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Utility of AI Tools Among High School Students- A Comprehensive Analytical Study

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Abstract: With the rapid growth and accessibility of artificial intelligence (AI), high school students are increasingly using AI-based applications for learning, creative activities, and personal academic support. This study explores the extent of AI tool usage among high school learners and evaluates both the advantages and challenges associated with their adoption. Using a mixed-methods research design, quantitative data were gathered through a structured survey administered to students from various schools, while qualitative perspectives were obtained from follow-up interviews and focus-group discussions. The investigation focuses on several key aspects, including how frequently students use AI tools, the purposes for which they rely on them—such as homework, test preparation, project development, creative writing, and programming—their influence on motivation and academic outcomes, and students' awareness of responsible AI use. Findings suggest that many students experience increased efficiency, better access to information, improved creativity, and greater enthusiasm for independent learning. Despite these positive outcomes, concerns remain regarding shallow understanding, dependence on AI-generated responses, and ethical issues related to originality and academic honesty. The study concludes that AI tools offer substantial potential to enrich high school education, but their benefits are maximized only when students receive proper guidance and maintain balanced usage. Based on the results, the study provides recommendations for teachers, parents, and policymakers to promote ethical, informed, and critical use of AI as a supportive tool rather than a replacement for traditional learning practices.

Students are interested in learning about various types of AI tools, including machine learning tools, robotic vision tools, and chatbot tools, as well as their applications.

- ***Hypothesis:***

What kinds of tools are used by students, like machine learning tools, and which AI tools are popular among students, e.g., ChatGPT?

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I. INTRODUCTION

AI tools are revolutionizing our day-to-day lives. AI tools are useful for humans across various types of work, including:

- *Business Automation:*

AI tools assist in automating business processes, such as checking schedules, identifying errors in products, and verifying daily prices and GST. They also monitor company stocks to see if their value is increasing or decreasing. AI tools help determine how to sell innovative products, enabling customers to make informed purchasing decisions.

- *Healthcare Innovation:*

AI tools facilitate healthcare innovation by helping doctors identify various diseases and determine the best care for affected individuals. If a new type of disease spreads, AI tools assist doctors in locating the disease's molecules and 3D structure; with the disease structure, doctors use AI tools to find the cure's structure and molecules. Using these methods, doctors can create more drugs to cure more diseases.

- *Education and Learning:*

AI tools aid in education and learning by helping students better understand content. They create images and videos for improved comprehension and assist in learning different languages. AI tools also provide homework assignments to assess students' abilities and identify areas for improvement, allowing them to practice and find solutions.

- *Content Creation:*

AI tools can generate images based on our prompts and write articles by simply stating the topic. They can also create

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leave letters, paragraphs, and debates and choose the best answers like a game. Additionally, AI tools assist in creating and editing videos about content and can craft professional emails, checking for mistakes and correcting them.

- *Smarter Decision-Making:*

AI tools support smarter decision-making by detailing the benefits and challenges associated with various decisions. They are utilized for business purposes, help governments become more efficient, and assist students and professionals in making difficult choices while highlighting potential problems.

- *Coding and Software Development:*

AI tools aid in coding and software development by providing syntax, identifying errors, and suggesting fixes. They offer test coding to enhance individual performance and provide feedback on programs, pointing out mistakes and how to correct them. They also provide tips for creating or developing software. Thus, AI tools help people make tough jobs easier.

- *The Challenges Faced in Using AI Tools Include:*

One major challenge is the lack of technical knowledge, as many individuals do not know how to use AI tools effectively. If they are unaware of how to utilize AI outputs, it can lead to errors or misuse.

- *Data Privacy and Security Issues:*

In this modern era, many individuals are aware of hacking and other harmful uses of AI tools, which can have a significant impact on the internet. Consequently, there are numerous issues related to data privacy.

II. METHODOLOGY

The research focuses on how AI tools assist students in completing their work efficiently and without wasting time. We approached this research using quantitative methods. Data was collected through offline questionnaires or surveys. In this study, we gathered data and analyzed it using statistical tools like Excel. All participants voluntarily participated in this survey. This methodology demonstrates that the collected data was valid and illustrates how AI tools were beneficial for students in educational contexts.

The survey method is a common technique for collecting data by obtaining information directly from people through structured interviews or questionnaires. It enables researchers to explore individuals' views, actions, or experiences in an orderly and systematic way. Surveys can be conducted in multiple forms—such as online surveys, phone calls, or in-person interviews—making them versatile and suitable for reaching large numbers of respondents. Because they use uniform questions, surveys provide consistent data, which makes it easier to compare and analyze responses across different populations or time frames.

The survey method offers several advantages, such as the ability to collect data from a large number of people in a relatively short time and at a low cost. It allows researchers to gather standardized information, making it easier to compare responses and identify trends. Surveys are also flexible, as they can be conducted online, by phone, or in person. However, this method has some limitations as well. Participants may provide inaccurate or biased answers, especially if questions are misunderstood or if they feel pressured to respond in a certain way. Additionally, surveys often lack depth because responses are usually limited to predefined options, which may not fully capture complex opinions or behaviors.

