

An Innovative Anatomy Learning Tool: The combination of 3D Printing and Web Augmented Reality Technologies

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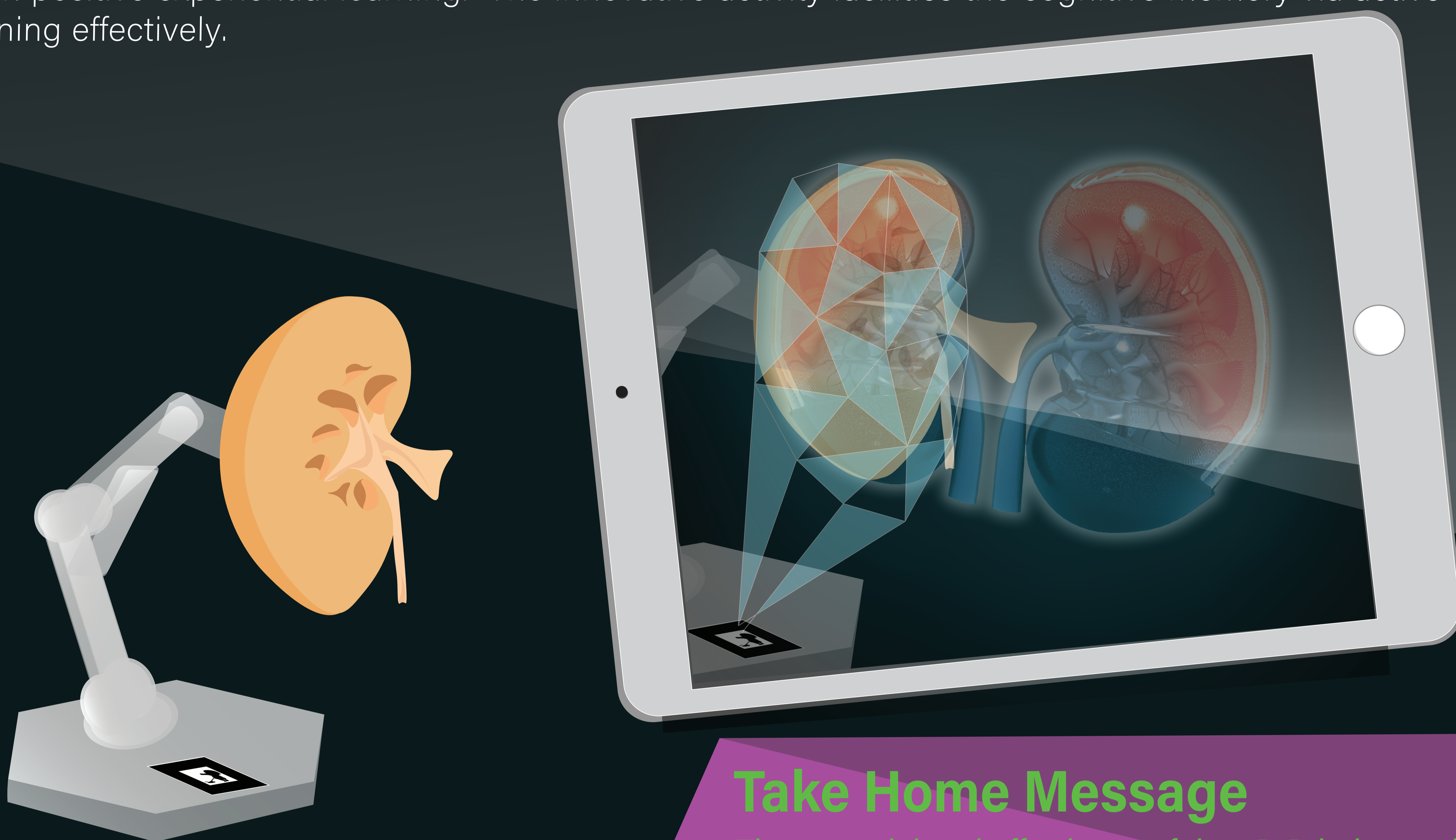
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Background and Objective

Anatomy is one of the crucial courses in the pre-clinical curriculum for the Medical Training Programme. Students feel easy to acquire the knowledge in the relationships of structures from the spatial visualization process rather than just through the passive learning process from dialectic lectures, e-learning material or reading. The 3D printing technology allows the replication of the plastinated specimen without ethical concern; whereas the Web AR technology enriches the digitized contextual information from the displayed object. Our team has investigated whether the combination of these technologies is an innovated tool for students' visual-spatial learning in Anatomy teaching.

Results and Findings

Our team developed courseware from integration both 3D Printing and Web AR technologies entitled as VeT, providing an excellent sight stimulation to study human organ, using the urinary system as a pilot module. Through the VeT tool, students can examine the model with rotation or manipulation and use the tablet OS to screen the 3D printed kidney model to gain the pop out digitized context of the internal anatomical structures in details. Students acquire the knowledge from such interactive multi-media material in positive experiential learning. The innovative activity facilitates the cognitive memory via active learning effectively.



Take Home Message

The potential and affordance of the 3D Printing and Web AR technology is being valued and extended to the strategic pedagogy in the future health professions education.

Discussion and Conclusion

From our pilot study, the VeT provides several educational implications:

- Our team has designed the novel web AR-based experiential learning environment for health professional studying the Anatomy;
- It bridges the interactive learning gap between the factual knowledge with text content type in the book and the 3D printed model for the flipped classroom learning and

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