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Yashwantrao Chavan Warana Mahavidyalaya
Warananagar

Under UGC 2 (f), 12 (B) (AICTE Approved & Constituent College of Warana University, Warananagar)
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On

Recent Trends in Humanities, Commerce and Management

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Organized by

Faculty of Humanities, Commerce and Management and IQAC

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PM-USHA

One Day National Conference on

'Recent Trends in Humanities, Commerce and Mmanagement

6th February, 2026

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AI-Assisted Learning and Skill Development among Geography Students**Dr. Nisha A. Surve*** **Dr. Shubhangi S. Kale***

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Abstract:

In several academic fields, including geography, artificial intelligence (AI) is quickly changing teaching strategies. Intelligent tutoring systems, GIS and remote sensing AI models, virtual labs, and adaptive learning platforms are examples of AI-assisted learning technologies that can improve students' practical knowledge, analytical abilities, and spatial thinking. This study investigates how geography students' skill development is affected by AI-assisted learning. Undergraduate and graduate students' responses were gathered using a survey-based methodology. The findings show that AI technologies boost students' technical and analytical abilities, increase overall learning engagement, and have a favorable impact on their comprehension of difficult geographical concepts. The study comes to the conclusion that incorporating AI into geography courses can greatly enhance students' practical and cognitive skills.

Keywords: Artificial Intelligence, AI-Assisted Learning, Geography Education, Skill Development, GIS, Remote Sensing, Student Engagement

Introduction

Artificial intelligence's (AI) quick development has revolutionized education by creating intelligent and flexible learning environments. Students' spatial thinking, technical proficiency, and analytical skills in geography could be improved by AI applications like GeoAI, machine learning in GIS, virtual labs, and AI-based remote sensing analysis. Artificial Intelligence (AI) has advanced so quickly that it has drastically changed many facets of society, including education. AI is the term for computer systems and algorithms that can carry out tasks like learning, reasoning, problem-solving, and decision-making that normally need human intellect (Russell & Norvig, 2021). AI-driven technologies have become more popular in higher education in recent years because of their capacity to support skill-based education, improve student engagement, automate assessments, and customize learning. AI-assisted learning has become an essential part of contemporary educational environments as universities around the world shift toward technology-integrated pedagogy.

Particularly well-suited for AI integration is geography, a multidisciplinary field that connects the social sciences, natural sciences, and geospatial technologies. Understanding intricate spatial patterns, physical processes, human-environment interactions, and large-scale data analysis are all part of geography education. The increasing need for practical skills like Geographic Information Systems (GIS), remote sensing, spatial modeling, and data-driven decision-making is frequently not satisfied by traditional training approaches, which mostly rely on lectures, textbooks, and manual map work. By enabling interactive, adaptable, and skill-oriented learning environments, AI-assisted learning provides creative answers to these problems. AI techniques are being employed more and more in geography education in fields like intelligent GIS platforms, automated image categorization in remote sensing, spatial pattern recognition, predictive modeling for environmental processes, and virtual simulations for field-based learning. These applications—collectively known as GeoAI—combine geospatial technologies with AI methods as machine learning, deep learning, and data mining (Li et al., 2020). By enabling students to interact with real-world data and challenging spatial problems, GeoAI has not only transformed geographical research but also created new opportunities for education.

Skill development has been a primary priority of global higher education policy frameworks, notably India's National Education Policy (NEP) 2020, which prioritizes experiential learning, digital literacy, and multidisciplinary education. Geography, with its strong practical dimension, is essential for skill-oriented education. Another essential characteristic of AI-assisted learning is its ability to increase learner



engagement and motivation. According to research, interactive and adaptable learning environments increase students' attention and involvement, especially in areas considered as complicated or abstract (Chen et al., 2020). Additionally, AI-assisted learning promotes inclusive and flexible schooling. Students with various academic backgrounds and levels of prior knowledge might benefit from tailored learning paths. Despite its benefits, the use of AI into geography teaching presents various obstacles and issues. The digital divide, access to technology, a lack of faculty training, the ethical application of AI, and data privacy are all important challenges.

Empirical research on AI in education have been focused on engineering, medical, and computer science fields, with less emphasis paid to geography education, particularly in terms of student skill development. Existing research shows that AI has the potential to improve academic performance and engagement; however, subject-specific studies are needed to investigate how AI tools contribute to disciplinary skills such as spatial analysis, cartographic interpretation, and geospatial data handling (Lu et al., 2022).