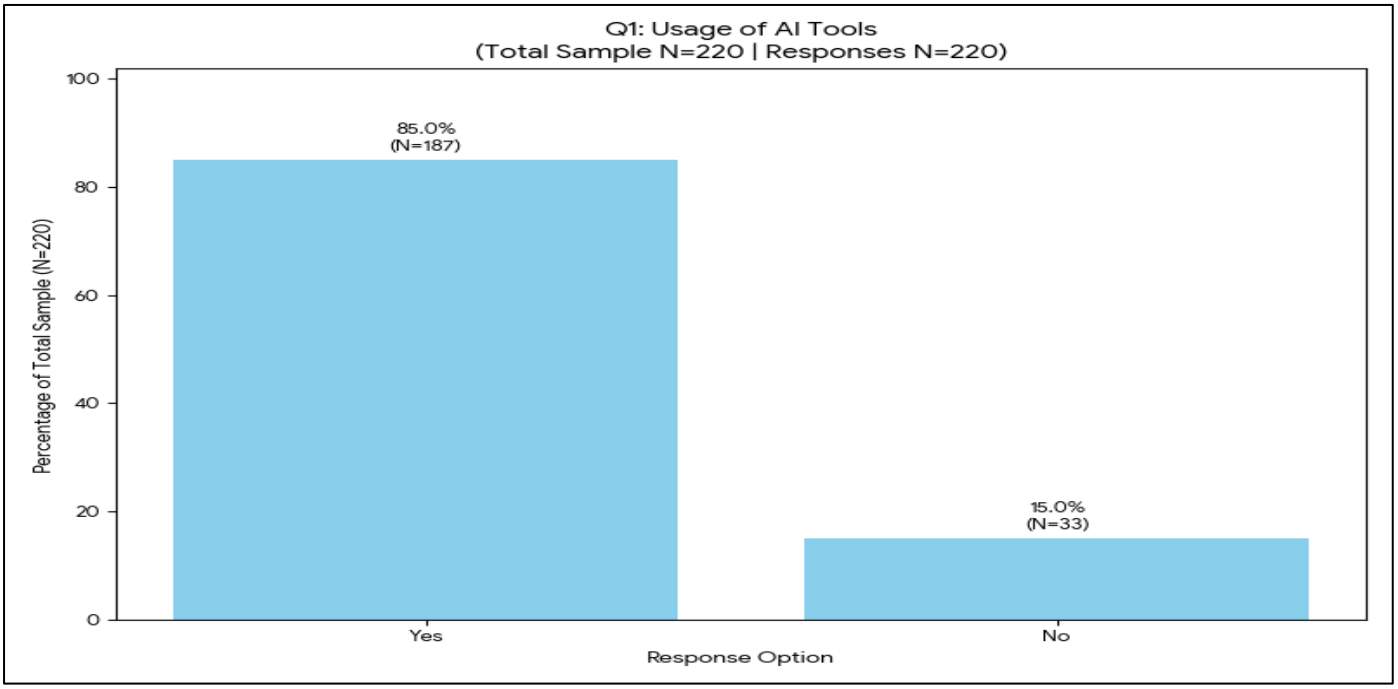

Fig 1 Usage of AI Tools

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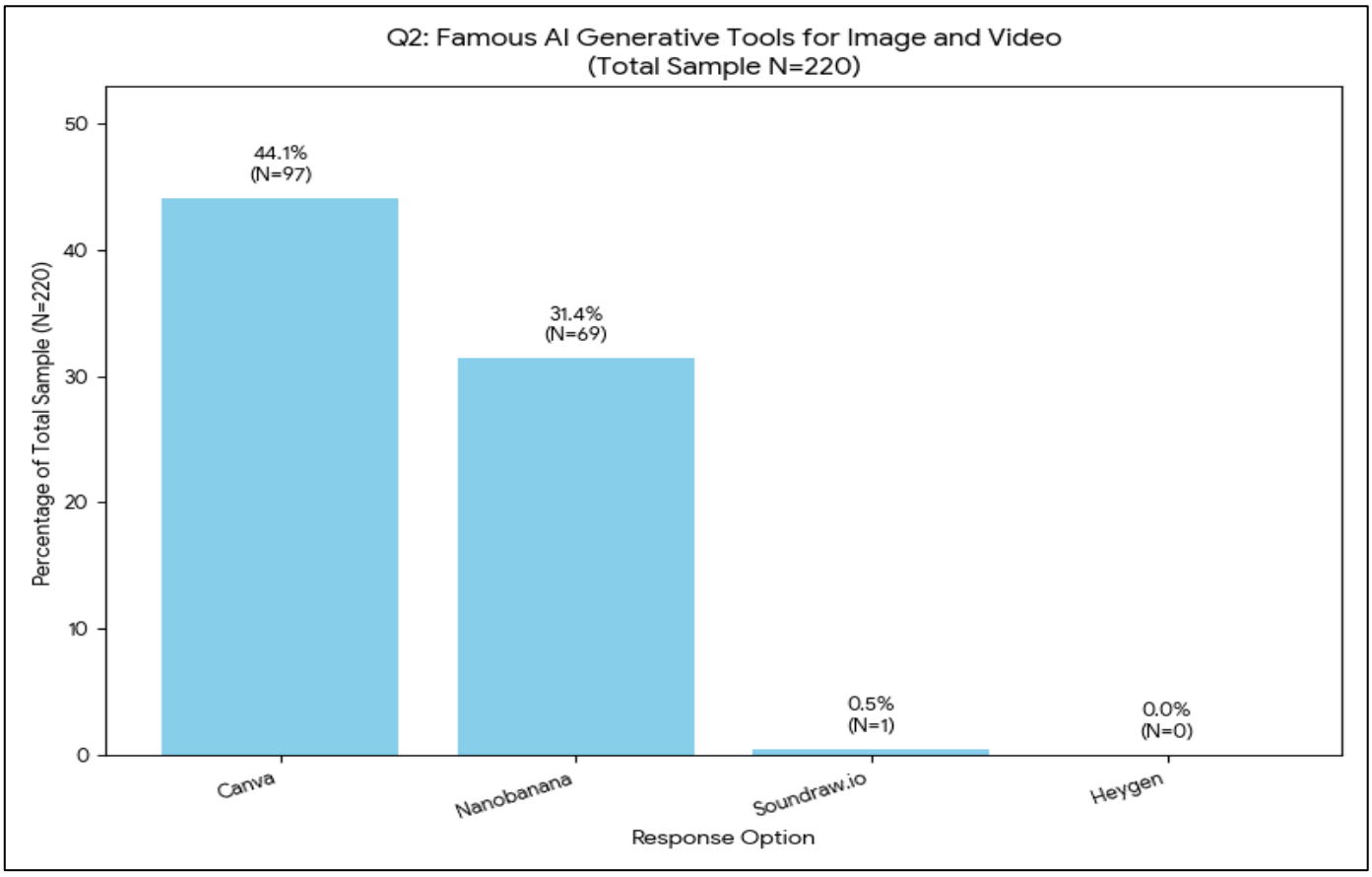

