19	50

Figure 4.28

4.2.6 Tool Integration Preference vs. Learning Enhancement

Figure 4.29 and Figure 4.30 analyse the preferences for integrating ChatGPT and Google tools to enhance learning. For ChatGPT, most respondents who found it beneficial for learning enhancement preferred its integration - 18 respondents rated their preference as "Very much" and 13 as "Extremely." Even those who valued its learning enhancement only slightly or moderately still showed a moderate level of preference for its integration, with 13 respondents rating their preference as "Moderately." A small number of respondents (2) rated both their preference for integration and the perceived learning enhancement as "Not at all" or "Slightly." Notably, nobody who preferred not to integrate ChatGPT indicated that it benefited learning enhancement.

Regarding Google, the data shows a strong correlation between the preference for integration and perceived learning enhancement. All respondents who valued Google as "Very much" or "Extremely" beneficial for learning enhancement preferred its integration at similarly high levels, with 21 and 13 respondents, respectively. Among those who found Google moderately beneficial, 12 preferred moderate integration. Only one respondent did not find Google beneficial for learning enhancement and slightly preferred "No" integration, indicating a consensus on the positive impact of Google's integration on learning enhancement.

Willingness_to_integrate_AI_tools * Extent_ChatGPT Crosstabulation

Count

		Extent_ChatGPT					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
Willingness_to_integrate_AI_tools	Yes	2	2	13	18	13	48
	No	0	0	1	1	0	2
Total		2	2	14	19	13	50

Figure 4.29

Willingness_to_integrate_AI_tools * Extent_Google Crosstabulation

Count

		Extent_Google					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
Willingness_to_integrate_AI_tools	Yes	0	2	12	21	13	48
	No	1	0	1	0	0	2
Total		1	2	13	21	13	50

Figure 4.30

4.2.7 Gender vs. Preference for AI Integration

Figure 4.31 shows that male and female respondents were overwhelmingly positive toward integrating AI. In the group of male respondents, 90% were in favour, with only 10% opposed. The support was more substantial on the female side, with 97.5% in favour and just 2.5% opposed. This demonstrates a significant endorsement of AI integration across genders, with females showing a marginally higher level of support than males. The overall trend indicates a broad acceptance of AI integration among the surveyed individuals.

Gender * Willingness_to_integrate_AI_tools Crosstabulation

Count

		Willingness_to_integrate_AI_tools		
		Yes	No	Total
Gender	Male	9	1	10
	Female	39	1	40
Total		48	2	50

Figure 4.31

4.2.8 Academic Level vs. Perceived Learning Enhancement

Figure 4.32 and Figure 4.33 display the analysis of how undergraduate students perceive the learning enhancement provided by ChatGPT, and Google reveals some interesting differences. Regarding ChatGPT, the responses show a wide range of perceptions. Most students rated ChatGPT as providing "Moderate" to "Very much" enhancement (14 and 19 respondents, respectively), while fewer students rated it as offering "Not at all" to "Slightly" (2 and 2 respondents, respectively). This suggests that ChatGPT is generally viewed positively by undergraduates, although its perceived effectiveness is less extreme compared to Google.

On the other hand, the responses for Google present a slightly different pattern. While the ratings for "Moderate" enhancement are similar (13 respondents), Google received higher ratings for "Very much" (21 responses) and "Extremely" (13 respondents), and fewer ratings in the "Not at all" and "Slightly" categories (1 and 2 respondents, respectively). This indicates that Google is perceived as providing a higher level of learning enhancement overall, with a more significant proportion of students giving it higher ratings than ChatGPT.

In conclusion, the analysis suggests that while both ChatGPT and Google are valuable resources for undergraduates, Google is perceived as offering a more substantial learning enhancement, as reflected in the higher frequency of top ratings. Conversely, ChatGPT has a more balanced rating distribution, indicating a broader range of perceived effectiveness among students.

AcademicLevel * Extent_ChatGPT Crosstabulation

Count

		Extent_ChatGPT					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
AcademicLevel	Undergraduate	2	2	14	19	13	50
Total		2	2	14	19	13	50

Figure 4.32

AcademicLevel * Extent_Google Crosstabulation

Count

		Extent_Google					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
AcademicLevel	Undergraduate	1	2	13	21	13	50
Total		1	2	13	21	13	50

Figure 4.33

4.3 Reliability Test

Figure 4.34 depicts the reliability test results for the various metrics of ChatGPT and Google. According to Gugiu & Gugiu (2017), the Reliability Criteria are typically .70 and .80. As illustrated in Figure 4.34, the reliability coefficient value is .770, which exceeds the .7 threshold, signifying that the research data's reliability is satisfactory.

Reliability Statistics

Cronbach's Alpha	N of Items
.770	6

Figure 4.34

4.4 Proof of Acceptance for Hypotheses

The acceptance of both hypotheses is based on the alignment between the results and the core propositions of each hypothesis.