Both conceptual knowledge (physical, human, and environmental geography) and practical abilities (GIS, spatial data interpretation, mapping, and field data analysis) are necessary for geography education. Students are frequently not fully engaged in the development of practical skills through traditional instructional approaches. By providing interactive simulations, automated tests, customized learning pathways, and predictive feedback, AI-assisted learning fills this gap. AI-assisted learning is a game changer in geography education, providing novel ways to improve conceptual comprehension, practical abilities, and student engagement.

Objectives

1. To explore the adoption of AI-assisted learning tools among Geography students.
2. To analyze the impact of AI tools on skill development, including GIS, spatial analysis, and research capabilities.
3. To identify students' perceptions regarding AI-based learning in Geography.

Database and Methodology:

A descriptive survey-based research design was used to collect data from Geography students. Undergraduate and postgraduate Geography students from various colleges were selected. Primary data was collected through field survey and through the questionnaires. Questionnaire was formulated on account of all the relevant aspects mentioned above in terms of AI-Assisted Learning and Skill Development among Geography Students. Quantitative responses were analysed using percentages, mean scores, and charts. Qualitative responses were coded and analysed for common themes. The current study is based on a questionnaire survey administered to undergraduate and postgraduate Geography students to determine the effect of AI-assisted learning in skill development. A total of 112 valid replies were collected, representing students from the BA, MA, PG Diploma Geoinformatics and M.Sc. Geoinformatics these geography programs. Percentage analysis was utilized to assess the data and better understand students' attitudes about AI-based learning tools.

Results and Discussion:

The study's findings show that AI-assisted learning improves academic engagement and skill development in Geography students. The majority of respondents reported often using AI tools including GIS-based AI features, virtual simulations, and intelligent tutoring systems to improve their grasp of complicated geographical topics. This confirms previous research that shown that AI-powered learning environments increase deeper conceptual clarity through visualization, adaptive material delivery, and rapid feedback (Chen et al., 2020). Geography, being a spatially dense science, benefits immensely from AI-enabled visual analytics and simulations, which assist students in understanding abstract phenomena such as climatic variability, land-use dynamics, and geomorphological processes. Students' greater comfort in managing GIS and spatial data highlights the importance of AI in bridging the gap between academic

understanding and actual application. These findings are consistent with Lu et al. (2022), who said that AI-assisted learning improves students' technical abilities and self-efficacy in higher education.

Effectiveness of AI-Assisted Learning: When students were asked if AI-assisted learning is more successful than traditional teaching techniques, 60.7% agreed, while 24.1% thought it was effective to some level. Only 9.8% disagreed with this assertion. This definitely demonstrates a substantial favourable preference for AI-assisted learning among Geography students. The findings indicate that AI technologies improve conceptual clarity by offering interactive information, real-time feedback, and quick access to learning resources (Fig. 1).

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AI in GIS and Remote Sensing Learning: One of the most important conclusions concerns technical skill improvement. When asked if AI makes GIS and Remote Sensing simpler to understand, 58.9% agreed, with 39.3% saying it does to some extent. Only 1.8% disagreed. This suggests that AI-powered platforms, automated data processing, and visualization tools significantly simplify geospatial technologies and make them more accessible to students (Fig. 2).

