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Students Perception of Using AI Tools as a Research Work or Course Work Assistant

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Abstract: With emphasis on researchers and course participants, this research fills a significant gap in the literature by thoroughly analyzing the cohabitation and interaction of traditional and AI-driven tools in response to the changing information retrieval scenario. The purpose of the study is to investigate how people think about and use ChatGPT and Google in learning environments. Information retrieval has been revolutionized by AI technologies, most notably ChatGPT, which provides academics and students with dynamic platforms for ideation, drafting, and generating code samples. The study, which used an online poll to collect data, shows that 60.87% of researchers use ChatGPT daily, casting doubt on the idea that scholarly research is only driven by AI technologies. Even with ChatGPT's success, Google is still an essential tool for academics. Participants in the course demonstrate a strong reliance on both tools; 40 of them reported utilizing ChatGPT daily. ChatGPT is helpful for homework, but there are drawbacks, particularly when it comes to solving mathematical issues. The main source for early learning is still Google Search. This study closes a significant knowledge gap on the coexistence of AI tools and conventional search engines by offering insightful information on a variety of tool preferences, daily usage patterns, and efficacy perceptions. The study highlights the subjectivity of user preferences while highlighting how important tool usability is to tool adoption.

Keywords: AI tools, ChatGPT, Goggle Search, AI in research work, AI in course work.

Research Paper

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1. INTRODUCTION

The use of artificial intelligence (AI) techniques has become crucial in changing the academic and educational landscape in the quickly evolving field of information retrieval. Artificial Intelligence (AI) technologies, which can mimic intelligent behavior, have become indispensable resources for both academics and students [1, 2]. So, it is important to know how people perceive and use two popular tools including ChatGPT and Google for information retrieval in academic and instructional settings.

AI tools are a broad category of technology intended to simulate cognitive processes linked to human intelligence [3]. These technologies use algorithms and computer models to carry out operations like problem-solving, judgment, and natural language understanding that have historically required human intelligence [4]. Artificial intelligence (AI) tools are being used extensively in academia, changing research methods and teaching approaches in several ways [5]. Traditional research procedures become more innovative and efficient with the use of AI tools. With the use of these technologies, researchers may extract valuable insights from large datasets by assisting them with data analysis, pattern detection, and information synthesis [6]. Research can be improved by using AI-driven analytics tools, which can quickly identify trends, correlations, and anomalies.

Artificial intelligence (AI) tools are useful tools that students can use in the classroom [7]. By accommodating different learning preferences and styles, they enable individualized learning experiences. AI-powered learning systems can provide personalized recommendations for reading lists, tests, and interactive lessons [8]. Furthermore, AI tools help in the organizing and synthesis of course-related content in the context of information retrieval, allowing effective knowledge acquisition and helping students understand complicated subjects [9].

Particularly in the context of information retrieval, ChatGPT stands out as a transformational AI tool. The application provides researchers with a dynamic platform for ideation, research paper section drafting, and even snippet generation of code. It is a useful tool for navigating challenging study topics because of its adaptability in comprehending and answering natural language questions [10]. ChatGPT functions as a customized virtual assistant for students, offering on-demand clarifications, supporting the creation of organized answers, and even helping with creative writing assignments. With its capacity to comprehend context and produce material that is pertinent to it, ChatGPT is positioned as a helpful resource for students who need help with their assignments quickly [11].

The use of AI tools in academic workflows has drawn more attention in the past few years. Researchers have welcomed tools like ChatGPT for information retrieval and summarization since they are at the forefront of knowledge generation. The study by Owan *et al*., [12] underlined the necessity to investigate the preferences and difficulties faced by researchers in implementing these tools, as well as the growing significance of AI-driven solutions in scholarly activities. In academic research, Google is still a mainstay, even if ChatGPT has gained popularity. Google Search is an essential tool for researchers, as evidenced by the many studies that highlight how important it is for finding relevant and correct material. There are concerning user preferences, usability, and perceived efficacy when comparing these well-established platforms with the new AI solutions [13].

