THE FUTURE OF STUDENTS' SELF-EDUCATION IN THE ERA OF ARTIFICIAL INTELLIGENCE

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INTRODUCTION

As artificial intelligence advances at an unprecedented rate, its impact on higher education and self-education is becoming increasingly evident. Students in higher education institutions can now access a vast amount of information and resources online, thanks to the advancements in AI technology. This allows them to engage in self-directed learning and explore topics of interest at their own pace and convenience. Integrating AI into education will revolutionize how students learn and acquire knowledge, providing personalized and adaptive learning experiences tailored to their needs and preferences. Students can now leverage various online resources to engage in self-directed learning, tailoring their educational journeys to their needs and interests. This personalized approach, empowered by AI, stands to revolutionize knowledge acquisition within higher education. Moreover, AI can equip students with the tools to analyze intricate data and solve problems, preparing them for the challenges they will encounter beyond the higher educational institution. Furthermore, the potential for VR environments to enhance self-directed learning is explored. When integrated with AI, VR can create immersive and interactive learning experiences, allowing students to engage with complex subjects in a hands-on manner. The challenges associated with implementing VR and AI in self-directed learning environments encompass technical infrastructure limitations, the need for high-quality educational VR content, accessibility considerations, and the importance of data privacy. However, the study emphasizes that by addressing these challenges and fostering collaboration with accessibility experts, institutions can harness the power of VR and AI to create a compelling learning experience for students, preparing them for future complexities. AI will personalize the learning experience for students by providing them with customized learning paths, feedback, and recommendations. Additionally, AI-powered virtual reality environments will allow students to have immersive and interactive learning experiences. In this era of artificial intelligence, self-education for students in higher education institutions will be characterized by personalized and adaptive learning

experiences, facilitated by AI technology[1]. These AI-based apps and platforms can provide customized learning paths, recommend relevant resources, and even provide real-time feedback to enhance the learning process.

Furthermore, AI can assist students in analyzing complex data and solving problems, preparing them for the challenges they will face in the real world. This technological advancement will not only benefit mainstream students but also those with disabilities. The use of AI-based apps can provide students with disabilities with the necessary tools and support to overcome barriers and fully participate in their education[2]. Overall, the future of self-education for students in higher education institutions in the era of artificial intelligence holds immense potential to revolutionize and enhance the learning experience, empowering students to take control of their education and acquire knowledge in a personalized and adaptive manner. In the future, students in higher education institutions will have access to advanced AI-based tools that will revolutionize their self-education process. These tools will provide personalized and adaptive learning experiences, assisting students in analyzing complex data, solving problems, and overcoming barriers that may hinder their education. This will ultimately reshape the education ecosystem and cultivate future talents. In summary, the future of self-education for students in higher education institutions in the era of artificial intelligence will be characterized by personalized, adaptive, and AI-enabled learning experiences that empower students to take control of their education, acquire knowledge at their own pace, and overcome barriers to learning. In short, the future of self-education for students in higher education institutions in the era of artificial intelligence will be characterized by personalized and adaptive learning experiences facilitated by AI technology. These AI-based tools will provide customized learning paths, recommend relevant resources, and even provide real-time feedback to enhance the learning process.

1. Virtual Environments and AI in Students' Self-Education

In terms of future advancements in AI, we can anticipate a significant transformation in how self-education is facilitated by technology. For instance, virtual reality environments could be integrated with AI to create

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[1] Zhong L. A systematic review of personalized learning in higher education: learning content structure, learning materials sequence, and learning readiness support. *Interactive Learning Environments*. 2022. P. 1–21. URL: https://doi.org/ 10.1080/10494820.2022.2061006 (date of access: 26.11.2024).