Hypothesis 1 states that undergraduate students' preference between ChatGPT and Google depends on the type of academic task. The results clearly show that students prefer ChatGPT for functions such as writing and understanding academic content, while they rely more on Google for research and exam preparation. This distinction highlights that students perceive ChatGPT as a tool that aids in generating and comprehending the material, while Google is favoured for retrieving information and studying for exams. The data thus confirms that students' tool preference shifts based on the nature of the task, supporting the claim that their choices depend on the specific academic activity. Therefore, Hypothesis 1 is accepted, as the data shows a clear task-dependent distinction in tool preference.

Hypothesis 2 proposes that ChatGPT is the preferred choice for undergraduate students when working on assignments or conducting research. The findings indicate that students favour ChatGPT for these tasks, likely due to its ability to provide quick, responsive answers and enhance understanding through natural language interactions. ChatGPT's capacity for creativity and clarity makes it an appealing option for assignments and complex research activities. Although Google remains valuable for its search accuracy and breadth of information, ChatGPT's tailored assistance for in-depth learning and assignments positions it as the preferred tool in these contexts. The results support this preference, validating the claim that ChatGPT is more favoured for such academic tasks. Consequently, Hypothesis 2 is also accepted, as the data consistently demonstrates that students prefer ChatGPT for assignments and research.

In conclusion, both hypotheses are accepted based on the data, showing a clear task-based distinction in tool preference (supporting Hypothesis 1) and a preference for ChatGPT regarding assignments and research tasks (supporting Hypothesis 2). This evidence validates both hypotheses, demonstrating that students' use of ChatGPT and Google varies according to the academic task, with ChatGPT emerging as the favoured tool for more creative and interactive academic support.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.0 Chapter Overview

This chapter analyses the previous chapter's findings and addresses the research questions. It aims to identify the preference of undergraduate students for ChatGPT and Google in their learning environment and to investigate the impact of this preference on learning outcomes. Additionally, the chapter emphasises the significance of the study, acknowledges limitations for improvement, suggests recommendations for further research, and summarises the study's findings.

5.1 Discussion

The study delves into the preferences of undergraduate students for ChatGPT and Google within their learning environments, aiming to extract insights for a nuanced understanding in Chapter 4. Through a descriptive analysis, the exploration covers how students utilise these technology tools for assignment completion and research engagement. The comparative analysis highlights distinct preferences within the student population: 56% favouring ChatGPT due to quick responsiveness, natural language interaction, and creativity, while Google's draw was its search accuracy, expansive information access, and advanced voice search capabilities. Despite Google's more consistent usage rate, a gender-based preference split was observed - males strongly favoured ChatGPT, whereas females exhibited a balanced preference for ChatGPT and Google. This variation also extends to the type of academic tasks; Google was predominantly used for research and studying, whereas ChatGPT was chosen for essay or report writing and lecture material comprehension.

ChatGPT was appreciated for tailored, quick, and creative search results highlighting its varied strengths, while Google was lauded for its accuracy and voluminous information repository. These differentiations set the stage for a subtle competition, emphasising the complementary roles both play in catering to diverse student needs and preferences.

The second research question evaluates ChatGPT and Google's impacts on undergraduate educational outcomes. Findings reflected a positive perception of both tools enhancing the learning experience, with Google slightly edging over ChatGPT. A noteworthy majority endorsed AI's adoption in education, recognising its potential to augment learning experiences and broaden information access. Conversely, a minimal fraction expressed concerns over technological over-reliance and possible impacts on traditional learning paradigms.

To effectively link these findings with the literature review's insights, it is essential to consider how the students' preferences and the impact of ChatGPT and Google mirror the broader technological evolutions in education. The undergraduates' inclination towards ChatGPT aligns with the potential AI harbours for education, as Garcia and Seccadis (2014) discussed, emphasising digital tools in Virtual Learning Environments (VLEs) for enhancing teacher-student interactions. This reflection underscores ChatGPT's role in providing personalised assistance, paralleling the literature review's emphasis on Google's foundational role in information access. The nuanced gender-based and task-specific preferences further highlight the importance of diversifying technological tools within educational settings, as championed in the literature review.

Despite some AI dependency concerns, the optimistic view on integrating these technologies into learning spaces reinforces the advocated integration of applications like ChatGPT. It aligns with Su and Yang (2023) perspective on demystifying AI in educational

settings to enhance AI literacy among students. The study corroborates the findings by Bettayeb et al. (2024) on ChatGPT's multifaceted educational benefits, including fostering AI understanding, providing tailored support, and personalising feedback to boost engagement. This coherence between discussion insights and scholarly perspectives underscores a shared recognition of these technologies' transformative potential in education, illustrating how digital tools can significantly support and enrich learning experiences.