The key element determining tool preferences turns out to be user-friendliness. When Gutierrez Lopez *et al*., [14] examine user experiences with information retrieval tools, they highlight the range of viewpoints that demonstrate how subjective this component is. It becomes essential to comprehend the dynamics of user-friendliness to identify the elements that lead to the uptake and continued usage of both conventional platforms like Google and AI tools like ChatGPT. Furthermore, the difficulties with using ChatGPT—such as its limitations when it comes to addressing mathematical problems—reflect the conclusions of Tyson *et al*., [15], who investigated the difficulties users had incorporating AI technologies into their workflows. This shows how users and AI technology interact in a more complex way and highlights the significance of resolving issues to improve usability. One common element in the research is the importance of Google Search for course participants throughout their early learning phases [16]. Google Search is still a valuable resource for basic knowledge even with the introduction of AI capabilities, proving its continuous applicability in educational settings.

Few studies comprehensively examine the coexistence and interaction between traditional search engines and new artificial intelligence tools, despite the abundance of research elucidating the preferences and issues associated with each. Studies that already exist frequently portray AI tools and conventional search engines as mutually exclusive options, ignoring the many ways in which users may combine them. By delivering a thorough examination of the concurrent usage of ChatGPT and Google, this study seeks to close this knowledge gap and provide a more thorough understanding of how these tools complement or compete with one another in users' information retrieval workflows. In several important areas, this research significantly adds to the body of information already in existence. First, with a noteworthy 60.87% reporting everyday usage, it offers unique insights into the various ways researchers integrate ChatGPT into their regular routines. The study challenges the idea that developing AI technologies alone are the only means of conducting scholarly research by highlighting Google's continued value as a vital resource. Furthermore, the study explores the diverse experiences of the students and finds that, despite obstacles, ChatGPT is utilized extensively in their coursework. The study provides a comprehensive knowledge of how user preferences, perceptions of user-friendliness, and efficacy assessments influence the integration of AI tools in educational contexts by shedding light on their intricacies. This research fills a gap in the literature and adds to a more thorough understanding of the information retrieval environment by highlighting the cohabitation and possible benefits of AI-driven tools and traditional search engines. This sophisticated viewpoint is essential for directing upcoming advancements in the incorporation of AI in academic and instructional settings.

2. METHODS

2.1 Data Collection Procedure

An online survey instrument licensed by the institution was used to run the survey. To obtain authorization to inform students about the chance to participate in study, the lead researcher contacted instructors of graduate and undergraduate courses. Following permission, a link to the online survey was sent to prospective participants, which included course participants and graduate and undergraduate researchers. Before answering the survey questions, participants had to read and acknowledge the informed consent before accessing the survey. The survey's first question separated respondents according to whether they were taking courses at different US University or working as researchers. Fourteen specific questions were included in the study as shown in Figure 1 to find out how respondents felt about Google and ChatGPT’s necessity in their daily life. Responses from participants were guaranteed to remain private.

