

Transforming Research, Education, Industry, And Society Through Generative AI: A Survey-Based Multidisciplinary Study

Ms. Leena Arun Patil

Assistant Professor

Godavari Institute of Management & Research, Jalgaon

Email: patilleena70@gmail.com

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Abstract

Generative Artificial Intelligence (Generative AI) is increasingly influencing the way people conduct research, learn, work, and access services. This study examines the role of Generative AI in transforming research, education, industry, and society, with a focus on Jalgaon City. The study follows a descriptive and quantitative research design and is based mainly on primary data collected through a structured Google Form questionnaire from 120 respondents, including students, research scholars, faculty members, and industry professionals. A non-probability convenience sampling method was used.

The findings show that ChatGPT was the most frequently used Generative AI tool. Respondents identified literature review as the major research activity improved by AI, while personalized learning was considered its major contribution to education.

In industry, business automation and marketing and customer service were identified as major areas of influence. Healthcare and government services were among the important societal areas benefiting from Generative AI. Increased productivity and time saving were reported as major positive impacts, while misinformation, privacy, and ethical concerns were identified as key challenges.

Overall, the study indicates that Generative AI has a positive and growing influence across research, education, industry, and society, highlighting the need for responsible, ethical, and informed use of the technology.

Keywords: Generative Artificial Intelligence, Multidisciplinary Innovation, Research Transformation, Higher Education, Industry 5.0,

Digital Society, Survey-Based Study.

1. Introduction

The core focus of this research paper is **“Transforming Research, Education, Industry, and Society Through Generative AI: A Survey-Based Multidisciplinary Study.”** To understand this topic effectively, it is important to examine the growing influence of Generative Artificial Intelligence in today's digital era. Generative AI refers to advanced artificial intelligence systems capable of creating human-like text, images, code, audio, and other digital content by learning from large datasets. With the emergence of AI-powered tools such as ChatGPT, Google Gemini, Microsoft Copilot, Claude, and Perplexity AI, the adoption of Generative AI has expanded rapidly across educational institutions, research organizations, industries, government sectors, and society. These technologies are changing the way people learn, conduct research, solve problems, communicate, and make decisions, making Generative AI one of the influential innovations of the modern digital age.

The rapid advancement of Generative AI is bringing significant transformation to the field of research. Researchers are increasingly using AI-powered tools to perform literature reviews, generate research ideas, summarize scholarly articles, assist in academic writing, analyze datasets, and improve overall research productivity. Although numerous studies have explored the application of Generative AI in specific domains such as education, business, healthcare, or software development, comparatively fewer studies have examined its combined impact on research, education, industry,

and society within a single multidisciplinary framework. Understanding this broader impact is important because these domains are increasingly interconnected, and advancements in one area can influence progress in others. Therefore, there is a need for empirical research that investigates how Generative AI is transforming multiple sectors simultaneously and identifies both its opportunities and challenges.

This study addresses this need by adopting a survey-based approach to examine the multidisciplinary impact of Generative AI in Jalgaon City, Maharashtra. The research is based on primary data collected through a structured questionnaire from students, faculty members, research scholars, and industry professionals in Jalgaon City. The study aims to understand respondents' perceptions regarding the role of Generative AI in transforming research, education, industry, and society, while also identifying its key benefits, challenges, and future prospects. The findings are expected to provide useful insights for educators, researchers, industry professionals, and policymakers and support the responsible, ethical, and effective use of Generative AI for multidisciplinary development.

1.1. Background of the Study

Artificial Intelligence (AI) has become one of the most influential technologies of the modern era, bringing significant changes to the way people learn, work, communicate, and solve problems. In recent years, the development of Generative Artificial Intelligence (Generative AI) has attracted considerable attention because of its ability to generate human-like text, images, code, and other

digital content. Unlike traditional AI systems that mainly analyze existing information, Generative AI creates new content based on the patterns learned from large amounts of data. Popular tools such as ChatGPT, Google Gemini, Microsoft Copilot, Claude, and Perplexity AI have made this technology easily accessible to students, educators, researchers, professionals, and organizations.

