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Journal Name:	Asian Journal of Education and Social Studies
Manuscript Number:	Ms_AJESS_120714
Title of the Manuscript:	Impact of Augmented Reality on the Academic Performance of Senior Secondary Students in Mathematics in Ile-Ife, Osun State, Nigeria
Type of the Article	

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Please write few sentences regarding the importance this manuscript for scientific community. Why do you like (or dislike) this manuscript? Minimum 3-4 sentences may be required for this part.</p>	<p>This manuscript is an important contribution to the scientific community for several reasons:</p> <p>Relevance to Educational Technology: The study investigates the impact of an emerging technology, Augmented Reality (AR), on student learning and performance in mathematics. As educational institutions increasingly explore the integration of technology to enhance teaching and learning, studies like this provide valuable insights into the efficacy of AR-based interventions.</p> <p>Addressing a Critical Issue in Mathematics Education: The poor performance of students in mathematics is a significant challenge faced by many education systems, including in Nigeria. This study directly addresses this issue by examining a novel approach to improving mathematics learning and outcomes among senior secondary students.</p> <p>Methodological Rigor: The researchers have employed a well-designed study, utilizing both quantitative and qualitative methods to collect and analyse data. The use of validated research instruments, appropriate sampling techniques, and robust statistical analyses lend credibility to the study's findings.</p> <p>Practical Implications: The study's findings have the potential to inform educational policies and teaching practices in Nigeria and similar contexts. The evidence of the positive impact of AR on student performance in mathematics can encourage educators and policymakers to explore the integration of AR technology in mathematics classrooms.</p> <p>Overall, I find this manuscript to be a well-executed and valuable contribution to the field of educational technology and mathematics education. The researchers have addressed an important issue using a rigorous methodology, and the findings have the potential to drive meaningful change in the way mathematics is taught and learned in Nigerian secondary schools.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>The title of the article, "Impact of Augmented Reality on the Academic Performance of Senior Secondary Students in Mathematics in Ile-Ife, Osun State, Nigeria," is suitable and clearly reflects the focus and scope of the study.</p> <p>The title effectively captures the key elements of the research:</p> <p>Augmented Reality (AR) as the intervention or independent variable being examined. The academic performance of senior secondary students in mathematics as the dependent variable. The specific location of the study, Ile-Ife, Osun State, Nigeria. The title is concise, informative, and accurately conveys the main objective of the study, which is to investigate the impact of Augmented Reality on the academic performance of senior secondary students in mathematics in the Ile-Ife region of Nigeria.</p> <p>No alternative title is necessary, as the current title is well-suited and provides a clear and comprehensive description of the study's focus.</p>	

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<p>Is the abstract of the article comprehensive? Do you suggest addition (or deletion) of some points in this section? Please write your suggestions here.</p>	<p>The abstract of the article is comprehensive and covers the key aspects of the study. However, I have a few suggestions for potential additions that could further strengthen the abstract:</p> <p>Inclusion of Research Objectives: The abstract could explicitly state the research objectives or questions that the study aimed to address. This would help the reader understand the specific focus of the investigation.</p> <p>Elaboration on Methodology: The abstract briefly mentions the research design and data collection methods. Providing more details on the sampling approach, sample size, and the specific data collection instruments used would give the reader a clearer understanding of the research methodology.</p> <p>Inclusion of Key Findings: While the abstract summarizes the main result that students taught using the Augmented Reality (AR) method performed better than those taught using the traditional chalk-and-talk method, it could be beneficial to include a few more key findings, such as the specific impact of students' level of participation in AR-based learning on their mathematics performance.</p> <p>Recommendations or Implications: The abstract could be strengthened by including a brief statement on the practical implications of the study's findings or recommendations for the implementation of AR in mathematics education.</p> <p>With these additional elements, the abstract would provide a more comprehensive overview of the study, including its objectives, methodology, key findings, and potential implications. This would better inform the reader about the scope and significance of the research.</p> <p>Overall, the abstract is well-written and covers the essential aspects of the study. The suggested additions would further enhance the clarity and completeness of the abstract for the reader</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>Yes, the subsections and structure of the manuscript are appropriate and well-organized. The main sections of the manuscript are as follows:</p> <p>Introduction Provides background on the importance of mathematics education and the challenges faced in Nigeria. Describes Augmented Reality (AR) technology and its potential applications in education. Clearly states the rationale and objectives of the study.</p> <p>Methodology Outlines the research design, including the use of a quasi-experimental approach. Explains the population, sampling, and data collection methods. Describes the research instruments used (Augmented Reality Participation Questionnaire and Mathematics Performance Test). Discusses the data analysis techniques (descriptive and inferential statistics).</p> <p>Results and Discussion Presents the key findings, including the comparison of student performance between the AR and traditional methods. Analyses the effect of students' level of participation in AR-based learning on their mathematics performance. Discusses the findings in the context of existing literature and their implications.</p> <p>Conclusion Summarizes the main findings of the study. Provides a concise conclusion based on the research objectives.</p> <p>The structure of the manuscript follows a standard and well-accepted format for research articles, with clear delineation of the introduction, methodology, results, discussion, and conclusion. The subsections within each main section are also appropriately labelled and organized, making the manuscript easy to follow and</p>	