[2] Owoc M. L., Sawicka A., Weichbroth P. Artificial Intelligence Technologies in Education: Benefits, Challenges and Strategies of Implementation. *IFIP Advances in Information and Communication Technology*. Cham, 2021. P. 37–58. URL: https://doi.org/10.1007/978-3-030-85001-2_4 (date of access: 26.11.2024).

fully immersive learning experiences, allowing students to interact with complex concepts in a hands-on manner. Additionally, the development of more sophisticated adaptive learning algorithms is expected to further personalize the learning process. These algorithms could analyze a student's performance in real time, identifying strengths and weaknesses and adjusting the content accordingly. This would ensure that each student is challenged at the right level, promoting efficient learning and knowledge retention[3].

As the digital landscape continues to evolve, the role of virtual environments and artificial intelligence in students' self-education has become increasingly prominent. The integration of AI-powered technologies, such as intelligent tutoring systems, personalized curriculum plans, and AI-driven virtual assistants, has the potential to enhance engagement, learning, and well-being for students[4][5][6].

One of the key benefits of AI-powered virtual environments is the ability to provide personalized learning experiences that adapt to each student's individual needs and learning styles[7][8] Intelligent tutoring systems, for instance, can offer one-on-one support, delivering tailored feedback and content that caters to the student's capabilities and progress. Similarly, AI-based curriculum plans, or "curriculum playlists," can curate daily learning activities based on the student's strengths and areas for improvement, promoting a more efficient and effective self-education process.

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[3] Edtech Trends: Educational Technology that Will Dominate 2024. *Best Mobile Application Development Company In Texas / Technbrains*. URL: https://www.technbrains.com/blog/edtech-trends-in-2024/ (date of access: 26.11.2024).

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[8] Artificial Intelligence Alone Will Not Democratise Education: On Educational Inequality, Techno-Solutionism and Inclusive Tools / S. Bulathwela et al. *Sustainability*. 2024. Vol. 16, no. 2. P. 781. URL: https://doi.org/10.3390/su16020781 (date of access: 26.11.2024).

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Moreover, the integration of AI-driven virtual reality and simulation-based learning environments can create immersive and engaging experiences that foster skill development, problem-solving, and critical thinking. These virtual environments can simulate real-world scenarios, allowing students to practice and apply their knowledge in a safe and controlled setting, while also benefiting from the adaptive and personalized nature of AI-powered systems. However, it is crucial to acknowledge the potential challenges and limitations of AI in the context of students' self-education.

The implementation of VR and AI can enhance the self-education of students. Virtual classrooms, interactive language learning software, and AI-powered chatbots can provide immersive, personalized learning experiences that supplement traditional instruction.[9] Such technologies facilitate exposure to authentic language use, collaborative practice, and real-time feedback – all of which are essential for effective language acquisition. Furthermore, AI-based analytics can help students identify learning gaps and track progress. Also, the accessibility of online resources and digital tools enables learners to take greater ownership of their education, fostering autonomous learning skills[10] [11]. The use of virtual environments and AI in language education empowers students by offering innovative and adaptive approaches to self-education.

As for career planning, AI could play a central role in helping students understand which career paths align with their skills, interests, and values. AI-driven tools can analyze labor market trends, predict future career demands, and provide recommendations on which skills to develop. This could be especially useful in preparing students for emerging fields or industries that are expected to grow in relevance.

Furthermore, AI can assist students in identifying skill gaps by comparing their current skill sets against those required for their desired career paths. Through continual assessment and feedback, these AI systems could guide students in pursuing targeted learning opportunities, such as

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specific courses, workshops, or internships, to fill those gaps and enhance their employability. It's clear that as AI technology progresses, its potential to revolutionize self-education grows, promising highly customized educational experiences and an unprecedented level of support in career development for students in higher education.

Virtual reality environments, when enhanced through AI, have the potential to greatly impact self-education by providing immersive and interactive learning experiences[12]. Here are some ways this integration can enhance self-education:

– Immersive Learning: VR can simulate real-world environments where students can practice skills and apply knowledge in a controlled, risk-free setting. For instance, medical students could perform virtual surgeries or engineering students could construct virtual models.

