



# Implementation of virtual reality in midwifery education Does it really work?

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## Introduction

Virtual Reality (VR) technology holds substantial promise for enhancing midwifery education by transforming abstract and complex concepts into immersive, interactive three-dimensional visualizations. VR enables repeated, risk-free practice of psychomotor and procedural skills in a safe environment, thereby improving students' anatomical understanding, spatial awareness, competence, and clinical confidence.<sup>1,2</sup> Although traditional clinical skills laboratories and real-world placements remain essential, VR serves as a valuable complement by addressing limitations in clinical exposure and supporting the development of both technical and non-technical skills required for safe, evidence-based midwifery practice.<sup>3,4</sup> While evidence of VR's effectiveness in midwifery education is still emerging, this review highlights its potential to bridge theory and practice.

### Study Design

This literature review a literature review approach, focusing on articles published between 2020 and 2025, which collect evaluate relevant studies concerning Virtual Reality (VR) in midwifery education.

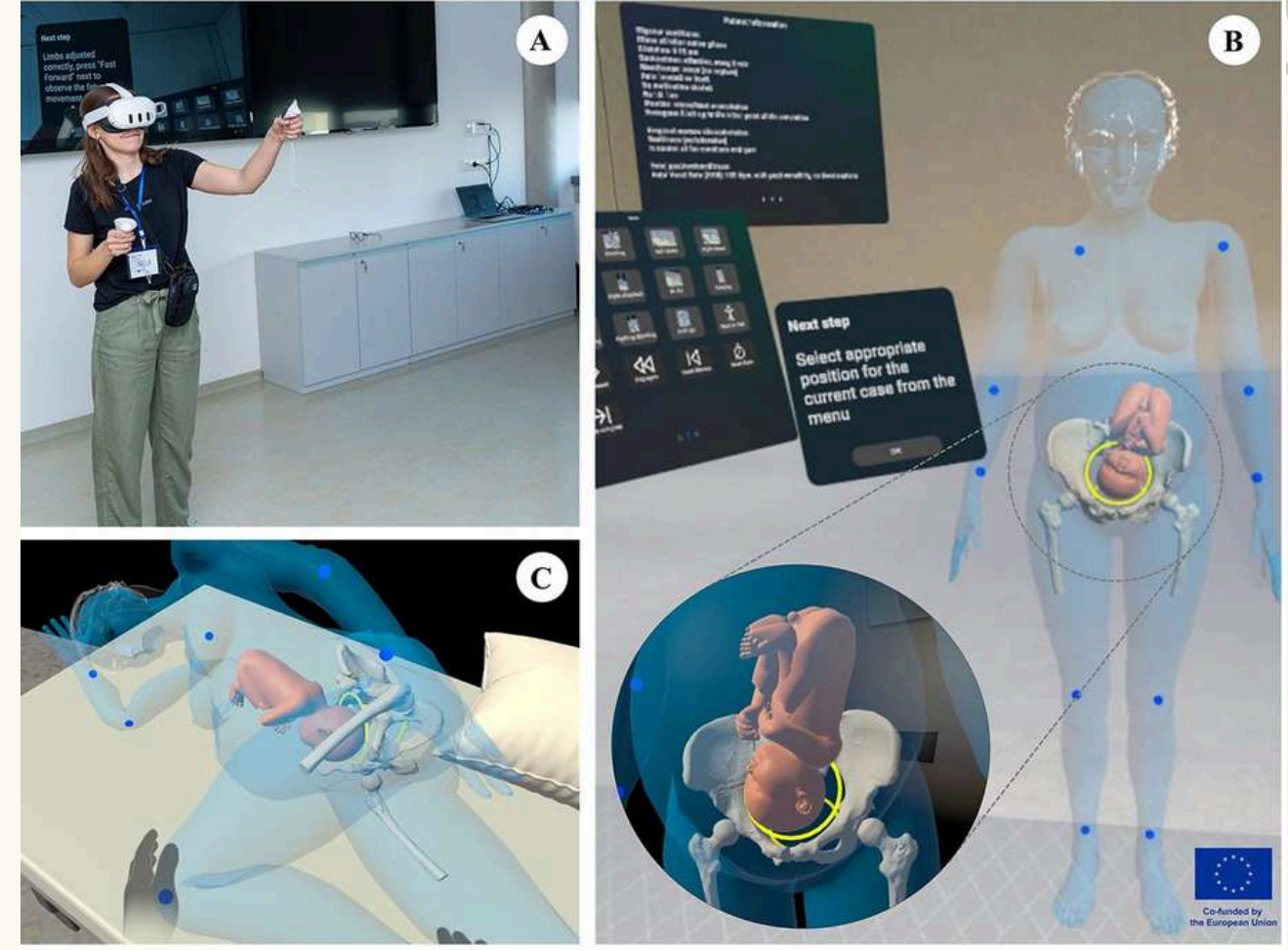
The literature was sourced from reputable scientific databases, such as PubMed, BMC, and ScienceDirect using PRISMA 2020 guidelines and the PICO framework.

### Inclusion Criteria

Papers published between 2020 - 2025  
Full-text papers available in English  
Relate to the research topic

### Search Strategy

## Material and Method



Source: <https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2026.1771624/full>

Immersive VR storytelling increases attention, motivation, and active participation compared to traditional methods<sup>12</sup>

VR transforms students into active learners, promoting collaboration, analytical thinking, and immediate feedback<sup>6,13,14</sup>

### Student Engagement with VR

## Discussion

### Current Applications of VR in Midwifery Education

Rapid digital advancement has transformed healthcare education, with VR providing immersive, interactive simulations for complex midwifery skills<sup>6</sup>

Traditional methods often lack realism and sufficient hands-on practice, leaving students underprepared for clinical unpredictability<sup>7,8</sup>

VR enables risk-free practice of procedural skills, including anatomy, fetal development, and third-stage labor management<sup>9-11</sup>



Source: <https://umc.edu/>

### Impact on Learning Outcomes

VR significantly improves theoretical knowledge, practical skills, knowledge retention, and clinical confidence compared to traditional simulation or manikin-based training.<sup>14,15</sup>

Enhances spatial understanding of anatomy (e.g., pelvic structures and fetal positions) and bridges the theory-practice gap.<sup>6,9,16</sup>

Case-Based Learning with VR (CBL-VR) strengthens individual/team operational skills, critical thinking, and autonomy through realistic birthing scenarios and real-time feedback.<sup>17</sup>

High costs of hardware and content development.<sup>18</sup>

Language barriers (predominantly English applications) and technical issues.<sup>19</sup>

Potential side effects: dizziness, nausea, visual fatigue, and motion sickness<sup>20,21</sup>

### Challenges and Limitations

### Future Prospects

VR should serve as a **complement**, not a replacement, to traditional teaching methods.<sup>22</sup>

Requires collaboration between educators and developers to create tailored, pedagogically sound resources aligned with learning objectives.

Successful integration demands educator/learner training, institutional investment, and ongoing evaluation to prepare competent, confident midwifery professionals.<sup>14,18,19</sup>

## Conclusion

The integration of VR in midwifery education provides immersive, risk-free experiences that help students better understand complex anatomy and clinical scenarios. Compared to traditional methods, VR significantly improves student engagement, knowledge retention, and practical skills confidence. Despite its benefits, challenges remain. Successful implementation requires collaboration between educators and developers, supported by a strong pedagogical framework. Moving forward, **VR should complement, not replace, traditional teaching methods.** By addressing barriers and adapting VR strategies, midwifery education can produce more competent, confident midwives ready to deliver high-quality maternal care.

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