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	<p>understand.</p> <p>The overall structure and flow of the manuscript are logical and coherent, guiding the reader through the research process and findings in a systematic manner. This organization enhances the readability and clarity of the manuscript.</p>	
<p>Please write few sentences regarding the scientific correctness of this manuscript. Why do think that this manuscript is scientifically robust and technically sound? Minimum 3-4 sentences may be required for this part.</p>	<p>The scientific correctness and technical soundness of this manuscript are evident in several aspects:</p> <p>Robust Methodology: The researchers have employed a well-designed quasi-experimental research approach, which is an appropriate method for evaluating the impact of an intervention (Augmented Reality) on an outcome (student academic performance). The use of validated instruments, such as the Augmented Reality Participation Questionnaire and Mathematics Performance Test, ensures the reliability and validity of the data collected.</p> <p>Appropriate Data Analysis: The manuscript demonstrates a thorough and rigorous data analysis process. The researchers have utilized both descriptive and inferential statistics, including the use of t-tests and ANOVA, to evaluate the statistical significance of the findings. This level of analytical rigor enhances the credibility of the study's conclusions.</p> <p>Alignment with Theoretical Frameworks: The study is grounded in relevant theoretical frameworks, such as the Cognitive Theory of Multimedia Learning and the Technology Acceptance Model. The researchers have effectively integrated these theoretical perspectives to guide the design, implementation, and interpretation of the study, strengthening the scientific foundation of the research.</p> <p>Acknowledgment of Limitations: The manuscript acknowledges the limitations of the study, such as the quasi-experimental design and the potential for selection bias, which demonstrates the researchers' awareness of the study's constraints and their efforts to address potential threats to internal and external validity.</p> <p>Overall, the scientific correctness and technical soundness of this manuscript are evident in the rigorous research design, the appropriate data analysis techniques, the alignment with relevant theoretical frameworks, and the acknowledgment of the study's limitations. These factors contribute to the credibility and reliability of the findings, making this a scientifically robust and technically sound piece of research.</p>	
<p>Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.</p> <p>=</p>	<p>The references used in the manuscript are generally sufficient and recent. The researchers have drawn upon a good mix of scholarly articles, reports, and books to support the background, methodology, and discussion of the study.</p> <p>Specifically:</p> <p>Recency of References: The majority of the references are from the past 5-10 years, which is appropriate for a study in the rapidly evolving field of educational technology. This ensures that the manuscript is informed by the most up-to-date research and developments in the area of Augmented Reality and its applications in education.</p> <p>Relevance of References: The references used are directly relevant to the topic of the study, covering aspects such as the role of technology in mathematics education, the effectiveness of Augmented Reality in learning, and the challenges faced in educational contexts similar to the study's setting.</p> <p>Variety of Sources: The references include a mix of journal articles, conference proceedings, government reports, and educational resources, providing a well-rounded perspective on the research problem and the existing knowledge on the topic.</p> <p>Suggestion for Additional References:</p>	