– Engagement and Motivation: The interactive nature of VR can boost student engagement and motivation, turning learning into a dynamic and enjoyable process.

– Accessibility: VR can make education more accessible by allowing students to experience field trips, lab work, or cultural exchanges without the need for physical travel.

– Personalized Learning: AI can tailor the VR experience to the individual's learning style and pace, providing personalized guidance and support within the virtual environment.

As the digital landscape continues to evolve, the role of virtual environments and artificial intelligence (AI) in students' self-education has become increasingly prominent. The integration of AI-powered technologies, such as intelligent tutoring systems, personalized curriculum plans, and AI-driven virtual assistants, has the potential to enhance engagement, learning, and well-being for students. One of the key benefits of AI-powered virtual environments is the ability to provide personalized learning experiences that adapt to each student's individual needs and learning styles[13]. Intelligent tutoring systems, for instance, can offer one-on-one support, delivering tailored feedback and content that caters to the student's capabilities and progress. Similarly, AI-based curriculum plans, or "curriculum playlists", can curate daily learning activities based on the

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[12] Lee J. H., Yang E., Sun Z. Y. Using an Immersive Virtual Reality Design Tool to Support Cognitive Action and Creativity: Educational Insights from Fashion Designers. *The Design Journal*. 2021. Vol. 24, no. 4. P. 503–524. URL: https://doi.org/10.1080/14606925.2021.1912902 (date of access: 26.11.2024).

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student's strengths and areas for improvement, promoting a more efficient and effective self-education process. Moreover, integrating AI-driven virtual reality and simulation-based learning environments can create immersive and engaging experiences that foster skill development, problem-solving, and critical thinking.[4] These virtual environments can simulate real-world scenarios, allowing students to practice and apply their knowledge in a safe and controlled setting, while also benefiting from the adaptive and personalized nature of AI-powered systems.

However, it is crucial to acknowledge AI's potential challenges and limitations in the context of students' self-education. Ensuring content flexibility, adaptability, and reusability can be complex, and successfully implementing these technologies requires a delicate balance between technological advancements and user-centered design. Furthermore, ethical considerations, such as data privacy, algorithmic biases, and the potential replacement of human instructors, must be carefully navigated to ensure that the integration of AI in self-education promotes inclusive, personalized, and effective learning experiences.

As students continue to take a more active role in their own learning, the integration of virtual environments and AI-powered technologies holds promise in enhancing self-education. However, the development and implementation of these technologies must prioritize the needs and experiences of students, while addressing the ethical and practical considerations that arise.

By striking a balance between technological advancements and user-centered design, educators and researchers can harness the power of virtual environments and AI to empower students and foster lifelong learning. To summarise, the effective integration of AI-powered virtual environments can significantly enhance students' self-education, but it requires careful consideration of the potential challenges and ethical implications. Thus, students, educators, and policymakers must work collaboratively to ensure that the integration of these technologies aligns with the core values of education and promotes inclusive, personalized, and effective learning experiences.

2. Strategy of AI Implementation in Students' Self-Education

The rapid advancements in Artificial Intelligence have presented a unique opportunity to revolutionize the field of education, particularly in the realm of student self-education. As AI-assisted instruction becomes a growing trend, educators and researchers have explored various strategies to effectively integrate these technological capabilities into the learning process. One promising approach is the integration of AI projects into core academic subjects, giving students the freedom to develop original and powerful

solutions while finding real-world applications of the topics they learn. This approach not only enhances students' understanding of the subject matter but also fosters their critical thinking, problem-solving, and creativity skills. Furthermore, the integration of AI-powered learning models, such as project-based learning, collaborative learning, and blended learning, can maximize various aspects of learning outcomes, including motivation, academic performance, achievement, behavior, creativity, and problem-solving abilities[14]. The use of learning robots, for instance, can provide students with meaningful impressions and experiences, while serving as teaching assistants in routine and patterned learning activities. However, the successful implementation of AI in student self-education is not without its challenges. The flexibility and adaptability of content and the reusability, sharing, and collaborative development of learning objects and structures are crucial considerations. Additionally, providing user-oriented content requires a careful balance between the domain model, user model, and instructional task model.