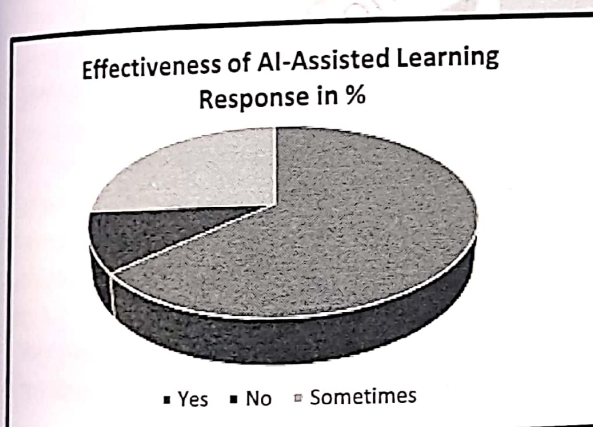


Fig. 1

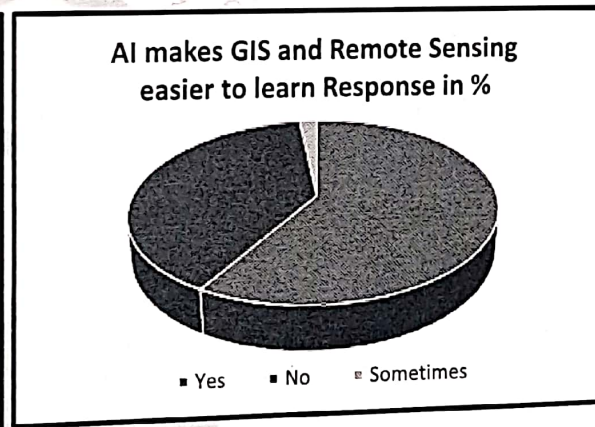


Fig. 2

Improvement of Data Analysis Skills: A whopping 98.2% of students believed that AI has enhanced their data analysis skills, with only 1.8% disagreeing. This finding lends substantial support to the claim that AI improves analytical and computational abilities, which are critical components of geography education, notably in spatial analysis, environmental modeling, and research-based learning.

When asked if AI increases employability abilities, 56.3% of students replied favourably, 29.5% were unclear, and 14.3% disagreed. Although the majority recognized AI's significance in improving job-related abilities, the comparatively high proportion of ambivalent responses suggests a need for more curricular harmonization between AI technologies and industry-relevant geospatial applications.

Overall, the data shows that students see AI-assisted learning as a powerful support system that improves comprehension, self-learning, technical abilities, and analytical capacity. However, other respondents voiced worries about accessibility, technological complexity, and reliance on AI technologies. These findings highlight the importance of a balanced mix of AI and conventional education approaches.

The study also found that AI-assisted learning improves skill-oriented education by encouraging analytical thinking, problem-solving ability, and digital literacy in geography students. Students said AI technologies were especially valuable for acquiring technical abilities like remote sensing, spatial analysis, and data interpretation, which are required for professional employment in geospatial sciences, urban

planning, and environmental management. Despite the generally good opinion, a number of obstacles were found, including restricted access to advanced software, insufficient technical knowledge, and reliance on consistent internet connectivity. These problems mirror UNESCO's (2021) worries about the digital divide and uneven access to AI-based educational tools. The findings indicate that, while AI has the potential to alter geography education, its efficacy is contingent on institutional support, faculty training, and curricular integration. As a result, strategic AI-assisted learning deployment, together with capacity building and infrastructure development, is critical for ensuring inclusive and long-term skill development. Overall, the debate emphasizes that AI is not a replacement for traditional teaching, but rather a complementing tool that improves experiential learning and prepares Geography students for new geospatial and data-driven occupations.

Conclusion

AI-assisted learning is an effective technique for increasing Geography students' knowledge and technical abilities. The integration of AI technologies such as GIS AI features, remote sensing models, and virtual laboratories promotes spatial thinking, analytical abilities, and engagement. Technical impediments and limited access must be addressed in order to get the best results. Future research may focus on long-term skill retention and a comparison of traditional versus AI-assisted learning approaches.

The study finds that AI-assisted learning has a considerable impact on skill improvement among geography students. The survey findings clearly show enhanced conceptual comprehension, greater self-learning capacity, and significant improvement in technical abilities such as GIS, remote sensing, and data processing. While students are enthusiastic in AI-based learning, difficulties such as accessibility and successful implementation persist. As a result, combining AI technologies with traditional pedagogy, as well as sufficient training and infrastructure support, is critical for improving learning outcomes and preparing Geography students for upcoming geospatial occupations.

References:

1. Chen, X., Xie, H., & Hwang, G. J. (2020). A multi-perspective study on artificial intelligence in education: Research trends and challenges. *Computers and Education: Artificial Intelligence*, 1, 100005. <https://doi.org/10.1016/j.caeai.2020.100005>
2. Li, W., Goodchild, M. F., & Church, R. (2020). An efficient measure of compactness for two-dimensional shapes and its application in regionalization problems. *International Journal of Geographical Information Science*, 34(6), 1227–1246.
3. Lu, X., Zhang, J., & Xue, Y. (2022). The impact of AI-assisted learning systems on student performance in higher education. *Education and Information Technologies*, 27(3), 345–364. <https://doi.org/10.1007/s10639-021-10625-4>
4. Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.