Fig 2 Famous AI Generative Tools for Image and Video

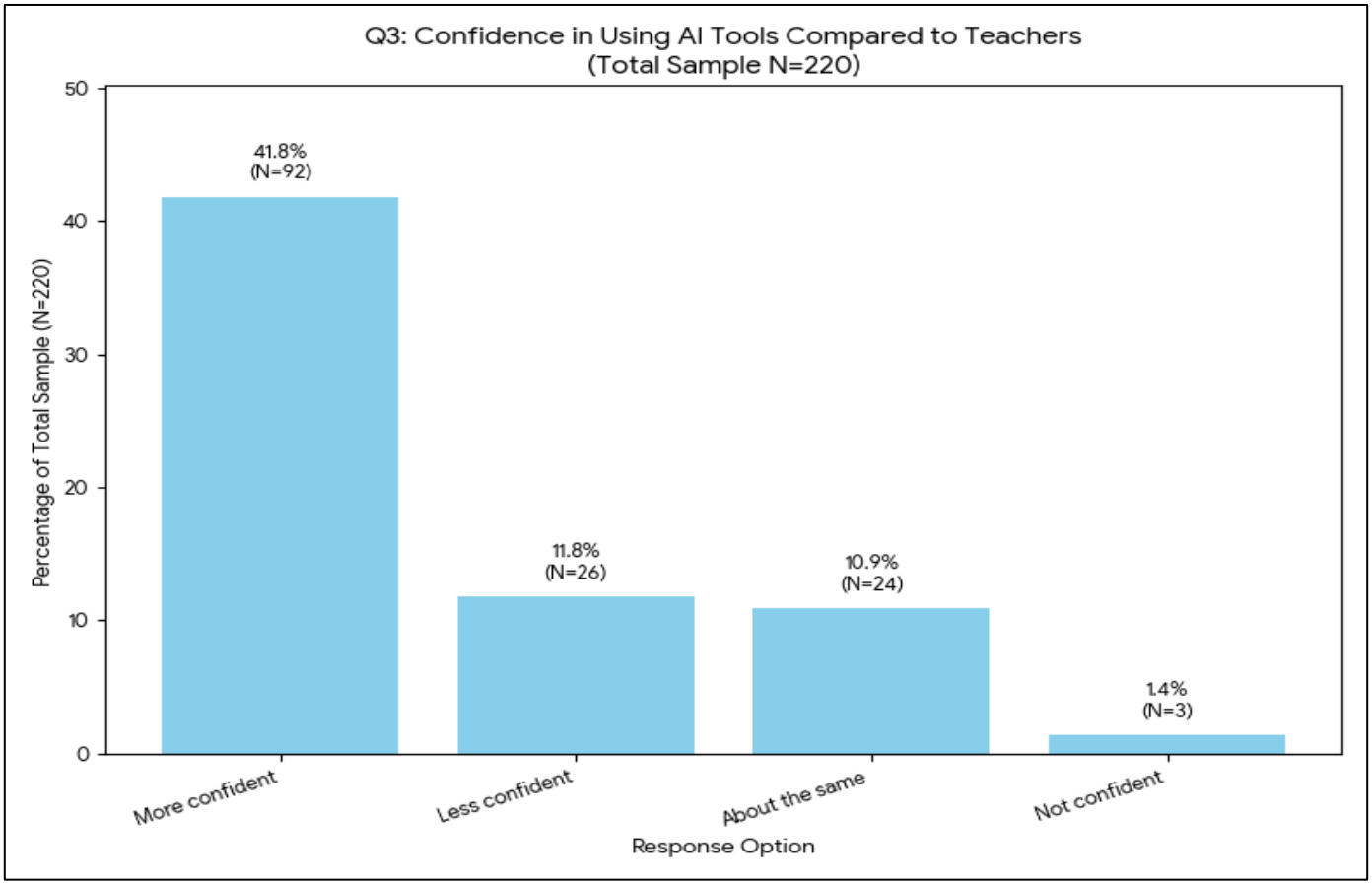

Fig 3 Confidence in Using AI Tools Compared to Teachers

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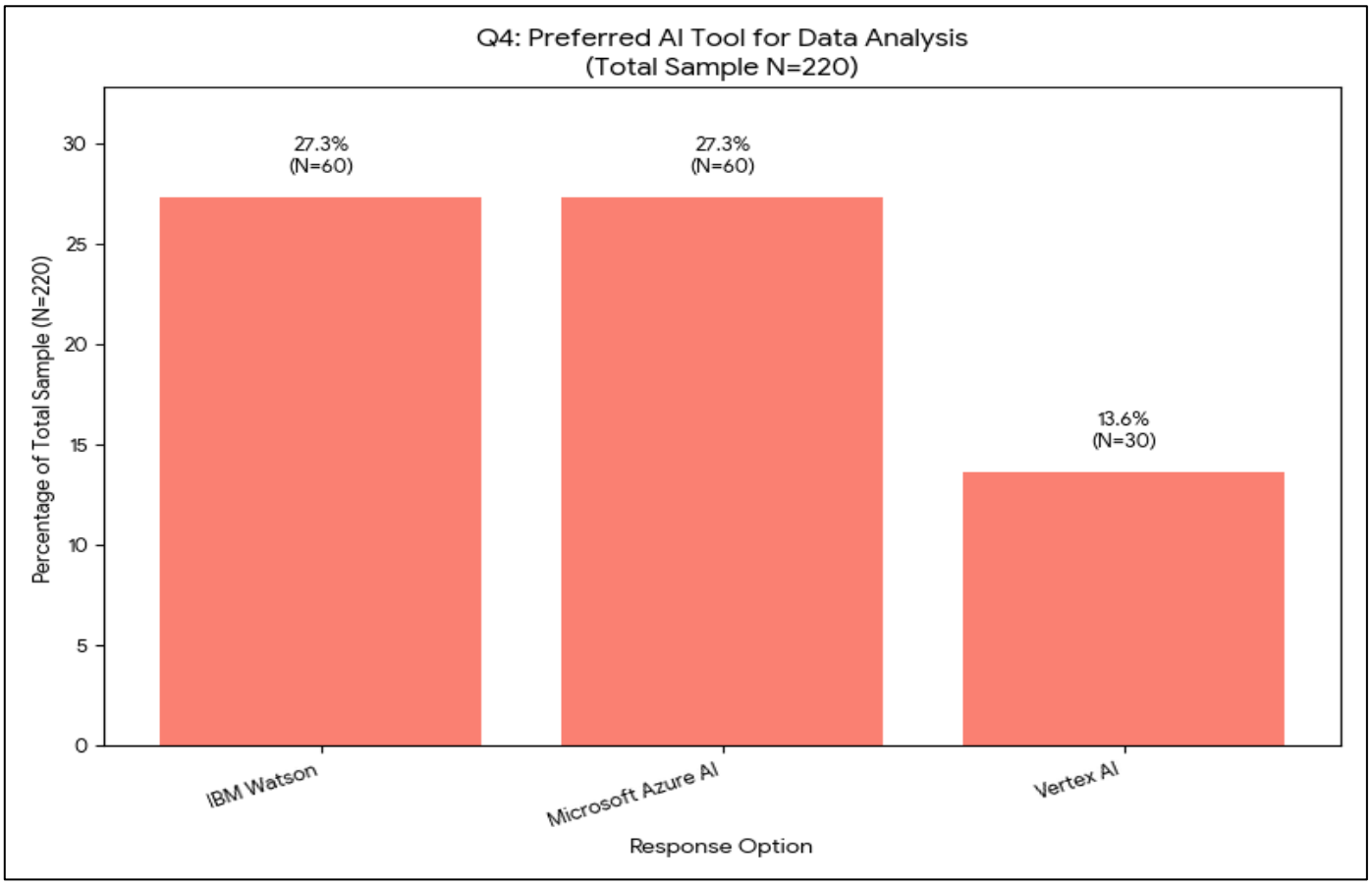