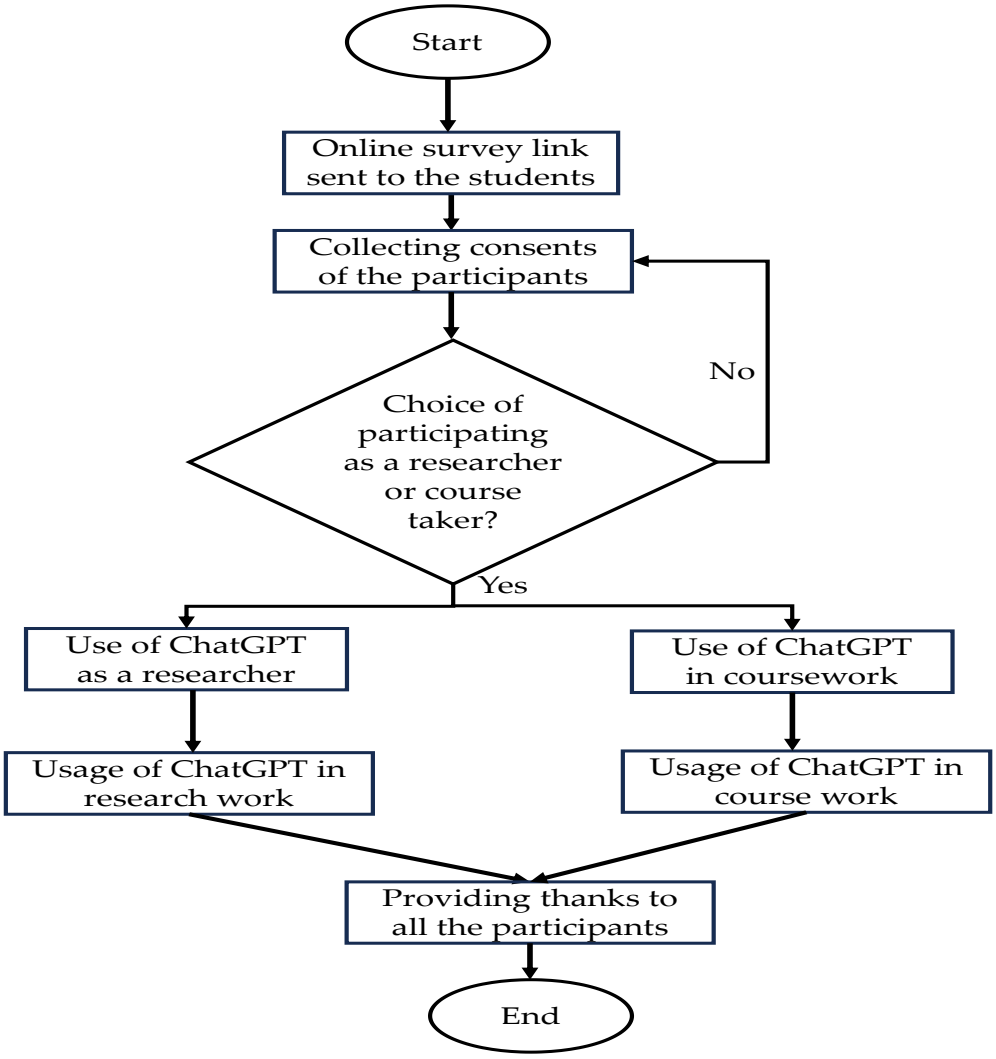

Figure 1: Data collection method

2.2 Data Preparation and Cleaning

The average age of the participants was 22.73 years. There were more females (n = 79: 65.83%) than males (n = 41: 34.16%) in the sample. Majority of the participants identified themselves as Asian (n = 63: 52.5%), followed by Hispanic or Latino (n = 37: 30.83%), White American (n = 12: 10%), African American (n = 2: 1.67%), and other racial/ethnic identities (n = 6: 5%). In the beginning, the online survey received responses from 207 participants, comprising 135 undergraduate students and 72 graduate students who were actively involved in courses and research at Different US University in Texas. Certain procedures were put in place to weed out unusable responses to guarantee data quality. Initially, respondents were asked if they had ever completed the survey before, which resulted in the identification and exclusion of 17 respondents. Second, 70 participants were eliminated from the analysis because they were unable to reply to every question on the survey. After this screening procedure, 120 eligible participants including 46 researchers and 74 course participants made up the final sample. The participants' average age was 22.73 years. Within the sample, there were more females (n = 79: 65.83%) than males (n = 41: 34.16%). As for racial/ethnic identities, most participants (n = 63: 52.5%) identified as Asian, followed by Hispanic or Latino (n = 37: 30.83%), White American (n = 12: 10%), African American (n = 2: 1.67%), and other (n = 6: 5%).

