Qeios

Peer Review

Review of: "Virtual Reality in Medical Education: Prometheus' Gift or Pandora's Box?"

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Virtual Reality in Medical Education: Prometheus' Gift or Pandora's Box?

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In the abstract:

VR increases attention, interest, and motivation in learning – could include memory retention, confidence, empathy, and resilience.

However, it can also cause some problems such as digital eye strain and VR sickness – could include emotional and cognitive overload, desensitisation, dependence, and altered perceptions of reality.

traditional review – what do you mean by this?

Introduction:

Virtual reality (VR) can be compared to dreams, which are an inherent part of human nature. In dreams, we see a version of the real world, usually believe it to be real, and interact with it. Could VR technology be a Promethean gift that brings dreams into the real world? – I feel like we are mixing our metaphors here, and it could be removed.

tool for gaming and entertainment – either remove the 'and' or choose one, gaming or entertainment, as one is a subset of the other.

this traditional review defines VR and its associated concepts, – again, what do you mean by traditional review?

the significant stages that VR technology has undergone from past to present, – could be less conversational if rephrased as *the significant evolutionary stages that VR technology has undergone,*

Figure 1. An overview of terms related to extended reality. – I would include a definition of mixed reality in this figure. Eg. VR – fully immersive and disconnects from the real world, AR – adds virtual layers to the real world enhancing it, MR – creates an interactive blend of real and virtual elements.

on any device screen, realism – needs some joining words after the comma. Perhaps reframe as: *on any device screen, this category is low in realism and immersion but is cost-effective.*

Stereoscopy is a technique – keep in the wording of your categories. Start the sentence with: *In stereoscopic VR, ….*

Classification

You define the three types of reality but hereafter only refer to Virtual reality. It might be worth explaining why. Are you using it as an all-encompassing term?

History

History

With a somewhat exaggerated approach, the quest for realism in images can be traced back to cave paintings where shadows were added to pictures[22]*. The second critical stage can be seen as the integration of perspective into the art of painting in Italy in the 15th century*[23]*.* – I would reframe this as it seems a stretch.

Figure 3 – include elaboration of Digital identity, Detachment from reality, and technical problems to match the other labels.

Educational benefits could include – confidence building, increased memory retention for complex information, empathy and emotional intelligence development, and development of resilience and stress management techniques.

Health risks could include – emotional and cognitive overload, desensitisation, and altered perceptions of reality.

There are other disadvantages such as the cost of expensive headwear, hardware, software, platforms, storage, and high-performance computers, computer literacy, expertise required of the medical educators to create the scenarios and feedback mechanisms, development costs for the VR medical training programs, especially high-fidelity options, costs of maintenance and updates, inequity of only the wealthy having access to high-end VR programming, lack of cultural inclusion, realism with VR lacking the tactile feedback of real-life experiences, latency issues that can affect the efficacy and accuracy of real-time training, ethical and privacy concerns, limited scope, etc.

I think Figure 4 could be removed. Too deep into medical terminology here. It feels like a pet topic area. Reduce *Digital Eye Strain* down to 1-2 paragraphs in total.

Detachment from Reality: VR offers lower haptic fidelity compared to other simulators – explain what you mean by haptic and fidelity as this is the first time you have mentioned them.

Internet connectivity is not the only technical problem that can occur with VR.

Conclusions

one of the growing digital burdens that intensifies day by day. – I don't understand this statement.

I think you have missed an important conclusion where it is important to combine VR with other in-person educational experiences. I would like to see a conclusion about addressing the inequities that VR usage also presents.

Declarations

Potential competing interests: No potential competing interests to declare.