Fig 4 Preferred AI Tool for Data Analysis

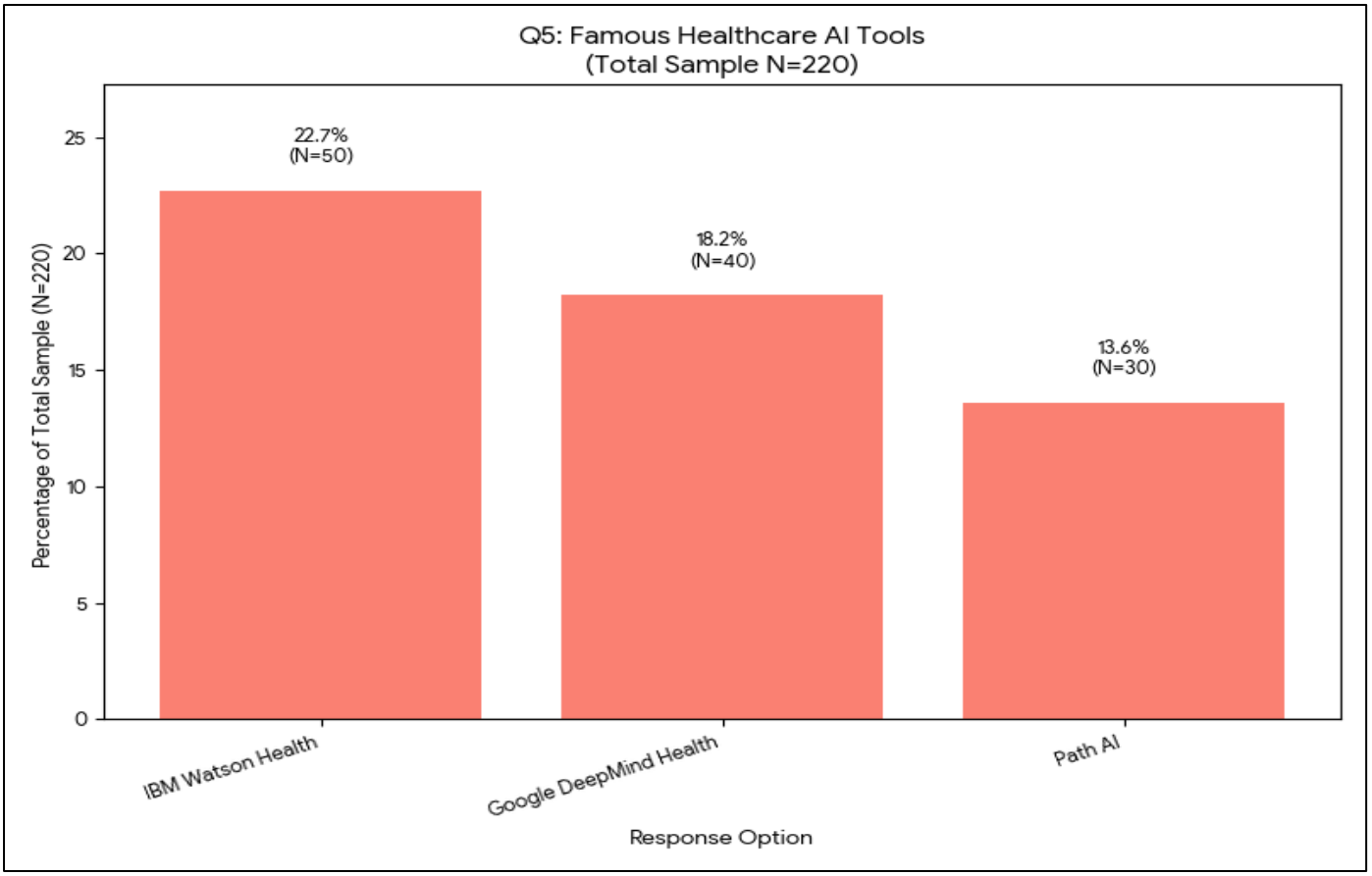

Fig 5 Famous Healthcare AI Tools

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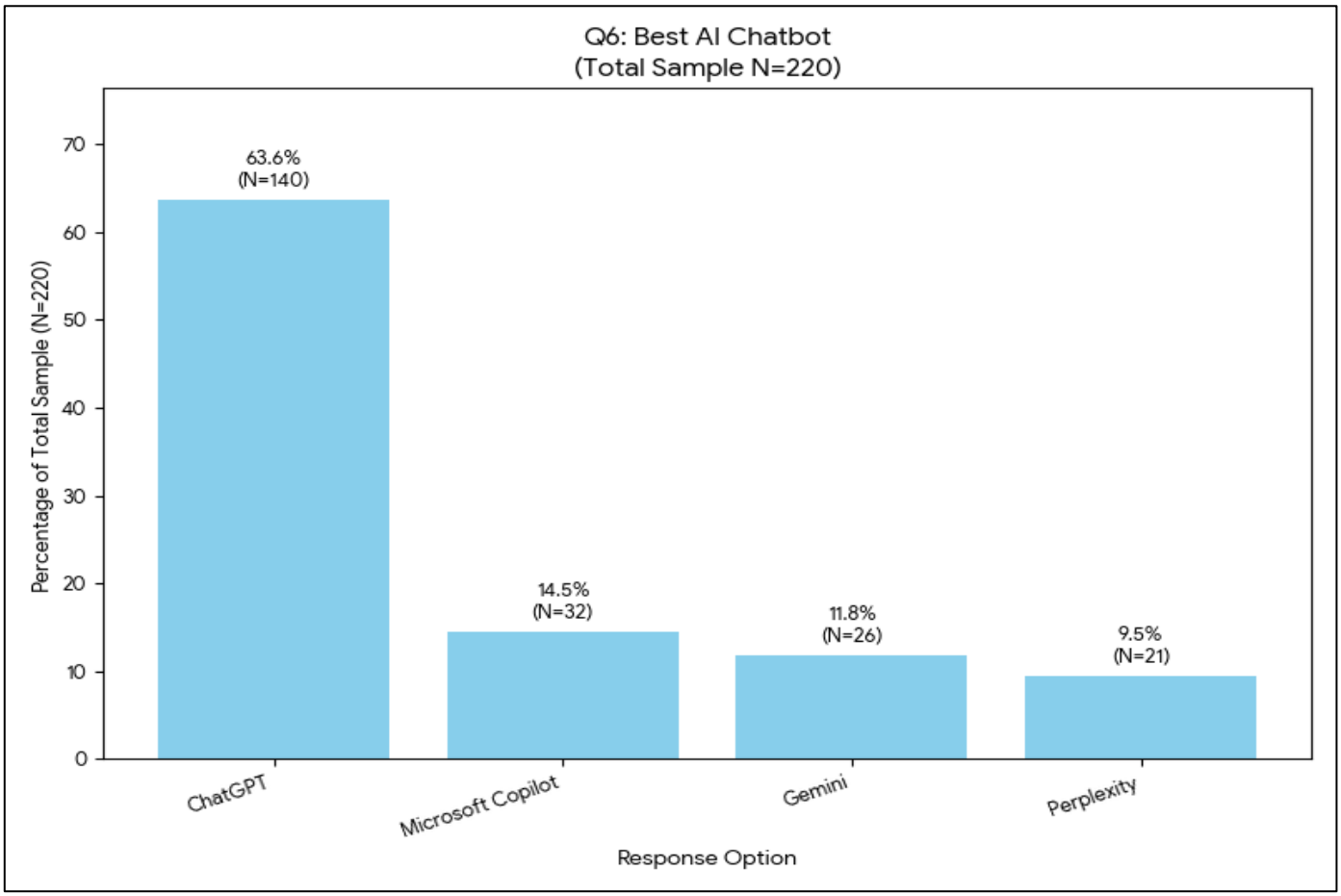