5.2 Implications

This study investigates the impact of ChatGPT and Google on undergraduate students by comparing their preferences for these tools and their influence on the learning environment. The results offer valuable insights for future research on undergraduate students' inclinations toward ChatGPT and Google in their educational settings.

This study reveals that undergraduate students favour AI tools such as ChatGPT. Additionally, it examines these tools' effects on undergraduate students' learning outcomes. This discovery highlights the need for broader integration of AI technologies in educational institutions to cater to students' requirements for personalised learning tools to offer tailored tutoring and learning materials based on their learning styles, progress, and needs.

As AI becomes more prevalent in education, traditional teaching approaches must be adjusted. Educators might increasingly utilise these tools to complement classroom instruction, prioritising the development of student's critical thinking and problem-solving abilities rather than solely delivering information. The educational system also needs to emphasise the cultivation of critical thinking to ensure that students can absorb the information provided by AI and analyse and evaluate it.

5.3 Limitations

There are some limitations to the results of this study. First, the sample may need to be broadened to represent all undergraduate students' diversity adequately. Students from different schools, majors, and grades may have different preferences, and the fact that the study focused on a specific group may affect the generalisability of the findings. In addition, students' choices may be affected by subjective factors such as personal habits, familiarity with the tool, and experience with it, which may lead to overly positive or negative perceptions of a tool by some students, affecting the objectivity of the study results. At the same time, there are significant differences between ChatGPT and Google in terms of functions and uses, with the former being a generative AI and the latter a search engine. A direct comparison between the two may need to be made aware of their essential differences in design and application, limiting the applicability of the study's findings. Given these limitations, more than this study's results are needed to conclude undergraduate students' preferences for ChatGPT vs. Google in their learning environments.

5.4 Recommendations

Future researchers could conduct detailed analyses within specific disciplines to address the sample issue and explore potential differences in student preferences when using ChatGPT and Google. They should also analyse the reasons behind these differences. Additionally, researchers can delve into the ethical issues and potential biases in the information provided by ChatGPT and Google, understand how these biases impact students' learning and cognitive processes, and propose appropriate solutions. Furthermore, future researchers can enhance the research methodology by using an experimental design and integrating quantitative and qualitative research methods to gain more comprehensive insights.

5.5 Conclusion

In this study, we aim to explore undergraduate students' preference for using ChatGPT and Google in their learning environments and to evaluate the impact of these tools on their learning outcomes. We surveyed 50 undergraduate students and found that most preferred ChatGPT because of its quick response, natural language interaction, and creativity. Male respondents show a clear preference for ChatGPT. However, Google was a close second in student preference due to its search accuracy, extensive database of information, and enhanced voice search capabilities.

When analysing gender preferences, we found that males were likelier to use ChatGPT, while females had a more balanced preference between ChatGPT and Google. Additionally, undergraduate students' intentions to use these two tools varied across learning tasks. They prefer to use Google for research and study-related tasks while considering ChatGPT a powerful tool for writing papers and reports and helping understand lecture material.

Respondents generally agreed that ChatGPT and Google enhance the learning experience, although Google left a slightly better impression overall. Most respondents also express a willingness to adopt AI tools in education, citing their potential to enhance the learning experience and provide access to rich information resources.

In conclusion, the study suggests that ChatGPT and Google have unique strengths, and students will choose the right tool based on their specific needs. Future educational strategies should consider effectively integrating these two tools to maximise their educational potential and better support student learning and development.

