

Usage of Artificial Intelligence (AI) Tools for Academic Activities by Undergraduate Students: Quantitative Study at the Sri Lanka Institute of Information Technology (SLIIT) Library

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ABSTRACT

AI is revolutionizing various fields in Sri Lanka, including academic libraries. Understanding how undergraduates use AI tools for academic activities is crucial for enhancing library services. This study intended to explore, usage of AI tools for academic activities among final-year undergraduates. The study population was four hundred and sixty-seven (467) students from the computing faculty at the Sri Lanka Institute of Information Technology (SLIIT) who had library membership. Out of the population, 100 students were selected as the sample using the convenience sampling method. The quantitative research design was employed in the study. The survey method was used to collect data from the selected sample. A structured questionnaire was used as a data collection instrument. Frequency counts and simple percentages were used to analyze the collected data. According to the study, 99% of undergraduate students used AI tools for academic activities. The most frequently used AI tool is ChatGPT (94%), followed by Quill bot and Grammarly. Students use AI tools to check grammatical errors (73%), enhance subject knowledge (68%), and summarize content (67%). Fifty-two percent (52%) of students think using AI diminishes critical thinking, but most disagree that using AI is cheating. Ninety percent (90%) of students claim to know how to use AI ethically. It is recommended that access to proper language editing tools should be offered, as students rely on ChatGPT for grammar correction.

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Emphasizing the importance of using reputed publications when enhancing students' subject knowledge, raising awareness about library e-resources, and creating AI usage policies collaboratively with faculties would also be an appropriate intervention. Finally, providing training on AI tools for research and initiating workshops to educate students on ethical AI use and proper citation is appropriate.

Keywords : AI tool, ChatGPT, Undergraduate students, SLIIT Library

Introduction

Artificial Intelligence (AI) was first introduced in 1956 as a branch of computer science. Copeland (2023) defines AI as the capability of computers or robots to perform tasks that typically require human intelligence. AI is an old concept that has recently gained widespread attention due to generative AI, resulting in numerous applications commonly called AI tools.

These AI tools have become significantly popular, particularly those designed for educational purposes. AI tools can assist, enhance, and streamline teaching and learning processes. While AI tools offer various benefits, ethical issues have also been raised. These tools are readily available on the internet in free and paid versions. Golen (2022) mentions several AI tools suitable for academic purposes, such as Semantic Scholar, Penelope.ai, Elicit for literature reviews, Writefull, Coschedule Headline Analyzer, Quilbot, Wordtune, ChatGPT for writing, Cohere for combined literature review and writing, and DALL-E 2 for creating figures.

It is evident that the field of AI has already invaded the field of higher education. Therefore, it has a natural impact on academic libraries and their services as well. International library-related associations and organizations have already begun to acknowledge the role of AI in the future of librarianship. Recent studies show AI's impacts on librarianship and library services. Therefore, the researcher believes that it is timely and necessary to understand the actual usage of these tools before finding their impact on libraries.

This study addresses the research gap in AI tool usage in Sri Lanka, particularly in higher education. Despite extensive international research, the usage and impact of AI tools among Sri Lankan students remain under-explored. By focusing on 4th-year undergraduate students in the Faculty of Computing at SLIIT, the study explores the patterns, frequency, and

attitudes toward AI tools among students. This research aims to provide valuable, insightful information and the groundwork for future studies and AI policy development in Sri Lanka.

Objectives

1. To identify the frequency of AI tools usage for academic activities.
2. To identify the types of AI tools commonly used for academic activities.
3. To find out the purposes of using AI tools for academic activities.
4. To identify the use of AI tools for research purposes.
5. To find out the students' attitudes about using AI tools for academic activities.

Methodology

The study utilized a quantitative research design and collected data through a survey with closed-ended questions. The population comprised of 467 final-year undergraduate library members from the Faculty of Computing. Using convenience sampling, 100 students were randomly selected for the survey. The primary data was gathered via a self-administered structured questionnaire. Data were collected through a Google form and analyzed using MS Excel, with findings presented in tables and bar charts using frequency counts and percentages.

Results

Frequency of using AI tools for academic activities

Table 01: Frequency of AI tools usage

Frequency	Percentage (%)
Never	1%
Rarely	6%
Sometimes	38%
Often	37%
Always	19%
Total	100%

The results revealed that 99% of respondents had used AI tools in some or other academic activity, and just over half of the respondents often used AI tools.

Types of AI tools commonly used for academic activities

The top three most used AI tools among respondents are ChatGPT (94% response rate), QuillBot (88%), and Grammarly (79%).