Fig 6 Best AI Chatbot

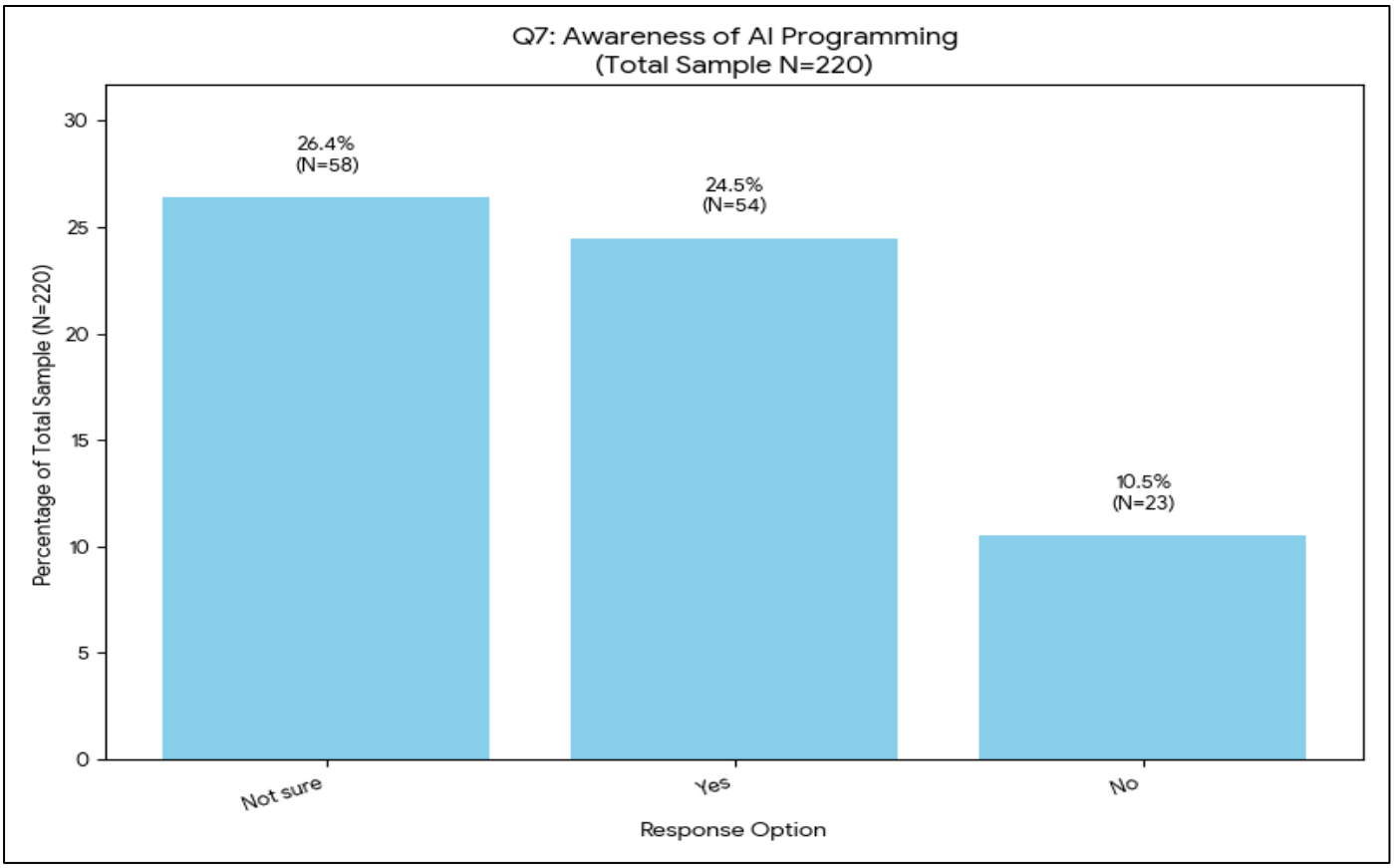

Fig 7 Awareness of AI Programming

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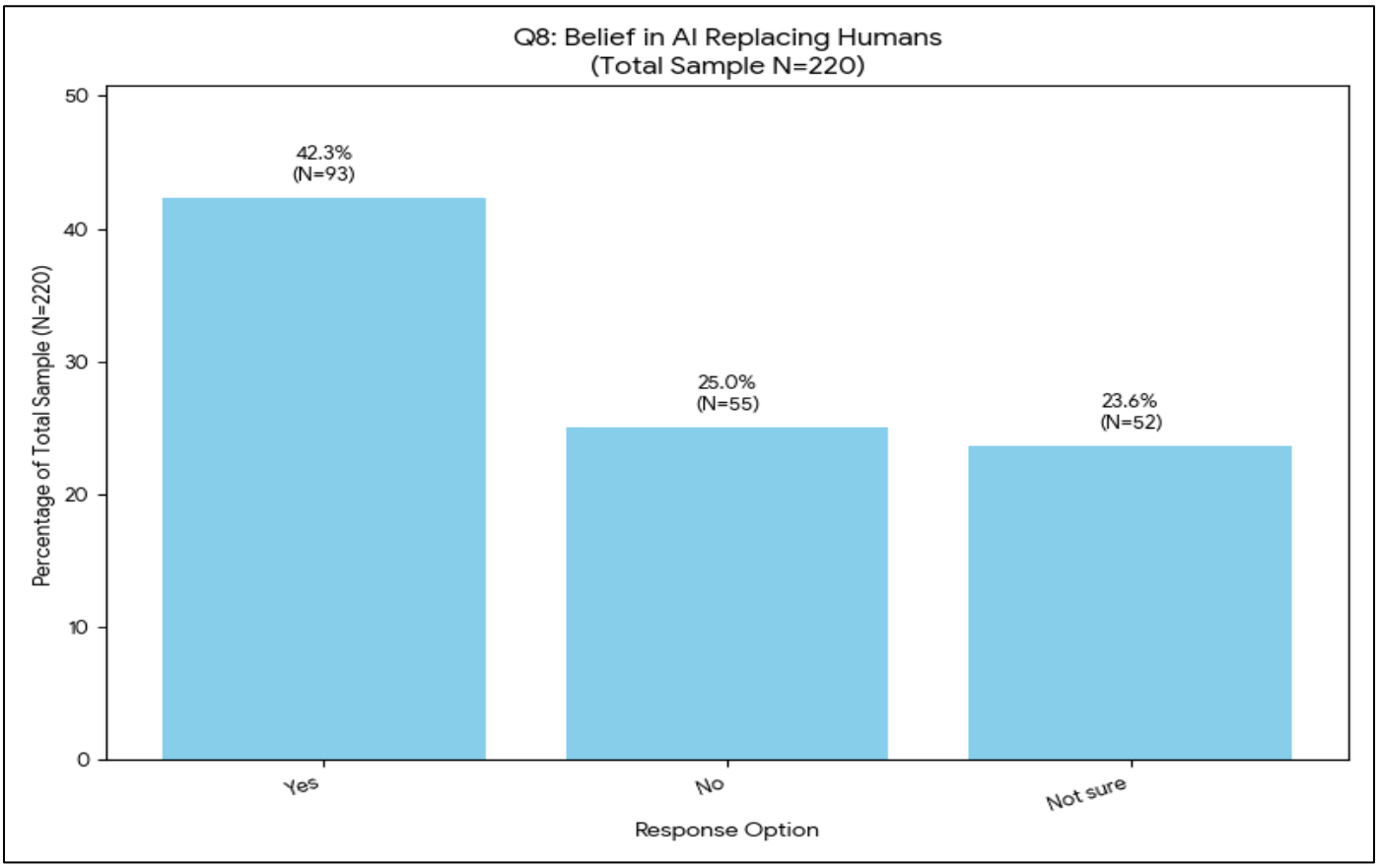