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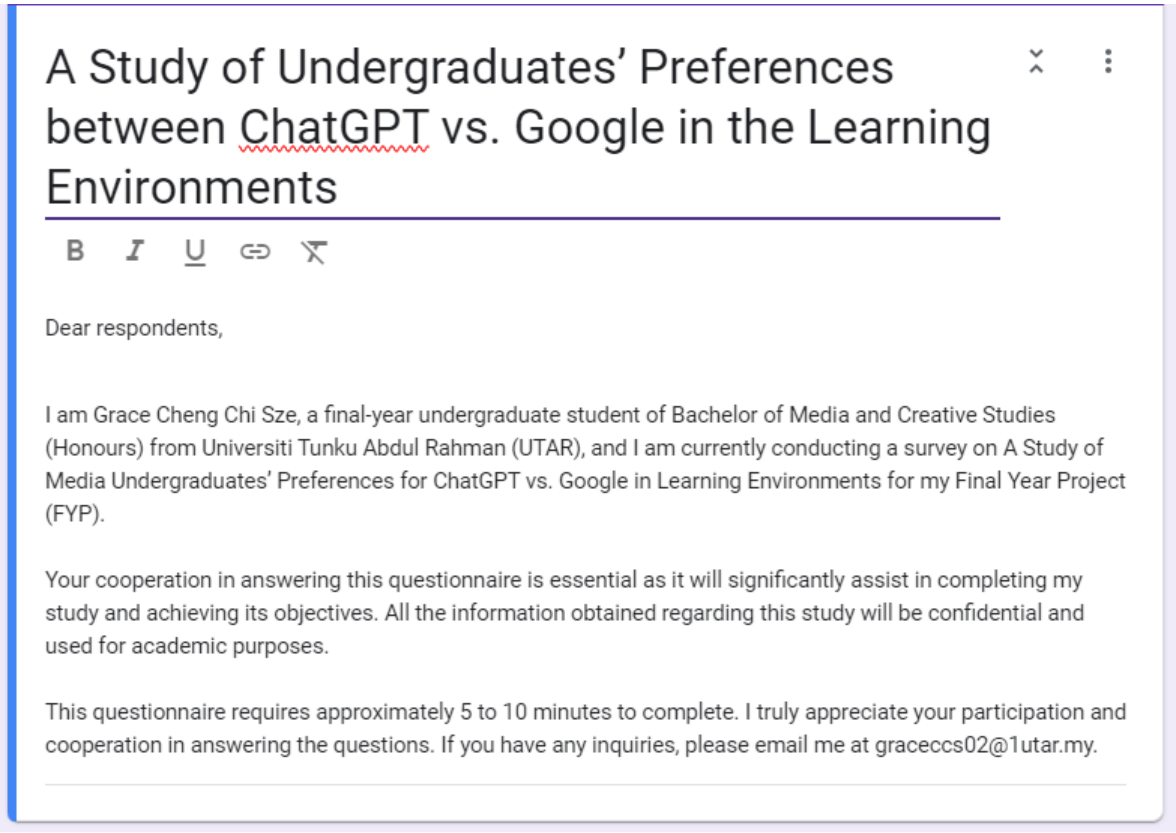
APPENDIX A

QUESTIONNAIRE



A Study of Undergraduates' Preferences between ChatGPT vs. Google in the Learning Environments

Dear respondents,

I am Grace Cheng Chi Sze, a final-year undergraduate student of Bachelor of Media and Creative Studies (Honours) from Universiti Tunku Abdul Rahman (UTAR), and I am currently conducting a survey on A Study of Media Undergraduates' Preferences for ChatGPT vs. Google in Learning Environments for my Final Year Project (FYP).

Your cooperation in answering this questionnaire is essential as it will significantly assist in completing my study and achieving its objectives. All the information obtained regarding this study will be confidential and used for academic purposes.

This questionnaire requires approximately 5 to 10 minutes to complete. I truly appreciate your participation and cooperation in answering the questions. If you have any inquiries, please email me at graceccs02@1utar.my.

Section A: Demographic

Description (optional)

1. Gender *

- Male
- Female

2. Age *

- 18-21
- 22-25

3. Academic Level *

- Foundation
- Undergraduate

Section B: Preferences of Undergraduate Students

Description (optional)

4. What is your preference when working on an assignment or conducting research? *

- ChatGPT
- Google

5. How frequently do you use for learning purposes? *

	Never	Rarely	Occasionally	Frequently	Always
ChatGPT					
Google					

6. What features do you think each possesses? *

	ChatGPT	Google
Quick responses	○	○
Natural language interaction	○	○
Learning recommendations	○	○
Creativity	○	○
Search accuracy	○	○
Vast information database	○	○
Structured search results	○	○
Voice Search	○	○

Section C: Impact of ChatGPT and Google in Undergraduate Learning Environments

Description (optional)

7. What do you use for the following purposes? *

	ChatGPT	Google
Researching academic topics	○	○
Writing essays or reports	○	○
Studying for exams	○	○
Understanding lecture material	○	○

8. How important are they in your learning process? *

	Not important ...	Slightly import...	Moderately im...	Very important	Extremely imp...
ChatGPT	○	○	○	○	○
Google	○	○	○	○	○

9. How far does it enhance your learning experience compared to traditional methods? *

	Not at all	Slightly	Moderately	Very much	Extremely
ChatGPT	○	○	○	○	○
Google	○	○	○	○	○

Section D: Willingness to Integrate AI in Education

Description (optional)

10. Would you prefer an increased integration of AI tools like ChatGPT and Google in your future learning environments? *

- Yes
- No

11. If **YES**, why do you prefer integrating AI tools like ChatGPT and Google in your learning environments?

- They enhance my learning experience
- They make learning more efficient
- They provide quick and accurate information
- Other...