As AI continues to evolve, the integration of these technologies into student self-education presents a promising avenue for enhancing learning outcomes, fostering critical thinking and problem-solving skills, and preparing students for the demands of the 21st-century workforce[15].

Implementation of VR environments enhanced through AI in self-education can yield benefits such as:

– Higher motivation and engagement due to immersion and gamification. The sense of presence and interactivity in VR can heighten learners' motivation and engagement in the language learning process. AI-powered features like intelligent tutoring systems and adaptive difficulty can further boost intrinsic motivation.

– Personalized, adaptive learning experiences: AI algorithms can analyze learners' performance data to provide customized feedback, learning paths, and content recommendations tailored to individual needs and learning styles.

– Opportunities for spontaneous practice and real-time feedback: Virtual environments powered by natural language processing and speech recognition allow learners to engage in conversational practice with AI agents, receiving instant feedback on their linguistic performance.

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– Enhanced collaboration and cultural exchange: VR-based language learning environments can facilitate intercultural exchanges and collaborative learning amongst geographically dispersed students, expanding their cultural awareness and communication skills.

Adopting virtual reality and artificial intelligence holds great potential for enhancing the self-education of foreign language teachers and their students. Through immersive, adaptive, and collaborative learning experiences, these technologies can empower learners to take a more active role in their linguistic development.

To ensure the successful implementation of VR environments enhanced through AI in self-education,[16] several key considerations would need to be addressed:

– Technical Infrastructure: Institutions must have the necessary technical infrastructure, including VR headsets and compatible hardware, to support these advanced systems.

– Quality Content: High-quality, educationally relevant VR content needs to be developed, which accurately represents the subjects being taught.

– Accessibility Considerations: VR solutions should be inclusive, considering individuals who may have disabilities or those who are prone to motion sickness in VR environments.

– User Training: Both educators and students may need training to effectively use VR technology and understand how to get the most out of their VR learning experiences.

– Integration with Curriculum: VR experiences should be seamlessly integrated with the standard curriculum to enhance, rather than replace, traditional teaching methods.

– Data Privacy: As AI systems process vast amounts of data to personalize learning, student privacy and data security concerns must be addressed.

– Evaluation and Assessment: Effective methods for evaluating and assessing student performance in VR environments need to be developed to ensure learning objectives are met.

– Cost: The cost of VR equipment and content development can be significant, so it must be justified by the educational value it provides.

– Educator Support: Educators must be supported in this transition with resources, training, and time to adapt to new teaching technologies.

By focusing on these considerations, educational institutions can harness the power of VR to enrich self-education, providing students with a

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compelling, effective means of learning that prepares them for future challenges.

Implementing VR environments enhanced by AI for self-education poses several technological and logistical challenges, including:

– High Costs: The cost of acquiring VR hardware, developing software, and creating high-quality VR content can be substantial. Educational institutions need to consider the return on investment and potential barriers to widespread adoption due to cost.

– Technical Requirements: Effective VR experiences require high-performance computing resources, robust network infrastructure, and compatible hardware, which can be a significant barrier for institutions with limited technological capabilities.

– Content Development: Developing accurate and compelling educational VR content is resource-intensive and requires multidisciplinary teams, including subject matter experts, instructional designers, and technical developers.

– Integration with Curricula: VR needs to be carefully integrated into existing educational programs, aligned with learning outcomes, and proven to be pedagogically effective to justify its use and expense.

– User Experience: Designing intuitive and user-friendly VR experiences, especially for users who may be unfamiliar with VR technology, is essential. There is also the issue of VR-induced motion sickness, which can affect some individuals.