Fig 8 Belief in AI Replacing Humans

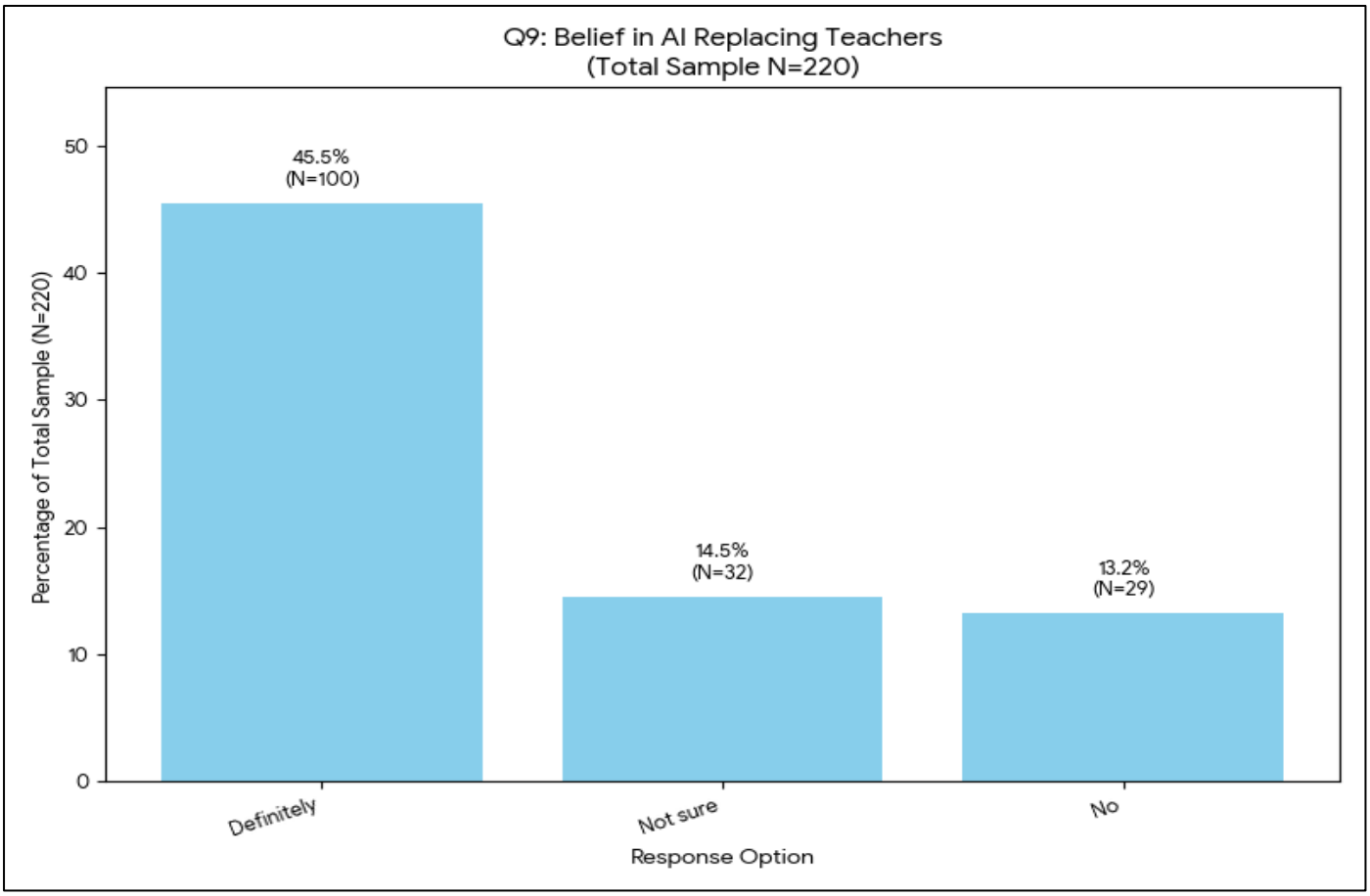

Fig 9 Belief in AI Replacing Teachers

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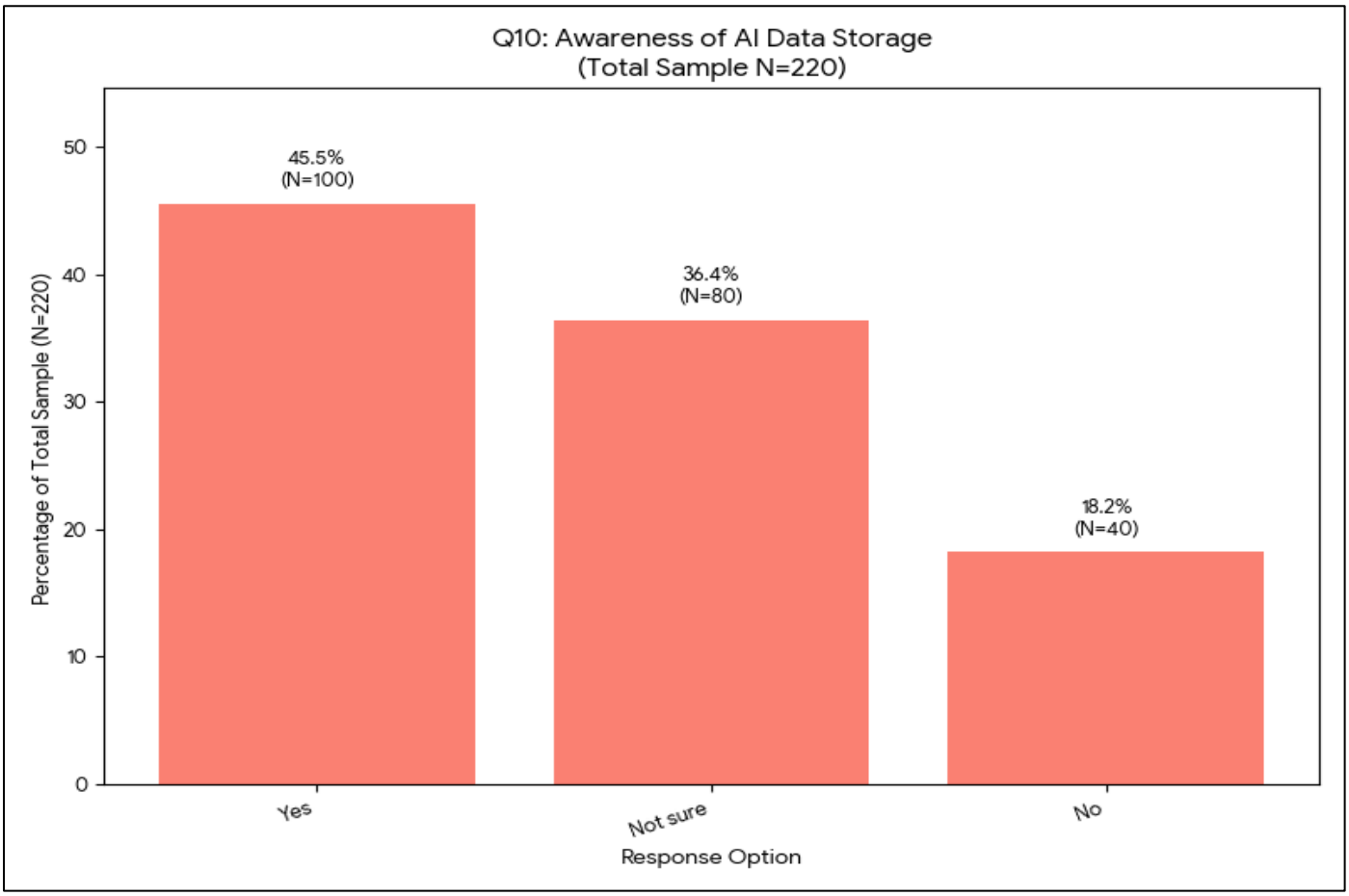