12. If **NO**, why do you **NOT** prefer integrating AI tools like ChatGPT and Google in your learning environments?

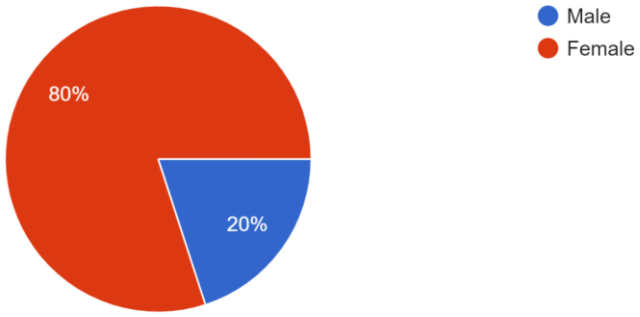
- They complicate the learning process
- They are unnecessary for my learning needs
- They reduce the development of critical thinking skills
- Other...

APPENDIX B

QUESTIONNAIRE RESULT

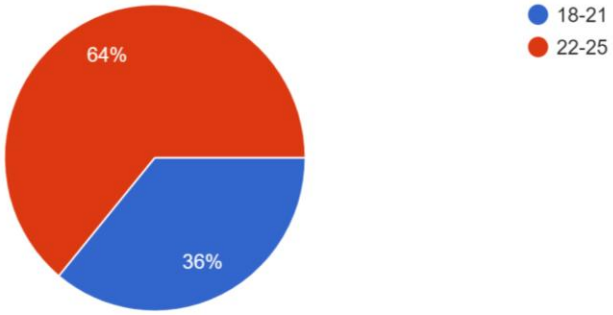
1. Gender

50 responses



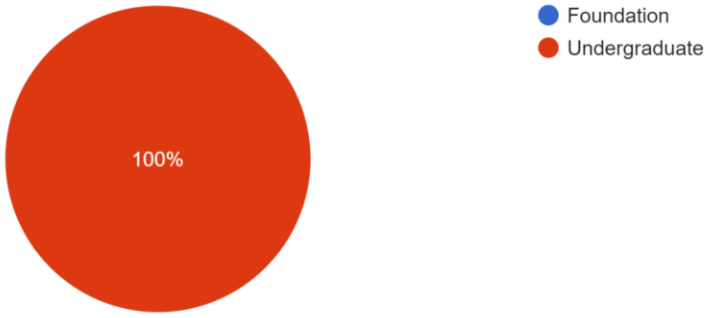
2. Age