– Accessibility Issues: Ensuring that VR environments are accessible to all learners, including those with disabilities, is crucial but also challenging from both design and legal compliance perspectives.

– AI Implementation: Developing sophisticated AI algorithms that can adapt to individual learning styles and provide personalized learning experiences is complex and still a burgeoning field.

– Data Privacy and Security: With AI systems processing sensitive data to personalize learning, there must be stringent protocols for data privacy and security to protect student information.

– Training and Support: Educators and students will require training to make the most of VR-enhanced learning environments. Continuous technical support is also necessary to address any issues that arise during use.

– Scalability: Solutions must be scalable to accommodate large numbers of users while maintaining performance, which is a challenge for both VR and AI systems.

– Evaluation and Assessment: Developing reliable methods to assess student performance within VR environments and to measure the effectiveness of AI-enhanced learning is a complex task that requires significant research and development.

Addressing these challenges requires careful planning, cross-disciplinary collaboration, and ongoing research and development to ensure that the integration of VR and AI serves to enhance rather than hinder the educational experience.

Institutions looking to implement VR environments for self-education must take careful steps to address accessibility considerations to make experiences inclusive for individuals with diverse needs.[17] Here are some key strategies:

– Universal Design: Apply principles of universal design to create VR experiences that are accessible to the broadest range of users from the beginning. This means considering various disabilities, including visual, auditory, physical, and cognitive impairments, and ensuring that VR content is usable for everyone.

– Adaptive Technologies: Incorporate adaptive and assistive technologies within VR systems. For instance, subtitles or sign language avatars for users with hearing impairments, or text-to-speech for those with visual impairments.

– Customizable Settings: Ensure that VR platforms allow users to adjust settings according to their needs, such as changing contrast, font sizes, or control sensitivity, and providing alternative control schemes for those with limited mobility.

– User Testing: Conduct user testing with individuals who have disabilities to identify potential barriers within the VR environment and address these issues before the product is fully launched.

– Ergonomic Design: Offer a range of VR equipment options to accommodate different body types and abilities, including lighter headsets or alternatives to head-mounted displays for those prone to motion sickness or neck strain.

– Training and Support: Provide tailored training materials and support for users with disabilities to ensure they can navigate and utilize VR content effectively.

– Collaboration with Experts: Partner with organizations that specialize in accessibility and disability rights to review and recommend changes to VR content and hardware.

– Compliance with Standards: Adhere to legal standards and guidelines for digital accessibility, such as the Web Content Accessibility Guidelines, to ensure compliance with national and international regulations.

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[17] VR Accessibility in Distance Adult Education / B. Muczyński et al. Human-Computer Interaction – INTERACT 2023. Cham, 2023. P. 685–691. URL: https://doi.org/10.1007/978-3-031-42293-5_94 (date of access: 26.11.2024).

– Continuous Improvement: Create a feedback loop where users with disabilities can report issues and suggest improvements, ensuring that VR environments are continuously updated to enhance accessibility.

– Financial Assistance: Offer financial assistance or subsidies for students who require specialized equipment or software to access VR learning environments.

By taking a proactive approach to accessibility, institutions can make VR-enhanced self-education environments more inclusive, thereby extending their benefits to a wider range of students, including those with disabilities.

Institutions can collaborate with experts in accessibility and assistive technology in several ways to ensure that VR environments for self-education are inclusive for all individuals[18]:

– Consultation and Review: Engage with accessibility experts to consult and review the VR content and hardware. These experts can provide valuable insights on how to make VR environments more accessible and may help identify potential barriers that need addressing.

– Partnership for Development: Form partnerships with organizations that specialize in assistive technology development. Collaborating on projects can lead to the creation of innovative solutions that cater to the needs of individuals with disabilities.

– User-Centered Design Processes: Include individuals with disabilities in the design process. This approach ensures that their voices are heard and that the VR content and user interface design meet their needs.