The growing use of Generative AI has changed how information is created, shared, and utilized across different sectors. It has become an important digital tool that supports learning, research, business operations, and public services. At the same time, discussions around ethical use, privacy, data security, and responsible adoption have become equally important. As Generative AI continues to evolve, understanding its influence across multiple fields has become essential for researchers, educators, industries, and policy makers.

1.2. Generative AI in Research

Research activities have experienced noticeable changes with the introduction of Generative AI. Researchers increasingly use AI tools to explore existing literature, summarize research articles, organize references, generate ideas, improve academic writing, and assist with coding and data analysis. These applications help reduce the time spent on repetitive tasks, allowing researchers to devote greater attention to analysis, interpretation, and innovation.

Despite these advantages, Generative AI should be viewed as a supporting technology rather than a substitute for human knowledge and critical thinking. Researchers are responsible for verifying

AI-generated information, maintaining academic integrity, and ensuring the originality of their work. When used ethically, Generative AI can improve research efficiency and encourage interdisciplinary collaboration.

1.3 Generative AI in Education

Education is one of the sectors where Generative AI has had a visible impact. Students are increasingly using AI-powered tools to understand complex concepts, prepare assignments, summarize study materials, and improve their learning experience. These technologies provide instant support and personalized guidance, making learning more flexible and interactive.

Teachers and faculty members also benefit from Generative AI by preparing lesson plans, developing teaching materials, designing assessments, and creating engaging classroom activities. Rather than replacing educators, AI supports them by reducing routine work and enabling more time for meaningful interaction with students. However, educational institutions must also encourage the ethical use of AI and promote critical thinking so that students use these tools responsibly rather than becoming overly dependent on them.

1.4 Generative AI in Industry

The adoption of Generative AI is growing rapidly across industries as organizations seek innovative ways to improve productivity and remain competitive. Businesses are using AI to automate repetitive tasks, generate reports, analyze data, create marketing content, improve customer service, and support decision-making. Sectors such as information technology, healthcare, finance,

manufacturing, and human resource management are increasingly integrating AI into their day-to-day operations.

Generative AI not only improves operational efficiency but also encourages innovation by helping organizations develop new ideas, products, and services. At the same time, it is changing workplace expectations by increasing the demand for digital skills, creativity, and continuous learning. Organizations therefore need to invest in employee training to ensure that AI is used effectively and responsibly.

1.5 Generative AI in Society

The influence of Generative AI extends beyond educational institutions and industries into everyday life. People now interact with AI through virtual assistants, online customer support, healthcare applications, language translation services, and digital public platforms. These technologies improve access to information, simplify communication, and make many digital services faster and more convenient.

Although Generative AI offers numerous benefits to society, its rapid adoption also raises important concerns. Issues such as misinformation, privacy risks, biased outputs, copyright violations, cybersecurity threats, and misuse of AI-generated content require careful attention. Therefore, governments, educational institutions, industries, and technology developers must work together to establish ethical guidelines and responsible AI practices. A balanced approach will help society benefit from Generative AI while minimizing its potential risks and ensuring that technological progress remains inclusive, transparent, and

sustainable.

1.6 Challenges and Ethical Concerns

Despite the numerous advantages of Generative AI, its widespread adoption has introduced several challenges and ethical concerns. One of the major issues is the accuracy and reliability of AI-generated content, as these systems may produce incorrect or misleading information if the outputs are not carefully verified. The increasing dependence on AI tools for academic writing and research has also raised concerns regarding plagiarism, academic integrity, and the originality of intellectual work. Furthermore, issues related to data privacy, cybersecurity, copyright infringement, and algorithmic bias have become significant challenges that require immediate attention.