50 responses



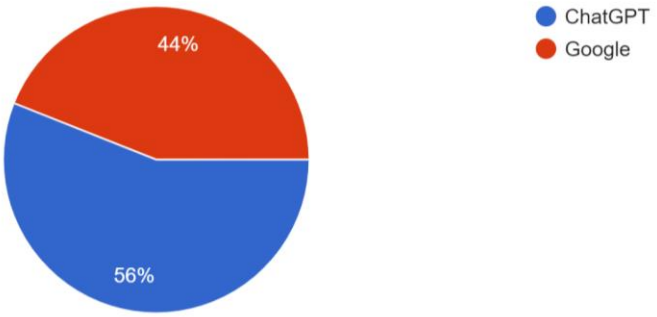
3. Academic Level

50 responses

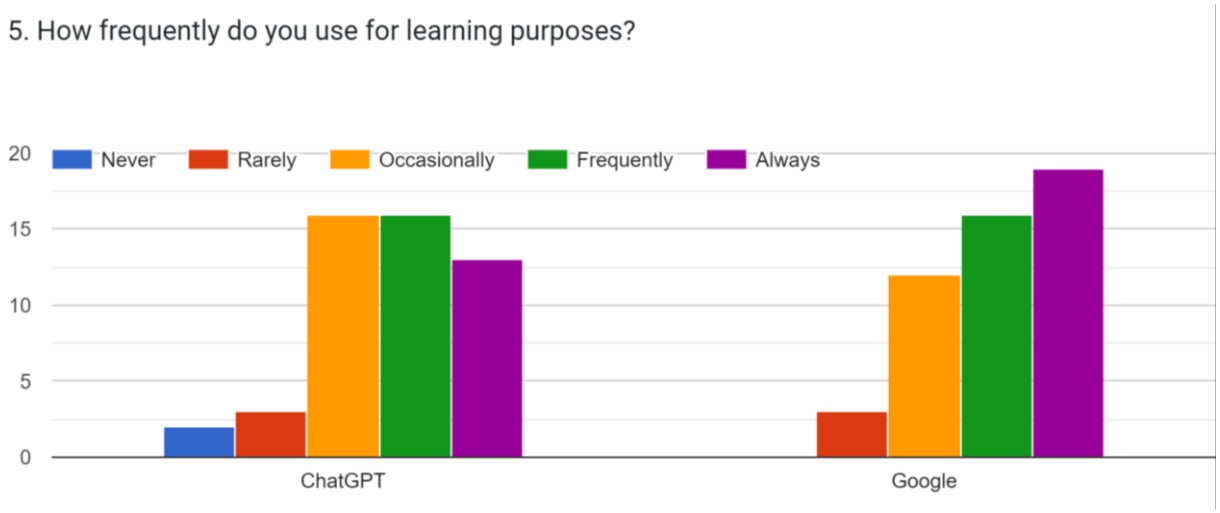


4. What is your preference when working on an assignment or conducting research?

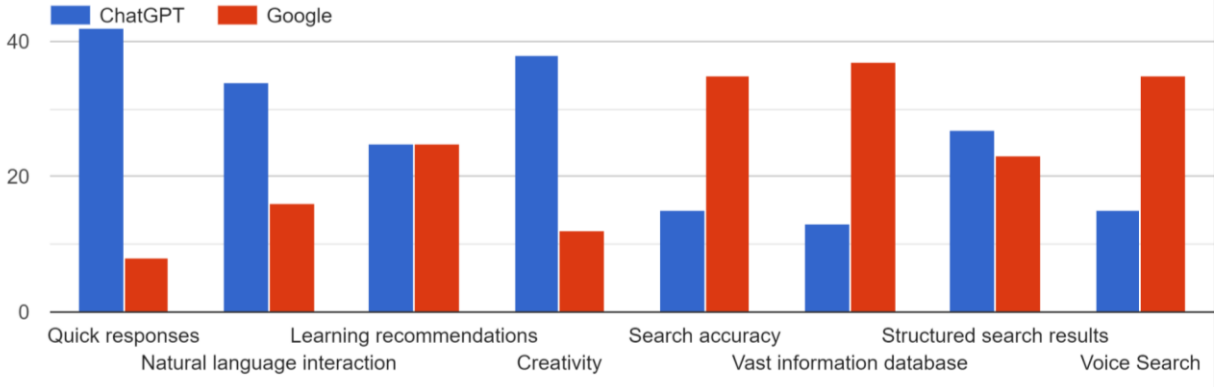
50 responses



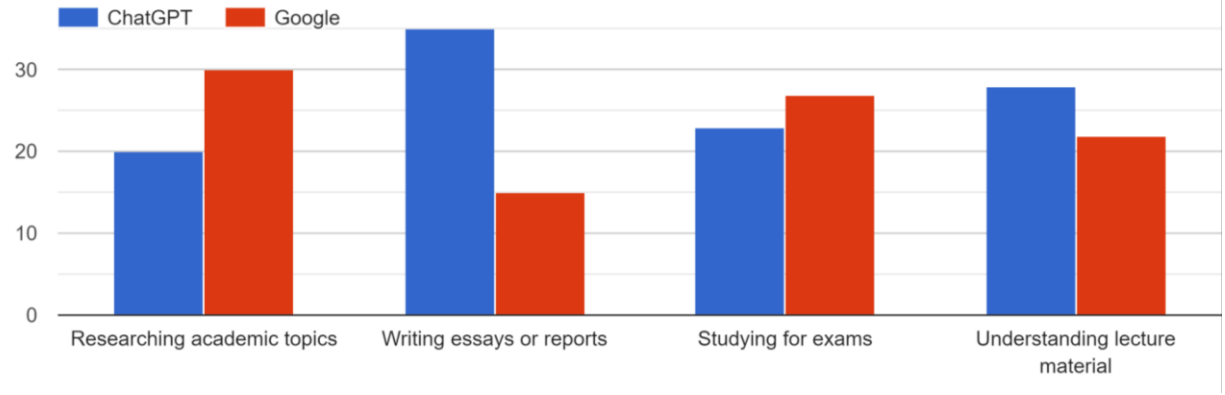
5. How frequently do you use for learning purposes?



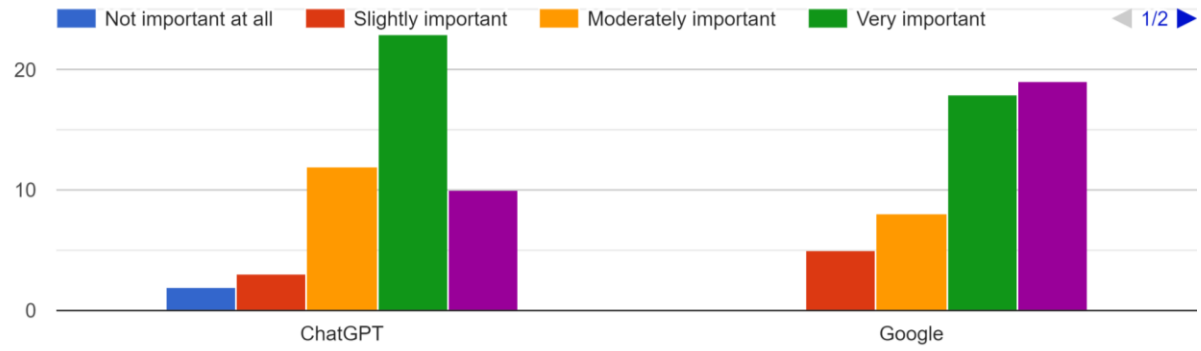
6. What features do you think each possesses?