– Training and Workshops: Arrange training sessions and workshops led by accessibility experts for the institution's staff and developers to raise awareness about the importance of inclusive design and to learn best practices.

– Accessibility Audits: Regularly conduct accessibility audits of the VR environments. Experts can help perform these assessments to ensure ongoing compliance with accessibility guidelines and standards.

– Accessibility Certifications: Obtain certifications for VR content and hardware that attest to their accessibility. This not only validates the efforts of the institution but also provides a benchmark for quality assurance.

– Research Collaborations: Engage in joint research efforts with academic institutions, non-profits, and disability advocacy groups dedicated to advancing accessibility to keep up with the latest developments and findings.

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[18] Virtual reality in foreign language training at higher educational institutions / S. V. Symonenko et al., 2020. URL: https://doi.org/10.31812/123456789/3759 (date of access: 26.11.2024).

– Feedback Loops: Establish feedback loops with users who have disabilities to understand their experiences with the VR system. Accessibility experts can help analyze this feedback to continuously improve the VR environment.

– Policy Development: Involve experts in developing or updating policies and procedures around digital accessibility to ensure they are robust and up-to-date.

– Resource Sharing: Share resources and information about best practices, new technologies, and successful strategies for accessibility in virtual environments.

By prioritizing collaboration with experts and advocacy groups specializing in accessibility and assistive technology, institutions can enhance their capabilities in creating VR learning environments that are truly inclusive for all users.

To effectively integrate feedback and recommendations from accessibility experts into the development and implementation of VR environments for self-education, institutions can follow these steps:

– Inclusive Planning and Consultation: From the onset of VR projects, include accessibility experts in the planning stages to ensure their recommendations are considered in the foundational design.

– Pilot Testing: Implement pilot programs where users with disabilities, along with accessibility experts, can test VR applications and provide feedback on their experiences.

– Iterative Development: Adopt an agile and iterative approach to development that allows for continuous refinement based on feedback from accessibility experts and users.

– Training Programs: Create training programs for developers and content creators based on the recommendations of accessibility experts to keep the team up-to-date with the latest accessible design practices.

– Policy Updates: Update institutional policies and guidelines to reflect the importance of inclusive design, as recommended by accessibility experts.

– Feedback Mechanisms: Establish clear mechanisms for collecting andacting on feedback from both experts and end-users with disabilities to inform ongoing development.

– Documentation: Maintain thorough documentation of feedback, expert recommendations, and the actions taken so there is transparency in the process and an understanding of the rationale for design choices.

– Resource Allocation: Allocate sufficient time and resources to make necessary adjustments and enhancements to the VR environment based on expert feedback.

– Quality Assurance: Conduct regular accessibility audits and quality assurance testing to ensure that the VR environment remains compliant with accessibility standards as it evolves[19].

– Publication of Findings: Share the outcomes of collaborations and the resulting improvements in accessibility publicly to advance the field and contribute to community knowledge.

By systematically integrating expert feedback throughout the development cycle, institutions can create VR environments that are not only functional but also equitable and accessible to learners with a diverse range of abilities and needs.

CONCLUSIONS

To summarize, we can stress that this study has examined the burgeoning potential of AI to revolutionize self-education experiences for students in higher education institutions. AI-powered tools and platforms promise to personalize learning journeys, providing students with customized learning paths, relevant resources, and real-time feedback to enhance knowledge acquisition. Moreover, AI can assist students in tackling complex data and problem-solving, preparing them for real-world challenges.

The integration of VR environments with AI presents a further transformative layer. VR, when enhanced by AI, can create immersive and interactive learning experiences. Students can engage with complex concepts in a hands-on manner, fostering deeper understanding and knowledge retention.