Another important concern is the responsible use of Generative AI in education, workplaces, and society. Excessive dependence on AI may reduce critical thinking, creativity, and independent decision-making among users. Therefore, educational institutions, industries, policymakers, and technology developers must work together to establish ethical guidelines, promote AI literacy, and encourage the responsible and transparent use of Generative AI. Addressing these challenges is essential to ensure that the benefits of AI are realized while minimizing its potential risks.

1.7. Need for the Study

Generative AI is rapidly becoming an integral part of research, education, industry, and everyday life. While its applications continue to expand, there is still limited understanding of how it is transforming these sectors collectively. Most existing studies have focused on a single domain, such as education

or business, without examining its broader multidisciplinary impact. As the adoption of AI-powered tools continues to increase, it becomes important to understand users' experiences, perceptions, and expectations regarding their role in different fields.

The present study is therefore undertaken to examine the transformative role of Generative AI across research, education, industry, and society through a survey-based approach. The findings are expected to help educational institutions, researchers, industry professionals, and policymakers understand the opportunities and challenges associated with AI adoption and support the development of effective strategies for its responsible and meaningful use.

1.8. Research Gap

A review of the existing literature indicates that considerable research has been conducted on the application of Generative AI in specific areas such as education, healthcare, software development, and business operations. However, comparatively fewer studies have investigated its combined influence on research, education, industry, and society within a single multidisciplinary framework. Moreover, limited empirical studies have explored users' perceptions through primary data collected from diverse stakeholders. This study attempts to address this gap by providing a survey-based analysis of the role of Generative AI across multiple domains. By incorporating the perspectives of students, faculty members, researchers, and professionals, the research offers a broader understanding of the opportunities, challenges, and future potential of Generative AI in supporting multidisciplinary transformation.

1.9 Overview of the Present Study

The present study adopts a quantitative survey-based research design using primary data collected through a structured questionnaire. The respondents include students, faculty members, researchers, and professionals who have experience or familiarity with Generative AI tools. The study examines the adoption and perceived impact of Generative AI on research, education, industry, and society while also identifying the key benefits, challenges, and future prospects associated with its use.

The findings of this study are expected to contribute to the existing body of knowledge by providing empirical evidence on the multidisciplinary applications of Generative AI. The study also offers practical insights for educational institutions, industries, researchers, and policymakers to encourage the ethical, responsible, and effective integration of Generative AI for sustainable development and innovation.

2. Literature Review

Generative Artificial Intelligence (Generative AI) has become a rapidly growing area of research due to its wide range of applications across education, research, industry, and society. Recent studies have highlighted its ability to improve productivity, support decision-making, enhance creativity, and automate routine tasks. AI-powered tools such as ChatGPT, Google Gemini, and Microsoft Copilot are increasingly being adopted in academic institutions, business organizations, and public services.

Previous research indicates that Generative AI has significantly influenced academic research by assisting with literature reviews, academic writing,

coding, and data analysis. In education, it supports personalized learning, intelligent tutoring, and content creation, thereby improving both teaching and learning experiences. Similarly, industries have adopted Generative AI to streamline business operations, improve customer service, and encourage innovation, while society has benefited from AI-enabled healthcare, digital governance, and communication services.

Although the existing literature demonstrates the growing importance of Generative AI, most studies focus on individual sectors rather than examining its collective influence across research, education, industry, and society. Furthermore, there is limited survey-based empirical evidence that captures the perceptions of different stakeholder groups. Therefore, the present study attempts to provide a multidisciplinary perspective by examining the transformative role of Generative AI across these interconnected domains using primary data.

3. Objectives of the Study

1. To examine the role of Generative AI in transforming research activities by enhancing productivity, innovation, and knowledge creation.
2. To assess the impact of Generative AI on education in terms of teaching, learning, and academic support.
3. To evaluate the contribution of Generative AI to improving productivity, innovation, and decision-making in industry. To analyze the influence of Generative AI on society with respect to digital services, accessibility, communication, and responsible AI adoption.