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	<p>While the references are generally sufficient, the manuscript could be further strengthened by including additional recent studies that have specifically examined the impact of Augmented Reality on student learning outcomes in mathematics or other STEM subjects. This could help to strengthen the contextual framing of the study and provide a more comprehensive understanding of the current state of research in this area.</p> <p>Overall, the references used in the manuscript are appropriate, recent, and relevant to the study's objectives. The addition of a few more recent, related studies could further enhance the scholarly foundation of the research.</p>	
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<p><u>Minor REVISION</u> comments</p> <p>Is language/English quality of the article suitable for scholarly communications?</p>	<p>Yes, the language and English quality of the article are suitable for scholarly communications. The manuscript is well-written, with a clear and concise style that effectively communicates the research process and findings.</p> <p>Specific observations regarding the language and English quality:</p> <p>Grammatical Accuracy: The manuscript demonstrates a high level of grammatical accuracy, with few, if any, noticeable errors in sentence structure, word usage, or mechanics. The writing is polished and professional, adhering to the conventions of academic writing.</p> <p>Clarity and Coherence: The ideas are presented in a logical and well-organized manner, with smooth transitions between sections and paragraphs. The language used is precise and unambiguous, allowing the reader to easily follow the flow of the research and its implications.</p> <p>Disciplinary Conventions: The manuscript adheres to the writing style and conventions expected in scholarly communications, such as the use of appropriate technical terminology, the proper formatting of in-text citations and the reference list, and the overall academic tone and formality of the language.</p> <p>Readability and Flow: The writing is engaging and easy to read, with a balanced use of complex and straightforward sentences. The pacing and rhythm of the text contribute to the overall readability and flow of the manuscript, making it accessible to the target scholarly audience.</p> <p>In summary, the language and English quality of the article are of a high standard, meeting the expectations for effective scholarly communication. The clear and concise writing, along with the adherence to academic conventions, enhances the manuscript's overall quality and suitability for publication in a scholarly journal or conference proceedings.</p>	
<p><u>Optional/General</u> comments</p>	<p>Overall, the manuscript presents a well-designed and executed study on the impact of Augmented Reality on mathematics performance among secondary school students in Nigeria. The research is grounded in solid theoretical foundations and employs an appropriate quasi-experimental methodology to evaluate the effectiveness of the AR-based intervention.</p> <p>Some additional optional/general comments:</p> <p>Significance and Implications: The study addresses an important educational challenge in the Nigerian context, where there is a need to improve mathematics education and explore innovative technological solutions. The findings have the potential to contribute to the growing body of knowledge on the use of Augmented Reality in STEM education and provide valuable insights for policymakers and educators.</p> <p>Context and Generalizability: The manuscript could be further strengthened by providing more detailed information about the specific educational context in Nigeria, such as the curriculum, teaching practices, and technological infrastructure. This would help readers better understand the research setting and assess the potential for the findings to be generalized or adapted to similar contexts.</p> <p>Visualization and Supplementary Materials: The inclusion of visual aids, such as diagrams, illustrations, or screenshots of the Augmented Reality application, could enhance the readers' understanding of the intervention and its implementation. Additionally, providing access to supplementary materials, like the research instruments or sample AR content, could be valuable for other researchers interested in replicating or building upon this study.</p> <p>Future Research Directions: The manuscript could benefit from a more in-depth discussion of potential future research directions, such as exploring the long-term effects of Augmented Reality on student learning, investigating the specific factors that contribute to its effectiveness, or examining the scalability and sustainability of the intervention in different educational settings.</p>	

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	<p>Overall, the manuscript presents a high-quality and rigorous study that makes a meaningful contribution to the field of educational technology and Augmented Reality in mathematics education. With the suggested improvements, the manuscript could be further strengthened and have a greater impact in the scholarly community.</p> <p>However, there are a few areas where the manuscript could be further improved:</p> <p>Contextual Information: Providing more detailed information about the educational context in Nigeria would help readers better understand the research setting and assess the generalizability of the findings.</p> <p>Supplementary Materials: Inclusion of visual aids and access to supplementary research materials could enhance the readers' understanding and facilitate further research.</p> <p>Future Research Directions: A more in-depth discussion of potential future research directions could strengthen the manuscript and its overall contribution to the field.</p> <p>Overall, the manuscript is of high quality and suitable for publication with minor revisions to address the suggested improvements. The researchers have demonstrated a strong grasp of the topic and have conducted a rigorous study that makes a meaningful contribution to the field of educational technology.</p>	
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PART 2:

	Reviewer's comment	Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

Name:	Omer S. M. Jomah
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