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A study on Effect of AI Driven Learning and Development for Gen Z Students

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Abstract: Artificial intelligence (AI) is revolutionizing the way Gen Z students approach learning and professional development. By leveraging AI-powered tools and platforms, this generation is gaining personalized, adaptive, and engaging learning experiences that cater to their unique needs and preferences.AI-driven learning analytics provide valuable insights into students' strengths, weaknesses, and learning styles, enabling them to tailor their educational journeys accordingly. Intelligent tutoring systems offer real-time feedback and support, guiding students through complex concepts and fostering a deeper understanding of the subject matter.

Furthermore, AI-powered virtual and augmented reality simulations create immersive learning environments that bridge the gap between theory and practice. These technologies allow students to experiment, make mistakes, and learn from their experiences in a safe and controlled setting. As a result, Gen Z students are developing a strong foundation of knowledge and skills, preparing them for the demands of the modern workforce. By embracing AI-driven learning and development, this generation is poised to become highly skilled, adaptable, and innovative professionals who will shape the future of various industries.

Keywords: Gen Z, Adaptive learning, AI, learning and development

I. INTRODUCTION

Artificial intelligence (AI) is reshaping the educational landscape, particularly for Gen Z learners. By leveraging AI-powered tools and platforms, this generation is gaining personalized, adaptive, and engaging learning experiences that cater to their unique needs and preferences.

II. LITERATURE REVIEW

Numerous studies have highlighted the potential of AI to revolutionize learning and development. For instance, research by Siemens and Baker (2012) emphasizes the role of AI in creating personalized learning environments that adapt to individual learner needs and paces. Similarly, Mousavinasab, E. et al (2018) explore the use of AI-powered intelligent tutoring systems to provide targeted instruction and feedback, enhancing student engagement and performance.

The integration of AI in learning and development is further supported by the work of Lin, CC., Huang, A.Y.Q. & Lu, O.H.T. (2023), who argue that AI can facilitate the development of higher-order thinking skills, such as critical thinking, problem-solving, and creativity. By providing opportunities for learners to interact with complex problems and receive timely feedback, AI can foster deeper learning and innovation.

Moreover, the rise of virtual and augmented reality technologies, powered by AI, offers immersive learning experiences that can enhance knowledge retention and skill acquisition. As noted by Dede (2009), these technologies can create realistic simulations that allow learners to practice and apply their knowledge in a safe and controlled environment.

A. Objectives

1) To investigate the impact of AI-powered learning technologies on Gen Z students' cognitive development, engagement, and academic performance in English improvement course.
2) To explore the potential of AI-driven personalized learning to enhance students' critical thinking, problem-solving, and creativity skills in English.

III. METHODOLOGY

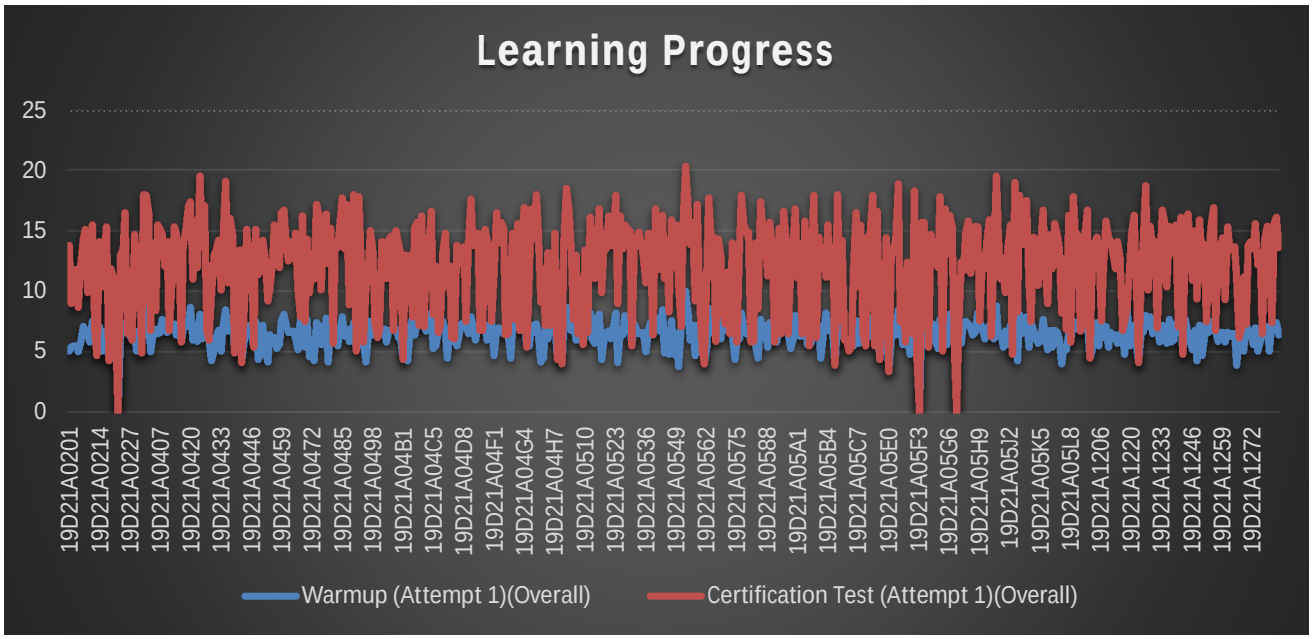
A focussed group approach was used to see the effect of STEP PLUS learning management systems (LMS) on improving English communication skills to collect data on student interactions with AI-powered tools, such as time spent, completion rates, and performance metrics.