4. Hypothesis of the Study

Null Hypothesis (H_0): There is no significant

relationship between the adoption of Generative AI and its perceived transformational impact on research, education, industry, and society.

Alternative Hypothesis (H_1): There is a significant positive relationship between the adoption of Generative AI and its perceived transformational impact on research, education, industry, and society.

5. Research Methodology

This study adopts a descriptive and quantitative research design to examine the role of Generative AI in transforming research, education, industry, and society. The study focuses on understanding the perceptions and experiences of respondents regarding the use and impact of Generative AI in Jalgaon City. The research is primarily based on primary data collected through a structured Google Form questionnaire consisting of 10 questions. The questionnaire was designed to gather information on the use of Generative AI, its impact across different sectors, and the challenges associated with its adoption. Responses were collected from students, faculty members, researchers, and professionals in Jalgaon City. A Non-Probability Convenience Sampling technique was used to collect the data from respondents who were easily available and willing to participate in the survey. The study includes a sample of 120 respondents, and the collected data was analyzed to understand the multidisciplinary impact of Generative AI in Jalgaon City.

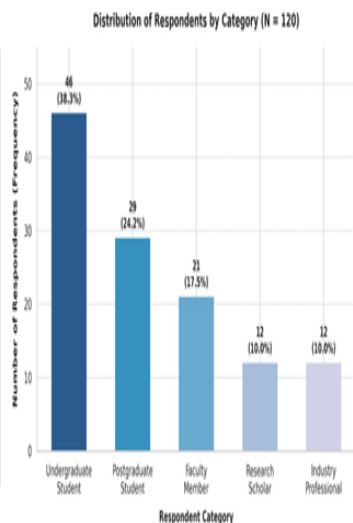
Along with primary data, secondary data was collected from books, research papers, journals, conference proceedings, official websites, and other reliable online sources to provide theoretical support and strengthen the study.

6. Data Analysis & Interpretation

1. Category Describe.

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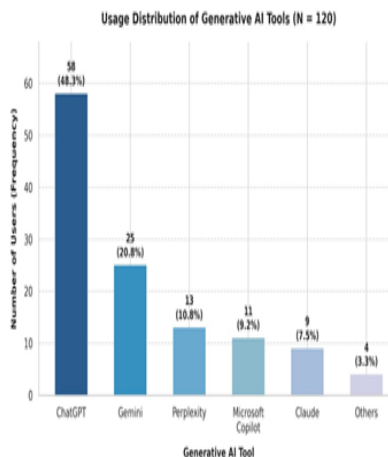
Respondent Category	Frequency (f)	Percentage
Undergraduate Student	46	38.3
Postgraduate Student	29	24.2
Research Scholar	12	10.0
Faculty Member	21	17.5
Industry Professional	12	10.0
Total	120	100.0



This table shows the respondent profile. Among 120 respondents, undergraduate students formed the largest group (38.3%), followed by postgraduate students (24.2%) and faculty members (17.5%). Research scholars and industry professionals each represented 10%.

2. Most Frequently Used Generative AI Tool?

Generative AI Tool	Frequency (f)	Percentage
ChatGPT	58	48.3%
Gemini	25	20.8%
Claude	9	7.5%
Microsoft Copilot	11	9.2%
Perplexity	13	10.8%
Others	4	3.3%
Total	120	100%



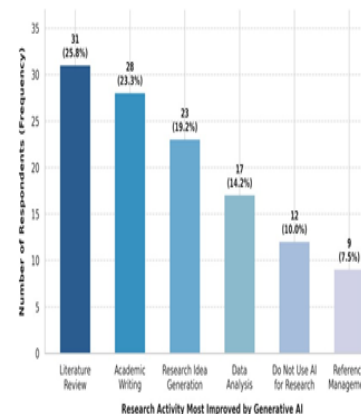
ChatGPT was the most frequently used

Generative AI tool (48.3%), followed by

Gemini (20.8%). Perplexity, Microsoft Copilot, and Claude accounted for 10.8%, 9.2%, and 7.5%, respectively, while 3.3% used other tools.