Fig 10 Awareness of AI Data Storage

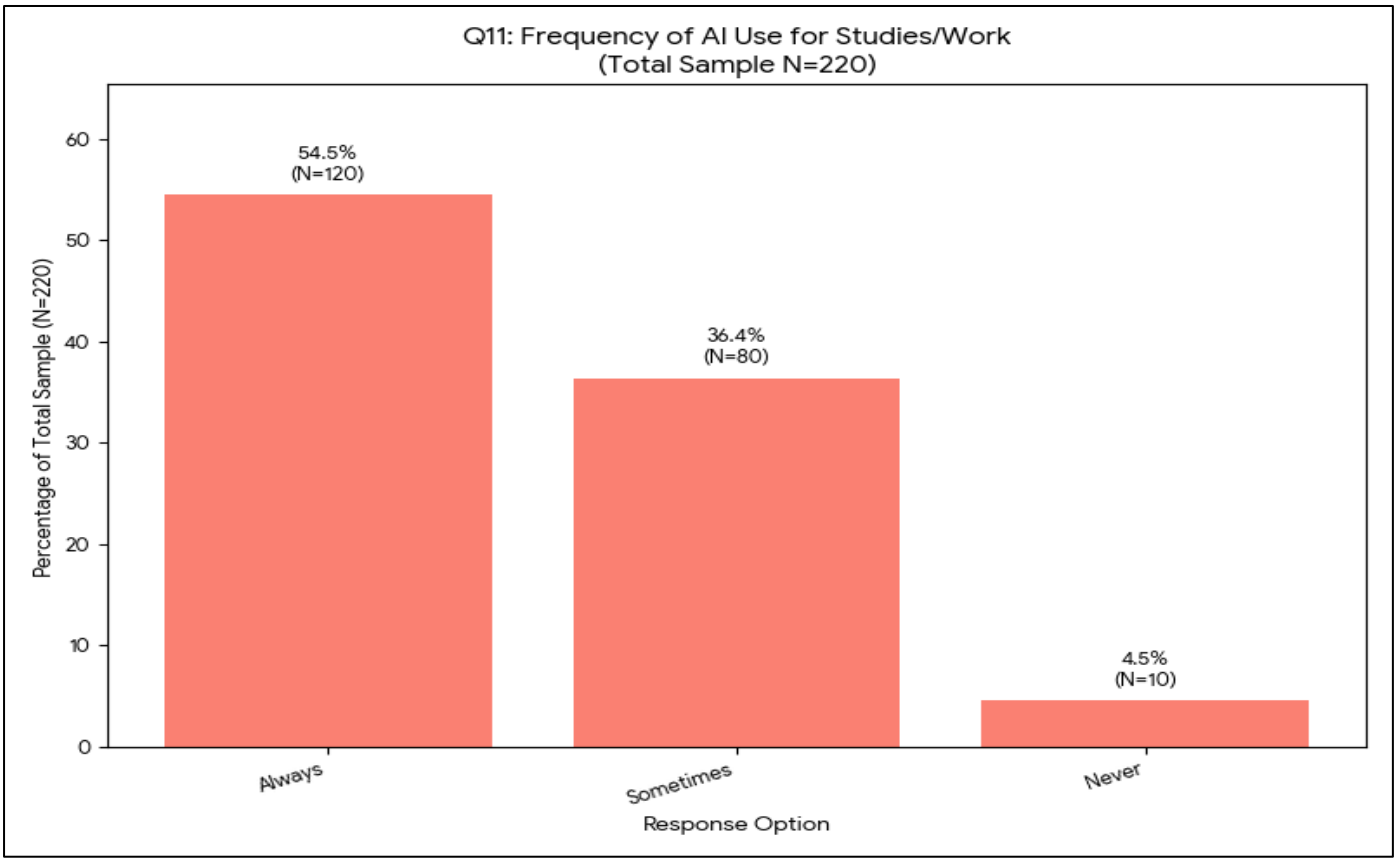

Fig 11 Frequency of AI Use for Studies/Work

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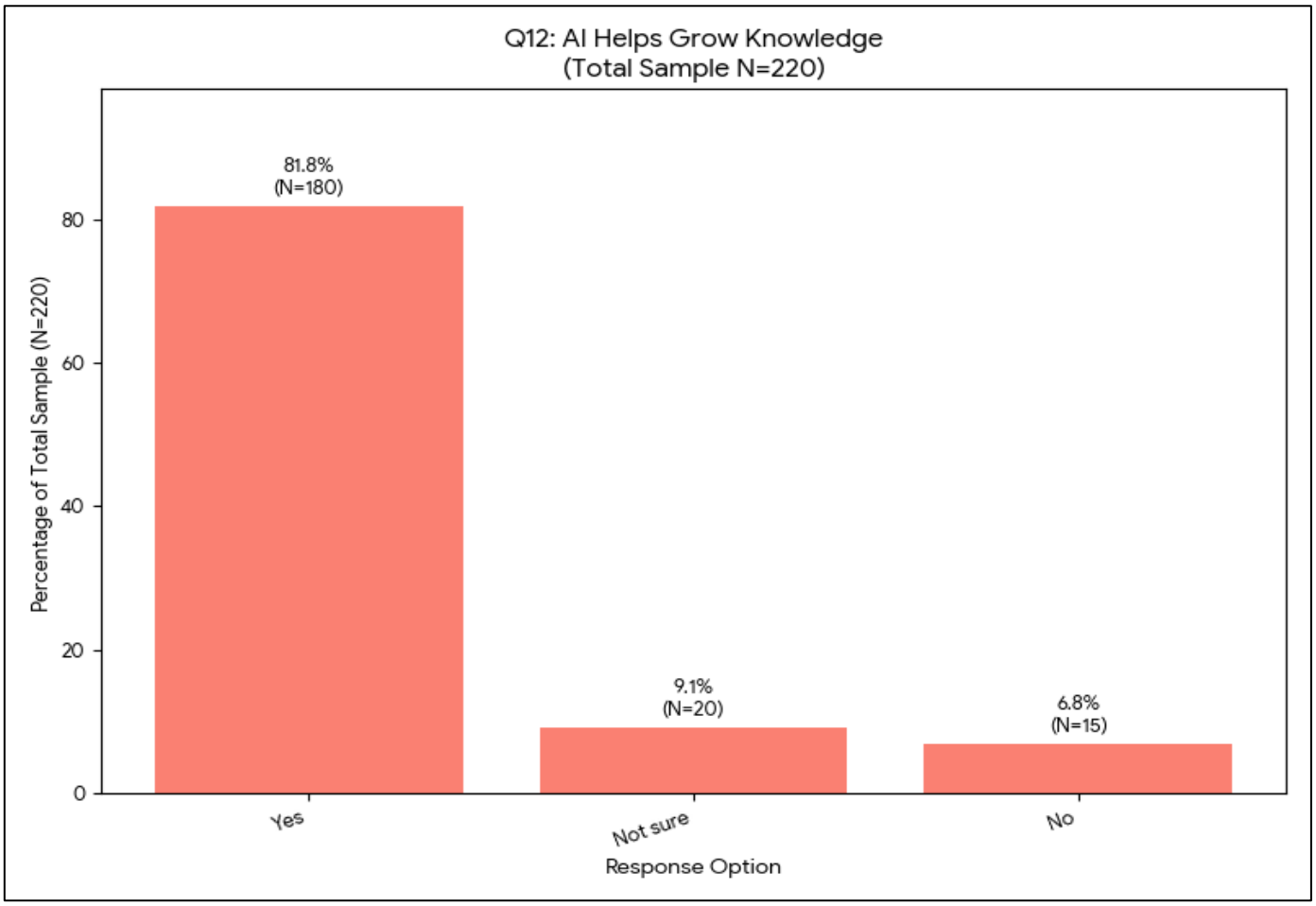

