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| Book Name: | [**Medical Science: Recent Advances and Applications**](https://bookstore.bookpi.org/product/medical-science-recent-advances-and-applications-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_6043** |
| Title of the Manuscript:  | **AI and Virtual Reality Integration for Surgical Training and Skill Enhancement** |
| Type of the Article | **Book Chapter** |

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| PART 1: Comments |
|  | Reviewer’s comment**Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | 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)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | This manuscript tackles a highly pertinent and timely area in surgical education, exploring the integration of Artificial Intelligence (AI) and Virtual Reality (VR) into training pathways. As healthcare systems worldwide increasingly adopt simulation-based and competency-driven curricula, this topic holds clear scientific and educational value. By consolidating current developments, the chapter has the potential to guide educators, institutions, and policymakers in understanding the scope and limitations of AI-VR integration. However, for it to make a meaningful contribution to the scientific community, the authors must go beyond broad generalizations and critically engage with real-world implementation data, system heterogeneity, and the practical challenges of adoption areas where the manuscript currently lacks depth. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | The title is appropriate but overpromises the manuscript’s depth. Given the limited analytical discussion on actual integration practices, a more suitable title might be: "Exploring the Role of AI and Virtual Reality in Surgical Training: Current Trends and Challenges" |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | The abstract is dense and includes buzzwords (e.g., “data-driven,” “personalized learning,” “competency-based assessment”), but lacks **focus** and **specific evidence** to support its claims. It should be rewritten to:* Briefly list key findings (e.g., which specialties or procedures benefit most)
* Mention implementation evidence (or lack thereof)
* Include limitations (high costs, lack of validation, access issues)
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| **Is the manuscript scientifically, correct? Please write here.**  | The chapter is broadly correct in identifying educational benefits of AI/VR; however:1. **Overgeneralization without evidence** – Claims such as "VR improves outcomes" or "AI ensures standardized training" are too sweeping. Not all AI/VR platforms have equal effectiveness, and **no cost-benefit analysis or real-world audit data** is provided.
2. **No discussion of heterogeneity in systems** – Some platforms use open-source VR, others use high-fidelity proprietary simulators. There is no taxonomy or classification, which is essential in a proper review.
3. **Omission of comparative studies** – No comparative table or discussion exists on how AI/VR performs vs. cadaveric models, animal labs, or traditional apprenticeship. This weakens the claim of "revolutionizing" training.
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| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | The references are **recent** and largely **reputable**, but:* Several are **redundant or secondary citations** (e.g., referencing articles that reference other primary studies).
* There is **no inclusion of major trials or multicenter studies** demonstrating implementation impact.
* Critically, the following study should have been included, as it reflects real-world use of VR in junior surgical education across the UK and India:

Tripathi S, et al. “Revolutionizing Surgical Education: Integrating Virtual Reality-Based Simulation to Enhance Competency in Junior Surgeons.” Cureus, 2024.This omission reflects a gap in literature review rigor, especially considering the study's direct relevance. |  |
| Is the language/English quality of the article suitable for scholarly communications? |  Language is fluent but **tends to be repetitive and overly polished**, giving the impression of a promotional article rather than a balanced academic review. Terms like “revolutionary,” “transformative,” and “game-changer” are overused and need to be substantiated or replaced with neutral academic language. |  |
| Optional/General comments |  A **summary table** comparing traditional, AI-based, and VR-based training modalities (cost, fidelity, accessibility, performance improvement) would be extremely valuable. Include **geographic perspective**—how accessible are these technologies in LMICs (Low and Middle-Income Countries)? No data or comment is offered. Incorporate **more surgical specialties**. The focus is heavily on neurosurgery and robotic surgery. General surgery, trauma, and orthopaedics are underrepresented. Address **technological limitations** more seriously: latency, haptic delay, system errors, and the need for engineering support are barely touched upon. |  |

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| **PART 2:**  |
|  | **Reviewer’s comment** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in details)* |  |

**Reviewer details:**

**Swapnil Tripathi, United Kingdom**