3. Research Activity Most Improved by Generative AI

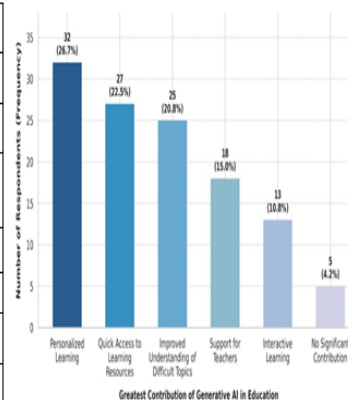
Research Activity	Frequency (f)	Percentage
Literature Review	31	25.8%
Research Idea Generation	23	19.2%
Academic Writing	28	23.3%
Data Analysis	17	14.2%
Reference Management	9	7.5%
I do not use AI for research	12	10.0%
Total	120	100%



Literature Review was the most improved research activity (25.8%), followed by Academic Writing (23.3%) and Research Idea Generation (19.2%). Data Analysis and Reference Management showed lower usage, while 10% of respondents did not use AI for research.

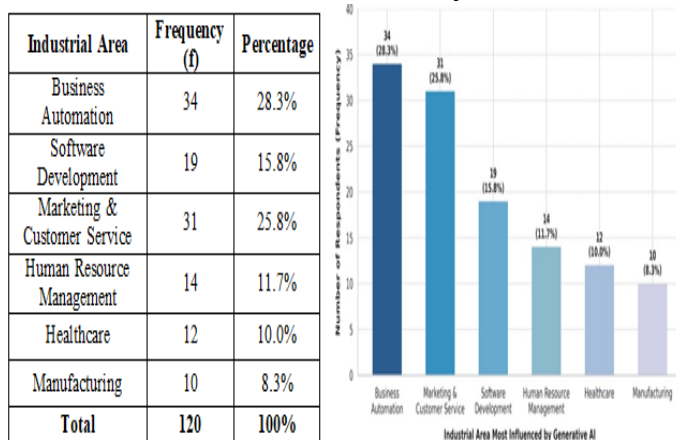
4. Greatest Contribution of Generative AI in Education

Contribution	Frequency (f)	Percentage
Personalized Learning	32	26.7%
Quick Access to Learning Resources	27	22.5%
Improved Understanding of Difficult Topics	25	20.8%
Support for Teachers	18	15.0%
Interactive Learning	13	10.8%
No Significant Contribution	5	4.2%
Total	120	100%



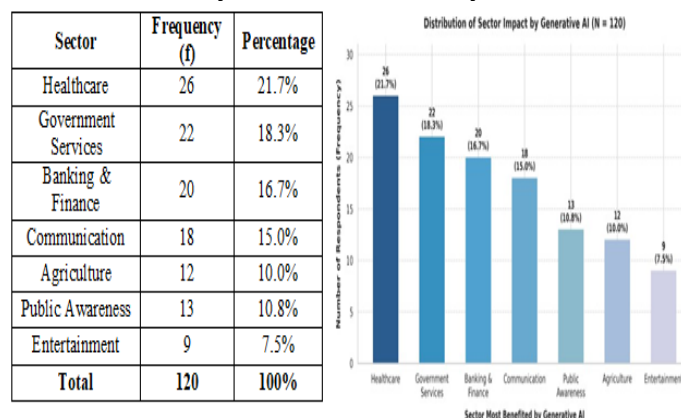
The results indicate that personalized learning was considered the greatest contribution of Generative AI in education, with 26.7% of respondents selecting this option. This was followed by quick access to learning resources (22.5%) and improved understanding of difficult topics (20.8%). Support for teachers and interactive learning were also recognized as important contributions. Only 4.2% of respondents felt that Generative AI has no significant contribution to education, indicating an overall positive perception of its role in improving the learning and teaching process.