89% of respondents use the free version of AI tools, while 11% have purchased the paid version.

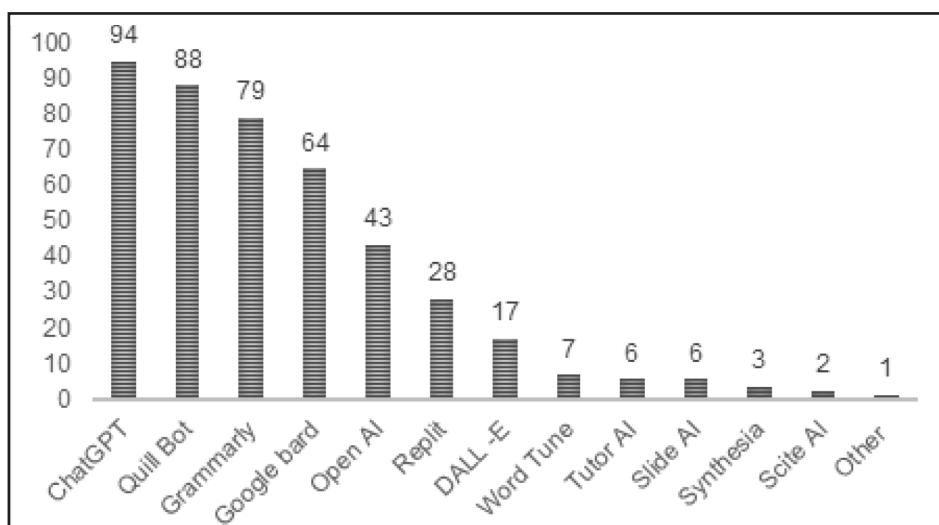


Figure 1 : Types of AI Tools

Purpose of using AI tools for academic activities

The survey found that 73% used AI for grammar checking, 68% for enhancing subject knowledge, 67% for summarizing content, 64% for exam preparation, 63% for assignment writing, 57% for presentations and study notes, and 54% for paraphrasing. Almost half used AI for programming, 42% for references, and nearly 1/3 for receiving feedback on their work.

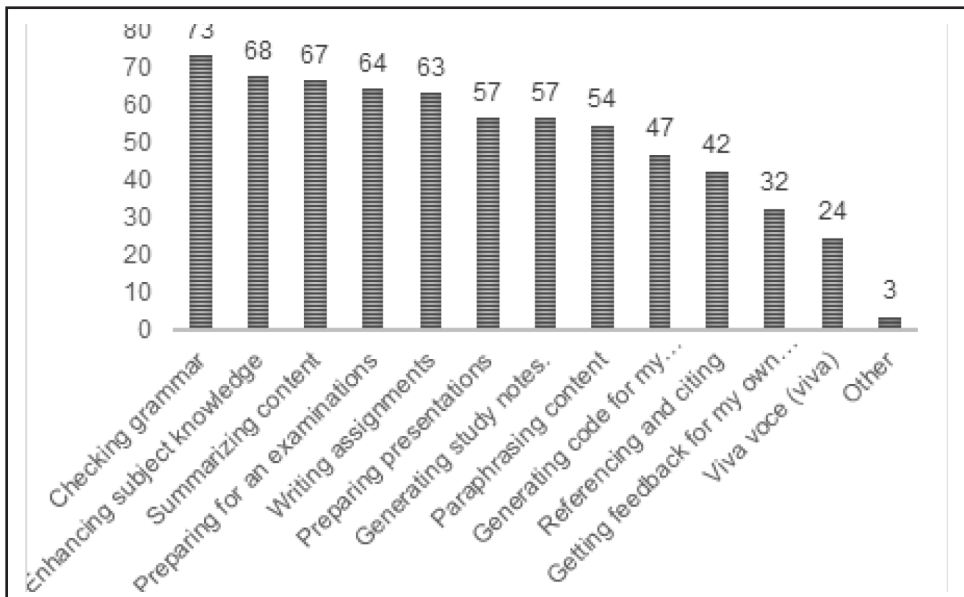


Figure 2 : Purpose of using AI Tools

Use of AI tools for research purposes

Three-fourths (3/4) of respondents used AI for research activities. From it, 51% used AI tools for finding a suitable research topic, 46% used AI for summarizing research papers, 37% used AI tools to write literature reviews, and 23% and 19% used for citation and formulating reference lists, respectively.

The majority of students used Chat GPT as a research support AI tool. More than half of the responses indicated it. Many respondents learned about this tool or its usefulness in research through social media and friends. Very few respondents (10%) had gained formal knowledge about the above-mentioned AI tools by attending formal online forums.

