Role of Artificial Intelligence in Increasing Parental Engagement and Home Learning

Dr. Jyoti, Assistant Professor, M.M. College of Education, Fatehabad

Abstract

Parental engagement plays a vital role in enhancing students' academic performance, motivation, and overall development. With the increasing shift toward digital and home-based learning, especially after the COVID-19 pandemic, parents are required to take a more active role in their children's education. Artificial Intelligence (AI) has emerged as a powerful tool to support and strengthen parental involvement in home learning environments. This research paper explores how AI-based educational technologies can increase parental engagement by providing personalized learning support, real-time feedback, learning analytics, and collaborative learning opportunities. The study reviews existing literature on AI-mediated family learning, discusses benefits and challenges, and highlights how AI can foster effective parent-child collaboration. The paper concludes that while AI has significant potential to enhance parental engagement, careful implementation, digital literacy, and ethical considerations are essential for successful outcomes.

Keywords: Artificial Intelligence, Parental Engagement, Home Learning, Educational Technology, Parent-Child Collaboration, Digital Learning

1. Introduction

Parental engagement is widely recognized as a crucial factor influencing children's academic success and emotional well-being. Research consistently shows that students perform better academically when parents are actively involved in their learning process. Traditionally, parental involvement included helping with homework, attending parent-teacher meetings, and monitoring academic progress. However, with the integration of technology in education and the rise of online and blended learning, the role of parents has significantly evolved.

Artificial Intelligence has transformed various sectors, including education. AI-powered tools such as intelligent tutoring systems, adaptive learning platforms, learning management systems, and educational chatbots have changed how students learn at home. These technologies also provide new opportunities for parents to understand, support, and engage with their children's learning more effectively. This paper aims to explore the role of AI in increasing parental engagement and supporting home learning.

2. Concept of Parental Engagement in Home Learning

Parental engagement refers to the active participation of parents in supporting their children's learning at home and in collaboration with schools. It includes:

monitoring academic progress

assisting with homework and projects

motivating children to learn

communicating with teachers

creating a supportive learning environment at home

In home learning settings, parental engagement becomes even more important because parents often act as facilitators, mentors, and co-learners. However, many parents face challenges such as lack of subject knowledge, limited time, and low digital literacy. AI-based tools can help overcome these challenges by offering guidance and structured support.

3. Role of Artificial Intelligence in Education

Artificial Intelligence in education refers to the use of machine learning, natural language processing, and data analytics to create intelligent systems that adapt to learners' needs. Some common AI applications in education include:

Adaptive learning platforms

Intelligent tutoring systems

Educational chatbots

Learning analytics dashboards

Voice-based learning assistants

These technologies personalize learning experiences and provide insights that can also be shared with parents, thereby increasing their involvement.

4. AI Tools for Increasing Parental Engagement

4.1 Personalized Learning Support

AI-based learning platforms analyze students' learning patterns and provide personalized content based on their strengths and weaknesses. Parents can access dashboards that show their child's progress, learning gaps, and achievements. This helps parents understand where their child needs support and how they can assist at home.

4.2 Real-Time Feedback and Monitoring

AI systems provide real-time feedback on students' performance. Parents receive regular updates through mobile applications or emails, which keeps them informed about their child's learning activities. This continuous feedback encourages parents to stay engaged and take timely action when needed.

4.3 AI-Mediated Parent-Child Collaboration

Recent studies highlight AI-mediated family learning systems that encourage parents and children to learn together. AI tools can suggest discussion questions, collaborative tasks, and shared activities that promote meaningful interaction between parents and children. This co-learning approach strengthens both academic understanding and emotional bonding.

4.4 Educational Chatbots and Virtual Assistants

AI-powered chatbots can answer students' and parents' questions related to homework, concepts, and learning schedules. These tools reduce parents' dependency on subject expertise and make it easier for them to support learning at home.

5. Review of Related Literature

Several studies emphasize the positive impact of AI on parental engagement:

Li et al. (2025) introduced AI-mediated support systems that help parents participate in everyday learning activities with their children. The study found improved collaboration and reduced parental stress.

Ho et al. (2025) explored AI-assisted educational robots and found that such tools enhance parent-child interaction and flexible learning support.

Muvombo et al. (2024) highlighted the importance of AI literacy among parents to ensure safe and effective use of AI tools in children's education.

The literature suggests that AI can act as a bridge between parents and children, making home learning more interactive and supportive.

6. Benefits of AI in Enhancing Parental Engagement

Improves parents' awareness of children's learning progress

Reduces academic stress on parents

Encourages collaborative and interactive learning

Supports parents with limited subject knowledge

Strengthens home-school connection

7. Challenges and Limitations

Despite its advantages, AI-based parental engagement faces several challenges:

7.1 Digital Divide

Not all families have equal access to digital devices and internet connectivity, which can limit the use of AI tools.

7.2 Lack of Digital Literacy

Some parents may lack the technical skills required to use AI-based platforms effectively.

7.3 Privacy and Ethical Concerns

Parents often worry about data privacy, security, and misuse of children's learning data. Transparency and ethical AI practices are essential.

8. Suggestions for Effective Implementation

Conduct digital literacy training programs for parents

Design user-friendly AI platforms

Ensure data privacy and transparency

Encourage schools to guide parents on AI usage

Promote co-learning rather than child-only AI use

9. Conclusion

Artificial Intelligence has the potential to transform home learning by actively involving parents in the educational process. AI-based tools provide personalized support, real-time feedback, and collaborative learning opportunities that empower parents to participate confidently in their children's education. However, to maximize benefits, challenges related to access, digital literacy, and ethics must be addressed. With thoughtful implementation, AI can strengthen parental engagement and create a more supportive and effective home learning environment.

References

1. Li, Y., Xie, J., Ling, Y.-F., et al. (2025). Learning Together: AI-Mediated Support for Parental Involvement in Everyday Learning. arXiv.
2. Ho, H.-R., Liu, Z., & Mutlu, B. (2025). Designing AI-Assisted Educational Robots for Parental Involvement. arXiv.
3. Muvombo, M., Musonda, A., et al. (2024). Nurturing Parental Involvement in AI Literacy among Children. Journal of Culture, Society and Development.
4. Frontiers in Psychology. (2021). Parents' Acceptance of Educational Technology.
5. Liu, Z. (2025). AI and Family Education: Opportunities and Challenges. International Journal of Education and Social Development.