5. Industrial Area Most Influenced by Generative AI



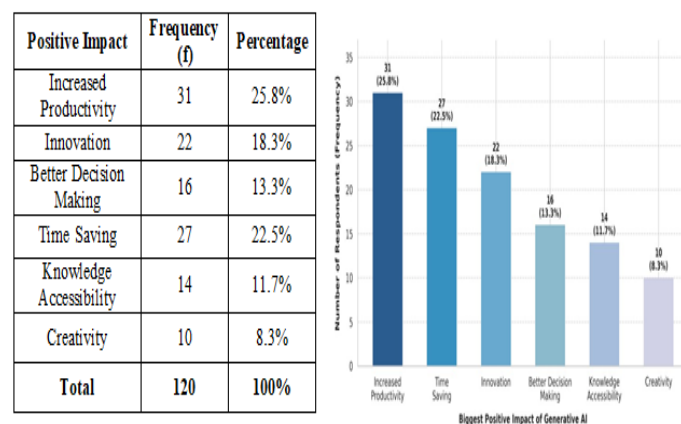
This table shows that Business Automation was considered the most influenced industrial area by Generative AI, with 34 respondents (28.3%), followed by Marketing & Customer Service with 31 respondents (25.8%). Software Development accounted for 19 respondents (15.8%), while Human Resource Management, Healthcare, and Manufacturing received comparatively fewer responses. The results indicate that respondents mainly associate Generative AI with improving business processes, customer interaction, and operational efficiency.

6. Sector of Society Most Benefited by Generative AI



The results show that Healthcare was considered the sector benefiting most from Generative AI, with 26 respondents (21.7%), followed by Government Services (18.3%) and Banking & Finance (16.7%). Communication also received a considerable response at 15.0%, while Agriculture, Public Awareness, and Entertainment showed comparatively lower responses. Overall, the findings indicate that respondents see Generative AI as useful for improving essential services, accessibility, and communication in society.

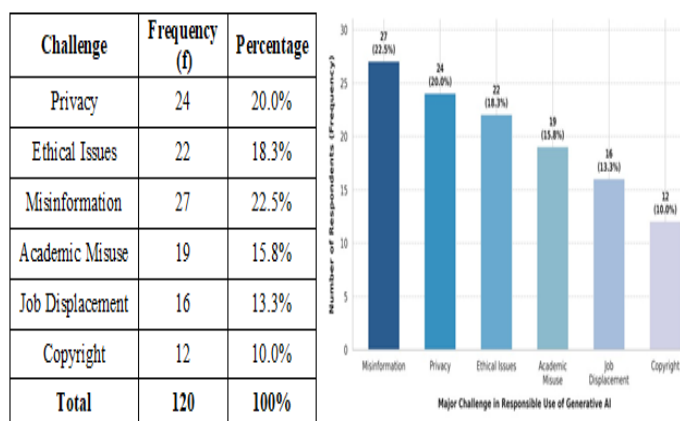
7. Biggest Positive Impact of Generative AI



The findings show that increased productivity was identified as the biggest positive impact of

Generative AI, with 31 respondents (25.8%), followed by time saving (22.5%) and innovation (18.3%). Better decision-making, knowledge accessibility, and creativity also received positive responses. Overall, the results suggest that respondents mainly view Generative AI as a useful tool for improving work efficiency, saving time, and encouraging innovation.

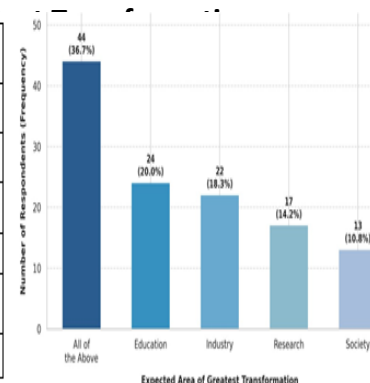
8. Major Challenge in Responsible Use of Generative AI



The findings show that misinformation was considered the challenge requiring the most attention, selected by 27 respondents (22.5%), followed by privacy concerns (20.0%) and ethical issues (18.3%). Academic misuse, job displacement, and copyright concerns also received considerable responses. Overall, the results highlight the need for greater awareness, ethical guidelines, and responsible practices while using Generative AI.