2.3 Measures

The approaches that have been established in the literature were the source of inspiration for the measures used in this study to evaluate the attitudes and preferences of researchers toward information retrieval technologies, particularly ChatGPT and Google Search. Questions were created to investigate the frequency of tool utilization and user-friendliness perceptions to assess participants' overall usage habits. The participants' engagement was measured using a categorical scale to record their responses on a daily, weekly, monthly, rarely, or never Furthermore, the perceived efficacy of ChatGPT and Google in supporting research activities was assessed using a comparative efficiency rating scale that ranged from 1 to 5 (1- not effective at all, 2- Slightly effective, 3- Moderately effective, 4-Very effective, 5- Extremely effective) as described in Table 1. The Information Retrieval portion aimed to gather

information about participants' opinions regarding the tools' suitability for providing pertinent and precise information, their effectiveness in summarizing data, and any drawbacks or difficulties they may have had. Questions assessing the smoothness of integration, complementarity with the research process, influence on critical assessment abilities, and flexibility to meet different research requirements were used to investigate integration with research workflow. Finally, the section on Future Preferences sought to ascertain the preferences of the participants regarding future tool usage. It offered a thorough evaluation of their expected tool preferences for their research endeavors by allowing them to express a preference for ChatGPT, Google Search, both equally, or neither.

Table 1: Survey questions for researchers

Major survey questions for researcher	Responding options for researcher
How frequently do you utilize ChatGPT to find research-related information?	Daily, Weekly, Monthly, Rarely, Never
How frequently do you conduct academic research using Google?	Daily, Weekly, Monthly, Rarely, Never
Which tool do you find more user-friendly for obtaining information: ChatGPT or Google?	ChatGPT, Google, Both equally, Neither
How helpful is ChatGPT for your research work, in your opinion, on a scale of 1 to 5?	1 (Not effective at all), 2 (Slightly effective), 3 (Moderately effective),4 (Very effective), 5 (Extremely effective)
How useful is Google for you in supporting your research, on a scale of 1 to 5?	1 (Not effective at all), 2 (Slightly effective), 3 (Moderately effective),4 (Very effective), 5 (Extremely effective)
Which tool—Google or ChatGPT—does the user believe offers more accurate and relevant information?	ChatGPT, Google, Both equally, Neither
Which tool—Google or ChatGPT—is better at presenting and summarizing information, in your opinion?	ChatGPT, Google, Both equally, Neither
Have there been any restrictions or difficulties using ChatGPT to retrieve information?	Yes, No
Have there been any restrictions or difficulties using Goggle to retrieve information?	Yes, No
Which tool—ChatGPT or Google—do you believe best supports your research process?	ChatGPT, Google, Both equally, Neither
In comparison to Google, how does ChatGPT improve or detract from your capacity to critically assess information?	Enhances, Hinders, No impact, Not applicable
Which tool—Google or ChatGPT—do you think is more flexible in meeting the demands of various research scenarios?	ChatGPT, Google, Both equally, Neither
Which tool, out of ChatGPT and Google, would you rather utilize more often going forward, based on your current experience?	ChatGPT, Google, Both equally, Neither

Measures used in this study to evaluate how Different US University students use information retrieval tools—ChatGPT and Google, in particular—were carefully crafted to capture different aspects of their involvement in their courses. Within the general usage section, participants' impressions of the tool's user-friendliness and frequency of usage were gathered, along with information on how frequently they used it. An intricate picture of the individuals' interaction patterns was possible because of the categorical scale responses, which ranged from every day to never. To assess the perceived usefulness of both ChatGPT and Google in assisting with coursework, additional comparative user-friendliness questions and Likert-type scales were used, allowing participants to provide more complex assessments of each tool's efficacy (Table 2). In the Information Retrieval portion that followed, participants were asked to explain how they felt the tools provided accurate and pertinent information, how easy it was to comprehend and summarize the course contents, and whether there were any restrictions or difficulties in using them. The investigation of integration with coursework encompassed several aspects, including smooth integration, complementarity with the coursework process, influence on understanding and application of course materials, and adaptability to various coursework requirements. To ascertain the participants' expected preferences for tool usage, the Future Preferences section offered choices for indicating a preference for ChatGPT, Google, both equally, or none. When combined, these extensive measurements offer a more complex picture of the preferences and experiences college students have when using information retrieval tools for coursework.