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IV. DATA ANALYSIS AND RESULTS

Table 1- Step plus student learning metrics

Status	Count
No. of learners registered	520
No. of learners active	517
No. of learners completed 50% or more	439
No. of learners completed less than 50%	81
No. of learners completed "Warmup (Attempt 1)"	517
No. of learners completed "Check your skills (Attempt 1)"	442
No. of learners not completed "Check your skills (Attempt 1)"	78
No. of learners completed "Check your skills (Attempt 1)"	431
No. of learners not completed "Check your skills (Attempt 1)"	89
No. of learners completed "Certification Test (Attempt 1)"	**408**
No. of learners not completed "Certification Test (Attempt 1)"	**112**



Graph 1 – Scores before learning and scores after completing the course using STEP PLUS LMS

V. DISCUSSION

1) Personalized Learning: The LMS system identified students who are struggling with specific topics and provide targeted interventions.
2) Adaptive Learning: The LMS adjusted the difficulty level of questions based on a student's performance to optimize their learning experience.
3) Early Intervention: The system detected students at risk of falling behind and provide timely support.
4) Curriculum Improvement: The system analyzed the performance data to identify areas where the curriculum can be improved.

VI. LIMITATIONS

While this research aims to provide valuable insights into the impact of AI-driven learning and development on Gen Z students, several limitations should be acknowledged:

1) Sample Size and Generalizability: The generalizability of the findings may be limited by the sample size and specific characteristics of the participants. A larger and more diverse sample could provide a more comprehensive understanding of the impact of AI-driven learning.
2) Technological Limitations: The effectiveness of AI-driven learning tools may be influenced by factors such as technological infrastructure, internet connectivity, and device accessibility. These factors can vary across different educational settings and may limit the impact of AI-driven interventions.
3) Ethical Considerations: The use of AI-powered tools raises ethical concerns related to data privacy, algorithmic bias, and the potential for surveillance. Researchers must address these ethical implications and ensure that AI-driven learning is used responsibly and equitably.
4) Rapid Technological Advancements: The field of AI is rapidly evolving, and new technologies and applications are emerging constantly. This makes it challenging to keep up with the latest developments and to assess the long-term impact of AI-driven learning on student outcomes.

By acknowledging these limitations, researchers can identify areas for future research and work to address these challenges to maximize the benefits of AI-driven learning for Gen Z students.

VII. CONCLUSION

In conclusion, the integration of AI-driven learning and development technologies has the potential to revolutionize the way Gen Z students learn and grow professionally. By providing personalized, adaptive, and engaging learning experiences, AI can empower students to develop critical thinking, problem-solving, and creativity skills. However, it is crucial to recognize the limitations of AI-driven learning and to address ethical considerations. Future research should focus on exploring the long-term impact of AI on student outcomes, developing effective strategies for integrating AI into diverse learning contexts, and ensuring equitable access to AI-powered tools.