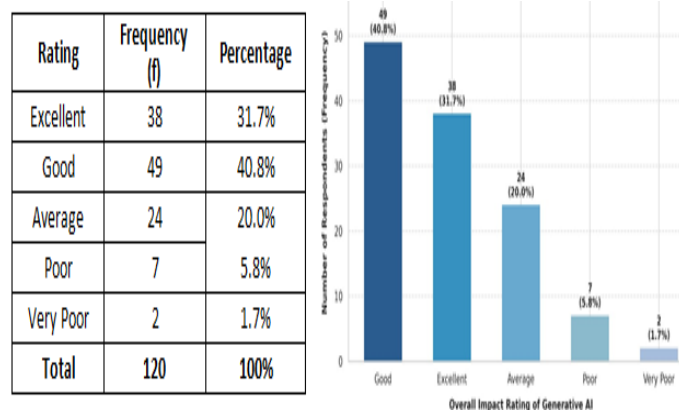
9.

Area	Frequency (f)	Percentage
Research	17	14.2%
Education	24	20.0%
Industry	22	18.3%
Society	13	10.8%
All of the Above	44	36.7%
Total	120	100%



The results indicate that 36.7% of respondents believe Generative AI will bring the greatest transformation across all four areas such as, research, education, industry, and society. Education was selected by 20.0%, followed by industry at 18.3% and research at 14.2%. Society received 10.8% of the responses. This suggests that respondents expect Generative AI to have a broad and multidisciplinary impact rather than being limited to a single sector.

10. Overall Impact of Generative AI



The findings show that Good was the most Common rating, with 49 respondents (40.8%), followed by Excellent (31.7%). Another 20.0% rated the role of Generative AI as average, while only 7.5% gave a poor or very poor rating. Overall, the responses indicate a largely positive perception of

Generative AI's role in transforming research, education, industry, and society.

6.2 Hypothesis Testing & Result

The findings of the study indicate that a majority of respondents have a positive view of Generative AI and recognize its contribution to research, education, industry, and society. Respondents reported benefits such as improved research activities, personalized learning, increased productivity, time saving, and better access to knowledge. Since the majority of responses across the key areas indicate a positive perception of Generative AI, the Null Hypothesis (H_0) is rejected and the Alternative Hypothesis (H_1) is accepted.

Result: Generative AI has a significant positive role in transforming research, education, industry, and society

7. Findings

The findings of the study show that Generative AI is gradually becoming a useful part of different academic, professional, and social activities. Among the AI tools considered in the study, ChatGPT was the most frequently used tool, followed by Gemini and other AI applications. This indicates that respondents are becoming familiar with Generative AI and are using it for different purposes. In the area of research, respondents found Generative AI particularly helpful for literature review, academic writing, and generating research ideas. This suggests that AI tools can reduce the time required for some research activities and provide useful support during different stages of research work. In education, personalized learning was identified as the major contribution of Generative AI.

Respondents also considered quick access to learning resources and better understanding of difficult topics as important benefits. This shows that Generative AI can provide additional support to both learners and teachers.

From an industry perspective, business automation and marketing and customer service were identified as the areas most influenced by Generative AI. The results indicate that AI can help organizations improve productivity, automate routine activities, and support better interaction with customers. The study also found that respondents see benefits of Generative AI in society, particularly in healthcare, government services, and banking and finance.

Overall, respondents had a positive view of Generative AI, mainly because of its ability to increase productivity and save time. However, concerns such as misinformation, privacy, and ethical issues were also highlighted, showing the need for responsible and careful use of Generative AI.