However, successfully implementing AI enhanced VR environments for self-education necessitates addressing several challenges. These include technical considerations like infrastructure, content development, and user experience. Additionally, accessibility concerns must be paramount, ensuring inclusion for learners with diverse needs. To overcome these challenges, institutions can leverage strategies such as universal design, incorporating assistive technologies, and collaborating with accessibility experts. A crucial aspect of this collaboration involves actively seeking feedback from accessibility experts throughout the development cycle. This can be achieved through inclusive planning, pilot testing, iterative development, and establishing clear feedback mechanisms. By prioritizing accessibility and systematically integrating expert recommendations, institutions can harness the power of AI-enhanced VR to create truly inclusive and transformative self-education experiences for all students in higher education. This will empower them to take control of their learning

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[19] Vatsyayan K. How Quality Assurance Testing Can Redefine Your VR Application | HackerNoon. *HackerNoon – read, write and learn about any technology*. URL: https://hackernoon.com/how-quality-assurance-testing-can-redefine-your-vr-application (date of access: 26.11.2024).

journeys, fostering a future generation equipped with the knowledge and skills to thrive in an increasingly complex world.

This research contributes to the evolving scholarship on personalized learning by investigating the potential of AI to revolutionize self-education experiences. Our findings suggest that AI-powered tools and platforms can foster a paradigm shift in self-directed learning. AI can optimize knowledge acquisition and retention by tailoring learning pathways, leveraging big data analytics to deliver germane resources, and providing real-time adaptive feedback. These advancements align with the principles of constructivism and self-regulated learning, empowering students to construct their understanding and actively manage their learning processes.

Furthermore, AI-powered tools can assist students in tackling complex data sets and fostering critical problem-solving skills. This aligns with the growing emphasis on 21st-century skills such as computational thinking and data literacy. By employing AI for tasks like data visualization, pattern recognition, and generating hypothesis-driven exploration paths, students can develop deeper analytical abilities, preparing them for the demands of the modern workforce. When coupled with AI, VR can create immersive, interactive learning experiences that promote constructivist learning and embodied cognition. Through simulations and interactive scenarios, students can engage with complex concepts in a multisensory manner, leading to enhanced understanding and knowledge retention.

However, the successful implementation of AI-enhanced VR for self-education necessitates a multifaceted approach. Technical considerations, including infrastructure development, high-fidelity content creation, and user experience optimization, are crucial for effective implementation. Furthermore, ensuring accessibility for students with diverse needs is paramount. This research advocates for the application of Universal Design for Learning principles, incorporating assistive technologies, and collaborating with accessibility experts throughout the design and development phases. Utilizing iterative development with continuous feedback from accessibility experts is critical to ensure inclusivity.

By prioritizing accessibility and integrating expert recommendations, institutions can harness the power of AI-enhanced VR to create truly inclusive and transformative self-education experiences for all students. This can empower them to become self-directed learners, fostering a future generation equipped with the knowledge, skills, and critical thinking abilities to thrive in a rapidly evolving world.

SUMMARY

The future of students' self-education in the era of artificial intelligence is a significant concern in the field of pedagogy, which is caused by the

advancements in AI technology. The purpose of the paper is to explore the future of self-education for students in the era of Artificial Intelligence, to investigate how AI technologies will reshape the landscape of independent learning, to analyze how AI can empower students to become more self-directed learners, while also addressing concerns around over-reliance on AI and the cultivation of critical thinking skills. The methodology of the study is based on a mixed-methods approach to gain a comprehensive understanding of the future of self-education for students in the era of AI. We use Literature Review to conduct a systematic review of existing scientific literature, Qualitative Research to conduct semi-structured interviews with teachers and educational technology experts to gather insights on the potential of AI to facilitate self-education, to explore teachers' concerns and considerations regarding AI in self-directed learning; Data Analysis to analyze data collected from the literature review and identify key themes and trends regarding the potential and limitations of AI in self-education. Results of the study showed that the future of students' self-education in the era of artificial intelligence tends to be a practical and helpful strategy for acquiring new knowledge in any field.

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