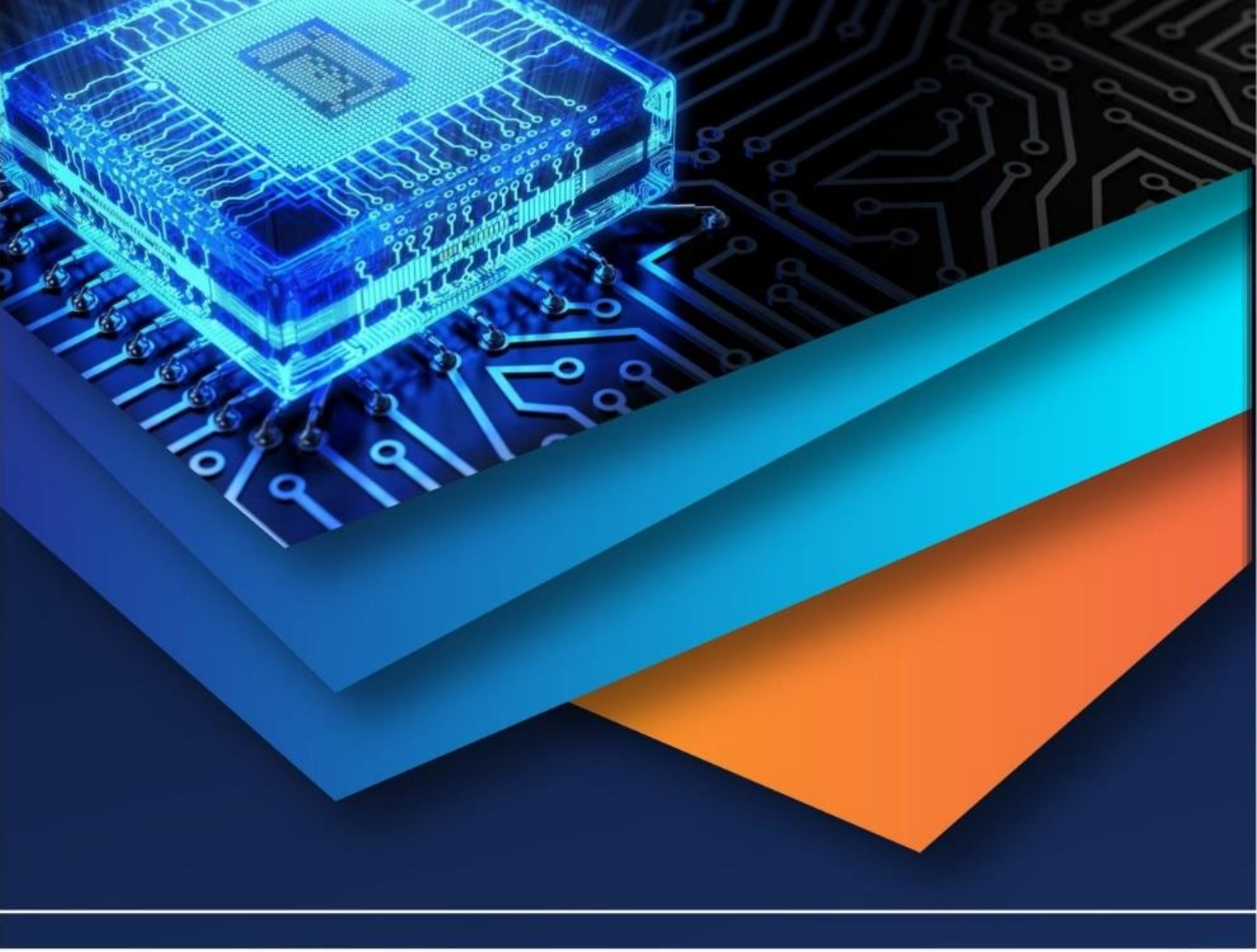
By embracing AI-driven learning and development, educators and institutions can prepare Gen Z students for the challenges and opportunities of the 21st century.

CONFLICT OF INTEREST -The authors declare there is no conflict of interest in this work

AUTHORS' CONTRIBUTION- All authors contributed to the conception of the study

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