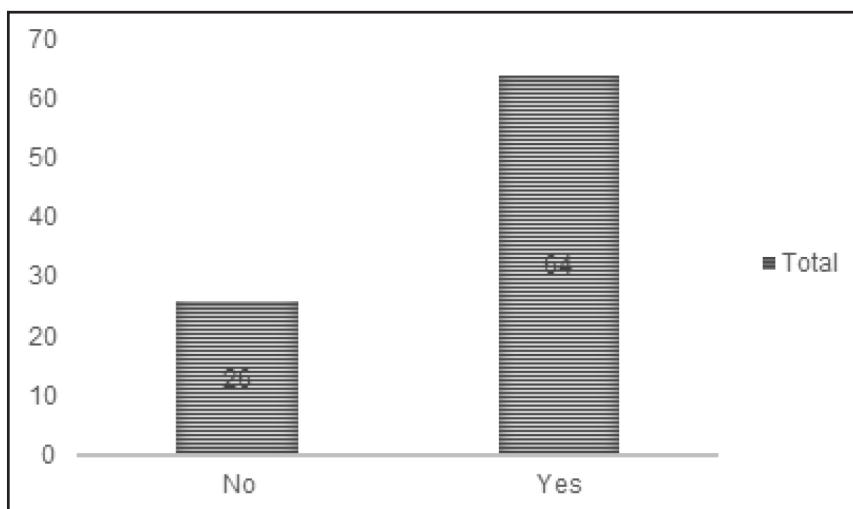


Figure 03: Usage of AI tools for the research project

Student’s attitudes about using AI tools for academic activities

Table 2. Percentage of responses to Likert scale question

Statement	Strongly Agree.	Agree	Neutral	Dis-agree	Strongly Disagree
I believe that using AI tools for my academic activities diminishes my critical thinking	20%	32%	29%	18%	1%
I believe that using AI tools for my academic activities is cheating.	12%	12%	29%	31%	16%
I know when and how to use AI tools ethically for my academic activities	37%	53%	10%	0	0

Majority of students tend to agree with the first statement, disagree with the second statement, and agree with the third statement.

Discussion

This is the first study to examine systematically, AI tool usage among SLIIT students for academic purposes, revealing that 99% of these students use AI for their academic activities. Data analysis indicates that ChatGPT is the most popular AI tool among SLIIT students, with many using the free version. This finding supports Albayati's (2024) prediction that ChatGPT would become widely used, especially among undergraduate students.

The analysis shows that most students use AI tools to check grammatical errors and highlight issues with their English grammar knowledge. Additionally, a significant number of students use AI to enhance subject knowledge, and more than half use AI, particularly generative tools like ChatGPT, to generate study notes. This trend indicates that students prefer using AI tools over traditional course materials to gain knowledge. Moreover, students use AI tools for developing computer codes, which aligns with Haensch et al. (2023) findings on students using AI for programming.

Nearly three-fourths of students use AI tools for research purposes. Almost half of them use AI to find suitable research topics, set objectives, and summarize research papers and literature. Over half of the students specifically use ChatGPT for research, with the use of other tools being significantly lower. This outcome aligns with Megawati et al. (2023), who found that researchers often use ChatGPT to finalize research topics and plan research questions or hypotheses.

When examining the students' attitudes towards AI usage, many students believe that the use of AI in academics may reduce critical thinking skills. When asked if using AI tools constitutes cheating, a significant number of students expressed neutrality or disagreement, aligning with Bego (2023), who reported that most students do not consider using AI for engineering assignments as cheating. Lastly, this study shows that 90% of respondents are aware of how to use AI ethically in academic endeavors.

Recommendations

1. Although many students use ChatGPT to correct grammatical errors, it was not initially designed for this purpose. Therefore, it is recommended that access to proper language editing tools like Quill Bot or Grammarly for students' language editing tasks be provided as a library service.
2. As students use AI tools as reference sources for general academic purposes and literature searches for research purposes, the usage of the SLIIT library's resources would be affected. Therefore, it is suggested that,
 - a. Emphasizing the importance of referring to reputed publications when taking study notes. This can be discussed during the library orientation program.
 - b. formulate AI usage policies in collaboration with faculties.
3. Since a significant number of students use AI for research purposes, the SLIIT library should offer additional resources and support. This may include training programs for using AI tools in literature reviews, research planning, and data analysis.
4. Since students do not consider using AI for academic activities as cheating, the library can initiate awareness programs and workshops to educate the user community and inculcate positive and ethical attitudinal impressions among students about AI usage in academic work.

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