8. Recommendations

Based on the findings of the study, Generative AI should be adopted in a planned and responsible manner. Educational institutions can provide basic AI literacy and training to help students and teachers understand how to use AI tools effectively. Researchers should use Generative AI as a supporting tool while maintaining originality, proper referencing, and their own judgment. Industries can make greater use of AI for automation, productivity, innovation, and customer support, while also preparing employees for changing work requirements.

At the same time, greater attention should be given to privacy, misinformation, copyright, academic misuse, and ethical issues. Users should verify AI-generated information before using it for academic, professional, or public purposes. Clear institutional guidelines and awareness programs can help promote the safe, transparent, and responsible use of Generative AI.

9. Conclusion

The study concludes that Generative AI is gradually becoming an important part of research, education, industry, and society. The survey results show that respondents generally have a positive view of Generative AI, especially because it can save time, improve productivity, support research activities, provide personalized learning, and assist various business functions. The findings also indicate that the influence of Generative AI is not limited to a single area. Its applications can be seen across different fields, which supports the multidisciplinary nature of the present study. However, concerns related to misinformation, privacy, ethical use, and responsible adoption also need attention. Therefore, the future use of Generative AI should focus on achieving a balance between technological development, human judgment, and responsible use.

10. Limitations of the Study

The study has certain limitations. The research was conducted with a sample of 120 respondents using convenience sampling, so the findings may not represent the views of the entire population. The study is also based on respondents' opinions and experiences with Generative AI, which may differ depending on their background and level of AI

knowledge. In addition, Generative AI is developing rapidly, and its tools, applications, and challenges may change over time. Therefore, the findings should be considered within the scope and period of the present study.

11. Future Scope

There is considerable scope for further research in this area. Future studies can use a larger and more diverse sample covering different regions, institutions, and industries. Researchers can also compare the perceptions of students, faculty members, researchers, and industry professionals to understand differences in AI adoption. Further studies can examine the long-term impact of Generative AI on research practices, teaching and learning, employment, productivity, and social behavior. Research can also focus on individual Generative AI tools to study their accuracy, usefulness, ethical concerns, and effectiveness in specific fields. Such studies can provide deeper insights into how Generative AI can be used responsibly and effectively in the future.

12. References

1. Alamleh, H.; Alqahtani, A.A.S.; Elsaid, A. Distinguishing Human-Written and ChatGPT-Generated Text Using Machine Learning. In Proceedings of the 2023 Systems and Information Engineering Design Symposium (SIEDS), Charlottesville, VA, USA, 27–28 April 2023; pp. 154–158.
2. Gala, D.; Makaryus, A.N. The Utility of Language Models in Cardiology: A Narrative Review of the

Benefits and Concerns of ChatGPT-4. *Int. J. Environ. Res. Public Health* 2023, 20, 6438

3. Al-Zahrani, A. M. (2023). The impact of generative AI tools on researchers and research: Implications for academia in higher education. *Innovations in Education and Teaching International*. <https://doi.org/10.1080/14703297.2023.2271445>
4. Elahi, M., Afolaranmi, S. O., Martinez Lastra, J. L., & Perez Garcia, J. A. (2023). A comprehensive literature review of the applications of AI techniques through the lifecycle of industrial equipment. *Discover Artificial Intelligence*, 3(1), <https://doi.org/10.1007/s44163-023-00089-x>
5. Holmes, W., & Miao, F. (2023). Guidance for generative AI in education and research. UNESCO Publishing.
6. Wang, H., Dang, A., Wu, Z., & Mac, S. (2023). Generative AI in higher education: Seeing ChatGPT through universities' policies, resources, and guidelines. [retrieved from, Generative AI in Higher Education](#)
7. Roe, J., & Perkins, M. (2024). Generative AI and agency in education: A critical scoping review and thematic analysis retrieved from, [Research Paper – Generative AI and Agency in Education](#)