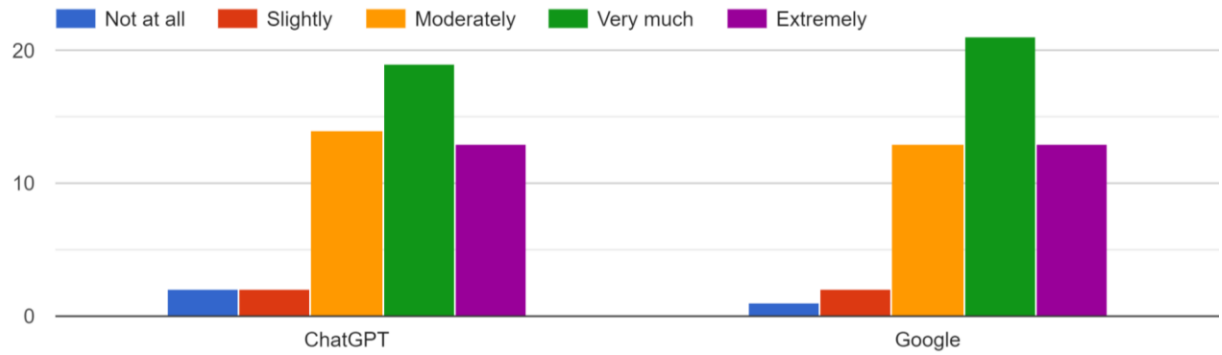
7. What do you use for the following purposes?



8. How important are they in your learning process?

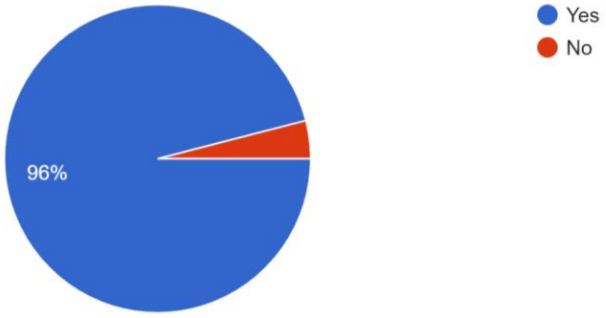


9. How far does it enhance your learning experience compared to traditional methods?



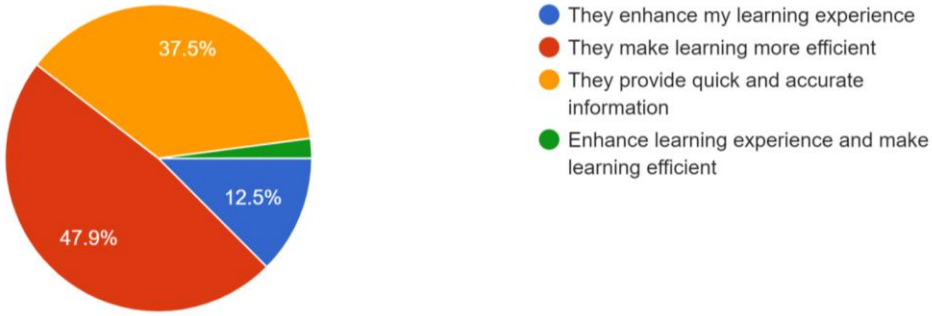
10. Would you prefer an increased integration of AI tools like ChatGPT and Google in your future learning environments?

50 responses



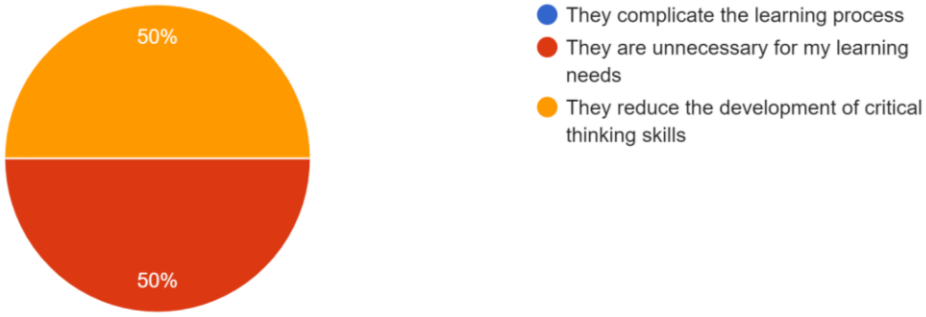
11. If YES, why do you prefer integrating AI tools like ChatGPT and Google in your learning environments?