Table 2: Survey questions for course takers

Major survey questions for course takers	Responding options for course takers
How frequently do you utilize ChatGPT to find course work related information?	Daily, Weekly, Monthly, Rarely, Never
How frequently do you conduct academic course work using Google?	Daily, Weekly, Monthly, Rarely, Never
Which tool do you find more user-friendly for obtaining information: ChatGPT or Google?	ChatGPT, Google, Both equally, Neither
How helpful is ChatGPT for your course work, in your opinion, on a scale of 1 to 5?	1 (Not effective at all), 2 (Slightly effective), 3 (Moderately effective),4 (Very effective), 5 (Extremely effective)
How useful is Google for you in supporting your course work, on a scale of 1 to 5?	1 (Not effective at all),2 (Slightly effective), 3 (Moderately effective),4 (Very effective), 5 (Extremely effective)
Which tool—Google or ChatGPT—does the user believe offers more accurate and relevant information?	ChatGPT, Google, Both equally, Neither
Which tool—Google or ChatGPT—is better at presenting and summarizing information, in your opinion?	ChatGPT, Google, Both equally, Neither
Have there been any restrictions or difficulties using ChatGPT to retrieve information?	Yes, No
Have there been any restrictions or difficulties using Goggle to retrieve information?	Yes, No
Which tool—ChatGPT or Google—do you believe best supports your course work process?	ChatGPT, Google, Both equally, Neither
In comparison to Google, how does ChatGPT improve or detract from your capacity to critically assess information?	Enhances, Hinders, No impact, Not applicable
Which tool—Google or ChatGPT—do you think is more flexible in meeting the demands of various course work scenarios?	ChatGPT, Google, Both equally, Neither
Which tool, out of ChatGPT and Google, would you rather utilize more often going forward, based on your current experience?	ChatGPT, Google, Both equally, Neither

3. RESULTS DISCUSSION

3.1 Researcher Usage of ChatGPT

The survey results provide insightful information on the ways in which researchers use and perceive ChatGPT and Google as information retrieval tools. In terms of usage frequency, most respondents (i.e., 60.87%) stated that they utilized ChatGPT every day, while 39.13% reported using it once a week. All the researchers, however, stated that they often use Google for scholarly research. Out of the participants, 54.35% thought ChatGPT was more user-friendly, 36.96% said Google was more user-friendly, and 8.69% thought both programs were equally user-friendly. Remarkably, eighteen researchers assessed ChatGPT as very effective, fifteen as extremely effective, with thirteen researchers rating it as moderately effective, on the efficacy scale. Twenty-one researchers deemed Google to be moderately effective, fourteen to be extremely effective, and eleven to be very effective.

Perceptions and experiences of researchers with information retrieval technologies, particularly ChatGPT and Goggle Search, are revealed by the survey results, which provide fascinating insights. Only 10.87% of academics preferred ChatGPT when asked which tool was better at giving accurate and relevant information. This is a huge minority—89.13% of them—over Google Search. On the other hand, ChatGPT received high marks for being more effective than Google Scholar at summarizing and presenting information; in fact, all researchers expressed this opinion. More than sixty nine percent of the researchers pointed out difficulties in solving mathematical issues when asked about any restrictions or difficulties they had when utilizing ChatGPT for information retrieval. Interestingly, more than forty one percent of respondents said that their primary source for learning about research subjects at first is Google Search.

When asked which tools worked better to support their research process, thirty researchers said that Google and ChatGPT were equally useful, while seven said that ChatGPT was superior and nine said that Google Search was superior. In terms of the influence on critical evaluation, a sizable majority of researchers (63.04%) said ChatGPT improved their capacity to critically assess information when compared to Google, whereas 15.22% thought it hampered and 21.74% said there was no obvious impact. Regarding adaptability to various research requirements, twenty-two researchers said ChatGPT was more versatile than Google Search, while twenty-four thought both tools were equally versatile. In terms of future, noteworthy thirteen researchers said they would want to use ChatGPT more often, nine said they preferred Google Search, and

twenty-four said they preferred both tools equally. The findings above show the varied viewpoints held by researchers and draw attention to their perceived preferences and strengths that affect how they use information retrieval tools during the research process.