Fig 12 AI Helps Grow Knowledge

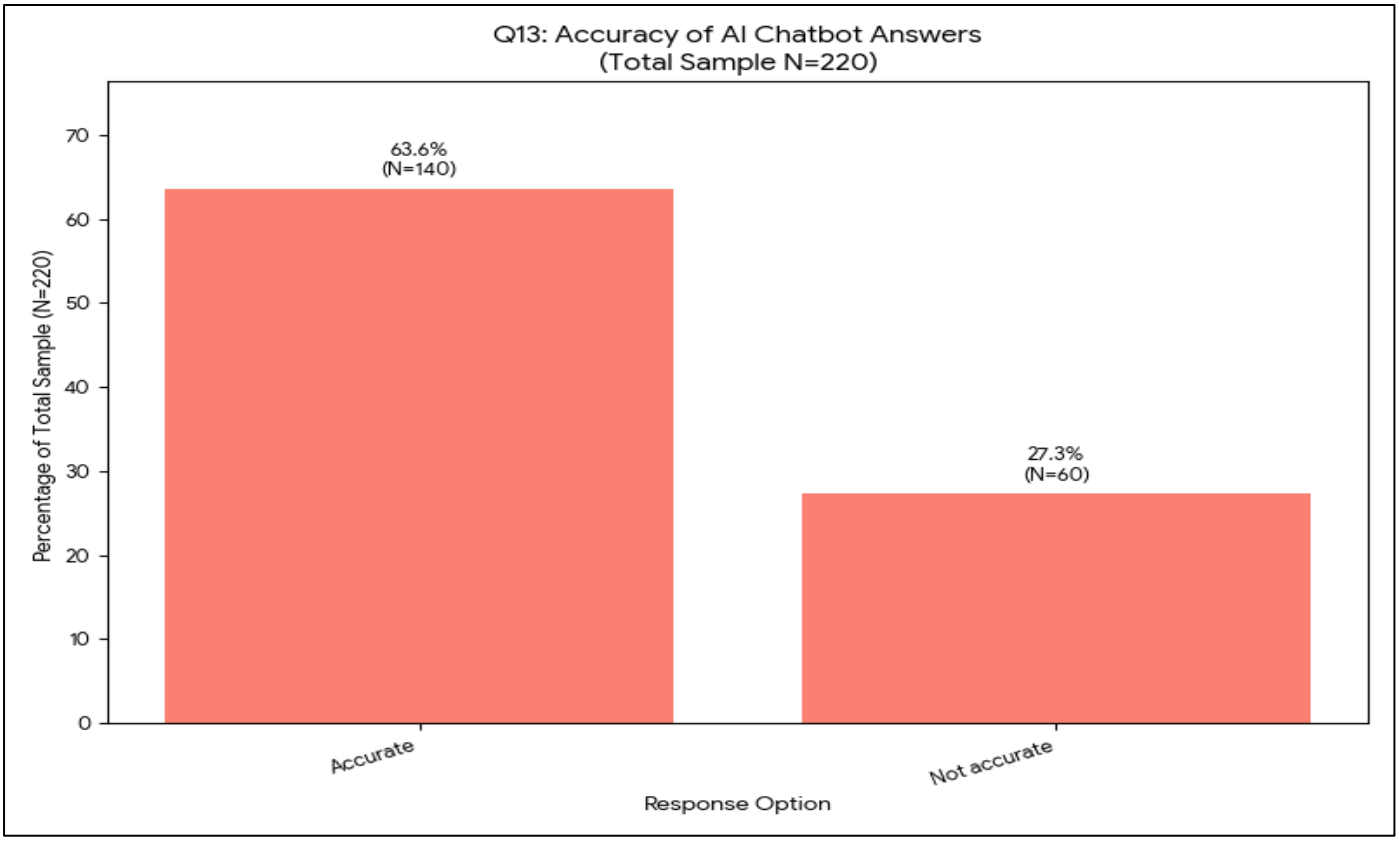

Fig 13 Accuracy of AI Chatbot Answers

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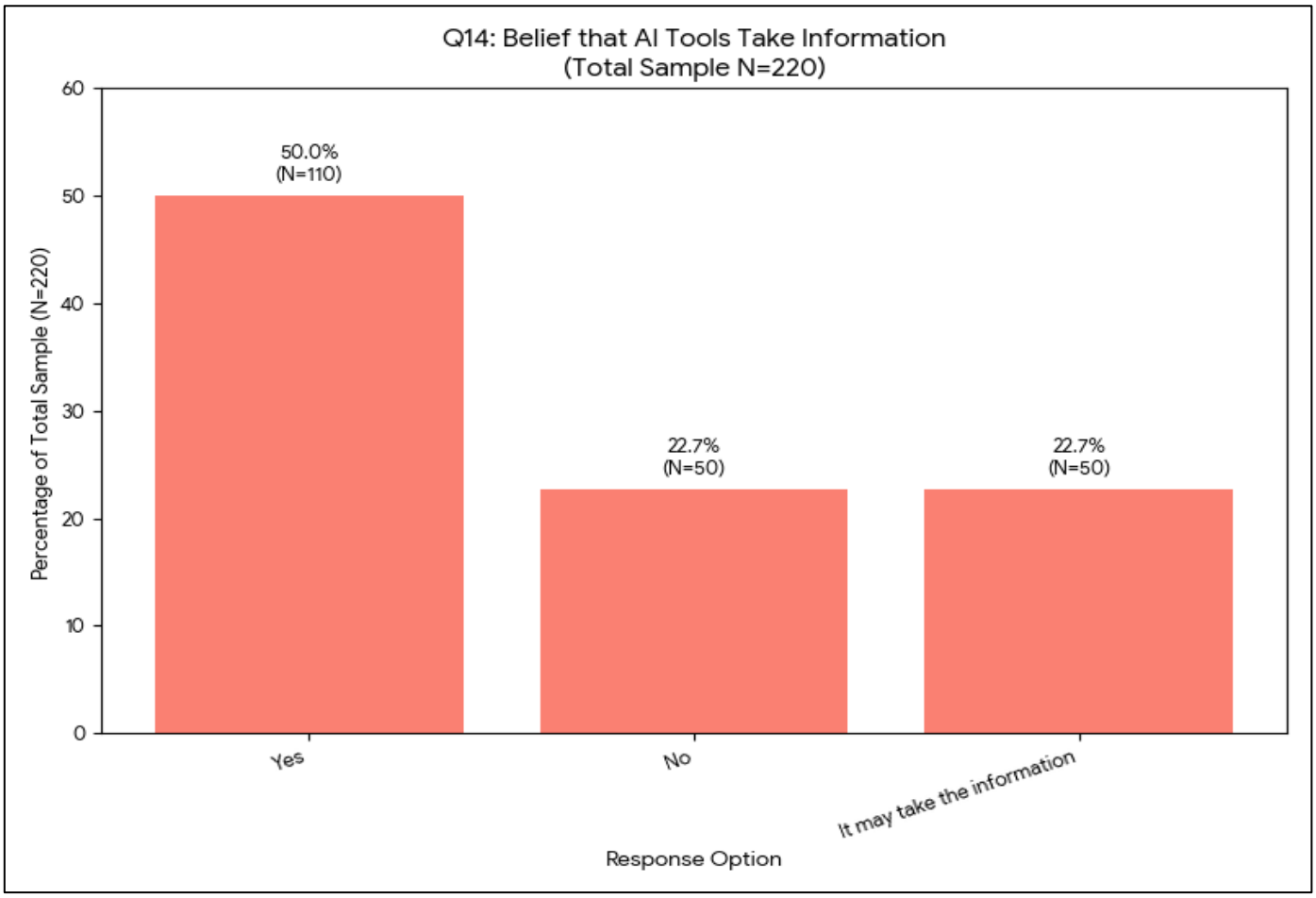

Fig 14 Belief that AI Tools Take Information

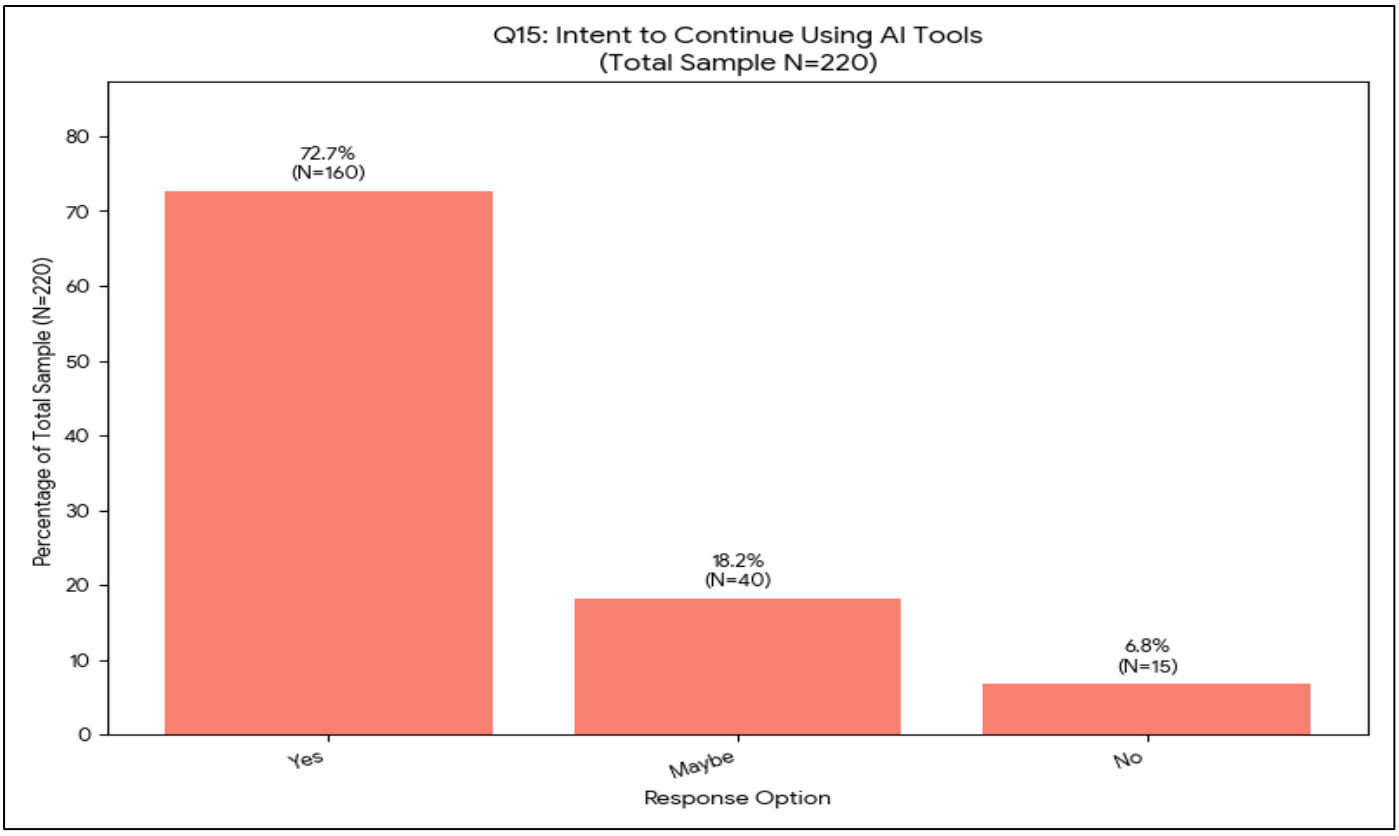

Fig 15 Intent to Continue Using AI Tools

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➢ *Data Analysis: AI Tool Usage:*

85% of respondents reported that they have used AI tools, while 15% had never used them. This analysis indicates that AI adoption is widespread among students.

- *Popular AI Tools:*

Among all AI tools, ChatGPT emerged as the most widely used (72%), followed by Canva (64%), Synthesia (42%), and Soundraw.io (35%). These results show that generative AI tools for text, image, and video creation are most common.

- *Confidence Level:*

8% of students reported feeling confident while using AI tools, while 27% said they were moderately confident. Only 15% felt less confident using AI tools.

- *Purpose of AI Use:*

✓ 45% used AI for educational purposes (assignments, explanations, and visual learning).
✓ 30% used AI for content creation (posters, videos, essays).
✓ 15% used it for coding or software learning.
✓ 10% used it for health or general research.

These statistics highlight the growing comfort and reliance on AI among the younger generation, especially in academic and creative contexts.

III. DATA INTERPRETATION

From the analysis, it can be interpreted that AI tools have become an essential part of learning environments. Most students use AI tools regularly to improve their understanding, creativity, and productivity.

➢ *The Findings Indicate that:*

- Generative AI tools such as ChatGPT and Canva are most popular because they simplify content creation and explanation.
- Students show a high level of adaptability toward AI technologies, likely because they regularly use digital tools for learning, creativity, and everyday tasks.
- The main advantages of AI include saving time, enhancing creativity, and improving learning efficiency.
- Challenges still exist, particularly related to lack of training, data privacy, and over-reliance on technology.

Overall, this research supports the hypothesis that AI tools are increasingly used by students, with students showing higher engagement and confidence levels. The data proves that AI tools not only make learning interactive but also prepare individuals for future technological integration in education.

IV. CONCLUSION

AI tools have become an essential part of modern education, supporting students by improving learning, creativity, and productivity. Many students confidently use tools like ChatGPT and Canva to complete assignments, understand complex concepts, and produce digital content. These tools make learning more interactive and efficient, helping students work faster and with a clearer understanding. Although challenges such as limited training and data privacy concerns remain, AI continues to influence students' academic growth and prepare them for a technology-driven future ahead successfully.

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