48 responses



12. If NO, why do you NOT prefer integrating AI tools like ChatGPT and Google in your learning environments?

2 responses



APPENDIX C

CROSSTABULATION RESULT

Gender * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Gender	Male	7	3	10
	Female	21	19	40
Total		28	22	50

Age * Frequent_ChatGPT Crosstabulation

Count

		Age		
		18-21 years	22-25 years	Total
Frequent_ChatGPT	Never	1	1	2
	Rarely	1	2	3
	Occasionally	7	9	16
	Frequently	5	11	16
	Always	4	9	13
Total		18	32	50

Age * Frequent_Google Crosstabulation

Count

		Age		
		18-21 years	22-25 years	Total
Frequent_Google	Rarely	3	0	3
	Occasionally	5	7	12
	Frequently	4	12	16
	Always	6	13	19
Total		18	32	50

AcademicLevel * Purpose_Researching_Academic_Topics Crosstabulation

Count

		Purpose_Researching_Academic_Topics		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	20	30	50
Total		20	30	50

AcademicLevel * Purpose_Writing_Essays_Or_Reports Crosstabulation

Count

		Purpose_Writing_Essays_Or_Reports		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	35	15	50
Total		35	15	50

AcademicLevel * Purpose_Studying_For_Exams Crosstabulation

Count

		Purpose_Studying_For_Exams		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	23	27	50
Total		23	27	50

AcademicLevel * Purpose_Understanding_Lecture_Material Crosstabulation

Count

		Purpose_Understanding_Lecture_Material		
		ChatGPT	Google	Total
AcademicLevel	Undergraduate	28	22	50
Total		28	22	50

Features_Quick_Response * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Quick_Response	ChatGPT	25	17	42
	Google	3	5	8
Total		28	22	50

Features_Learning_Recommendations * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Learning_Recommendations	ChatGPT	19	6	25
	Google	9	16	25
Total		28	22	50

Features_Creativity * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Creativity	ChatGPT	22	16	38
	Google	6	6	12
Total		28	22	50

Features_Search_Accuracy * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Search_Accuracy	ChatGPT	12	3	15
	Google	16	19	35
Total		28	22	50

Features_Vast_Information_Database * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Vast_Information_Database	ChatGPT	10	3	13
	Google	18	19	37
Total		28	22	50

Features_Structured_Search_Results * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Structured_Search_Results	ChatGPT	20	7	27
	Google	8	15	23
Total		28	22	50

Features_Voice_Search * Preferences Crosstabulation

Count

		Preferences		
		ChatGPT	Google	Total
Features_Voice_Search	ChatGPT	10	5	15
	Google	18	17	35
Total		28	22	50

Importance_ChatGPT * Frequent_ChatGPT Crosstabulation

Count

		Frequent_ChatGPT					
		Never	Rarely	Occasionally	Frequently	Always	Total
Importance_ChatGPT	Not important at all	2	0	0	0	0	2
	Slightly important	0	2	1	0	0	3
	Moderately important	0	0	5	6	1	12
	Very important	0	0	10	8	5	23
	Extremely important	0	1	0	2	7	10
Total		2	3	16	16	13	50

Importance_Google * Frequent_Google Crosstabulation

Count

		Frequent_Google				
		Rarely	Occasionally	Frequently	Always	Total
Importance_Google	Slightly important	2	0	3	0	5
	Moderately important	0	7	1	0	8
	Very important	0	4	10	4	18
	Extremely important	1	1	2	15	19
Total		3	12	16	19	50

Willingness_to_integrate_AI_tools * Extent_ChatGPT Crosstabulation

Count

		Extent_ChatGPT					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
Willingness_to_integrate_AI_tools	Yes	2	2	13	18	13	48
	No	0	0	1	1	0	2
Total		2	2	14	19	13	50

Willingness_to_integrate_AI_tools * Extent_Google Crosstabulation

Count

		Extent_Google					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
Willingness_to_integrate_AI_tools	Yes	0	2	12	21	13	48
	No	1	0	1	0	0	2
Total		1	2	13	21	13	50

Gender * Willingness_to_integrate_AI_tools Crosstabulation

Count

		Willingness_to_integrate_AI_tools		
		Yes	No	Total
Gender	Male	9	1	10
	Female	39	1	40
Total		48	2	50

AcademicLevel * Extent_ChatGPT Crosstabulation

Count

		Extent_ChatGPT					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
AcademicLevel	Undergraduate	2	2	14	19	13	50
Total		2	2	14	19	13	50

AcademicLevel * Extent_Google Crosstabulation

Count

		Extent_Google					
		Not at all	Slightly	Moderately	Very much	Extremely	Total
AcademicLevel	Undergraduate	1	2	13	21	13	50
Total		1	2	13	21	13	50

APPENDIX D

RELIABILITY TEST RESULT

Reliability Statistics

Cronbach's Alpha	N of Items
.770	6

APPENDIX E

TURNITIN REPORT