3.2. Course Taker's Usage of ChatGPT

The survey results provide important context for understanding how course participants use ChatGPT and Google as information retrieval tools and how they perceive them. When it came to the frequency of use, 40 respondents said they used ChatGPT every day, while 34 said they used it once a week. On the other hand, every course participant stated that they frequently utilize Google for academic research. Views on how user-friendly the two tools differed, with 45.94% supporting ChatGPT, 37.84% supporting Google, and 16.22% considering both to be equally user-friendly. Remarkably, 58.11% of participants in the course takers found ChatGPT to be very or extremely effective, compared to 39.89% who thought it was only okay. According to 60.81% of respondents, Google was very effective, 8.11% responded for highly effective, and 31.08% responded for moderately successful.

The survey's findings provide insight into how course participants see and use information retrieval technologies in general—ChatGPT and Google Search in particular. Just 8 respondents thought ChatGPT was a better source of accurate and pertinent information, whereas 66 respondents thought Google Search was a better option. On the other hand, every participant recognized ChatGPT's effectiveness in providing and summarizing data in their course work. More than 77% of course participants mentioned having trouble answering mathematical problems when they encountered restrictions or difficulties when using ChatGPT for information retrieval. Interestingly, over 96% of people used Google Search as their main information source when they first wanted to learn about course work.

More than seventy percent of course participants said that Google and ChatGPT are equally effective for supporting their schoolwork. Of those, more than twenty percent preferred ChatGPT, while more than nine percent preferred Google Search. A substantial 55 respondents said ChatGPT improved their critical evaluation impact, compared to 17 respondents who said it hampered and 2 respondents who saw no discernible change. More than 33% said both tools were similarly versatile, and over 41% thought ChatGPT was more versatile than Google Search in terms of adaptation to various coursework demands. Looking ahead, 51 respondents said they would prefer to use ChatGPT more frequently, 19 respondents said they prefer Google Search, and 4 respondents said they preferred both tools equally.

4. Research Contributions and Key Findings

The main contributions of this research are providing insights into the diverse ways that academics use and view ChatGPT and Google as information retrieval tools. Notably, a significant portion of researchers (60.87%) use ChatGPT every day, highlighting how frequently they include it in their research processes. In contrast, most academics believe that Google is an essential tool for conducting scholarly research, highlighting the fact that both resources should be included in a researcher's toolset. There are differences in how user-friendly people think; more than half prefer ChatGPT. Notably, a sizable percentage of researchers rated ChatGPT as very or extremely effective at summarizing and presenting information, indicating that it was highly effective at this task. These results provide important insights into how researchers retrieve information by illuminating their preferences, daily usage patterns, and perceptions of the usefulness of ChatGPT and Google.

The results of the survey offer important new information on how students use Google and ChatGPT for information retrieval. ChatGPT is widely used by course participants; 40 respondents confirmed that they use it every day. Participants in the course still frequently use Google for academic research, highlighting the platform's importance in their assignments. Views about user-friendliness are divided, with a significant number supporting ChatGPT. ChatGPT is helpful in assisting with course work because more than half of participants said it was very or extremely helpful. However, a sizable portion of respondents draw attention to the difficulties in using ChatGPT to solve mathematical problems. For most participants, Google Search is still their first point of reference when learning about course material, even with these difficulties.

5. CONCLUSIONS

This is the first time in literature that we conduct research based on researchers and course takers' view on using ChatGPT and Goggle in their daily life. The survey's results provide insight into how academics and students use Google and ChatGPT as information retrieval tools. Even though a significant percentage of scholars use ChatGPT in their daily routines, confirming its alleged efficacy in information summarization, Google continues to be a reliable source for academic work. Different people have different opinions about how user-friendly a tool is, which emphasizes how subjective tool preferences are. Crucially, the difficulties noted—such as ChatGPT's limits when it comes to solving mathematical puzzles—highlight the complex interaction that exists between users and these resources. Despite difficulties, the course participants' dependence on Google Search for early learning highlights the platform's ongoing importance. Future researchers can conduct surveys of human's usage of other AI tools in their daily life. Ultimately, this study emphasis on a variety of preferences and points of view helps to provide

a more complex picture of how students and researchers in different fields traverse the variety of information retrieval methods available.

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