Virtual Reality use with Anatomy

The future of learning?
Contact Information

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Objectives:

The Learner Will Be Able To:

- Distinguish the difference between virtual reality and augmented reality.
- Understand the research that has been done with AR and VR in the classroom, specifically for anatomy based content.
- Seek the best equipment and software for their particular institutions and budgetary restraints.
- Discuss the current methods of teaching anatomy including the gold standard.
Virtual Reality vs. Augmented Reality

The user is immersed in the Virtual world

Image is superimposed on reality

Examples:
- Pokémon Go
- More recent navigation systems superimpose the route on the live view of the road
Research:
History of technology in anatomy classrooms

Trelease (2016)
Development of PC lead to better lectures, World Wide Web led to easier collaboration, VR software is next frontier
Research:
Cybersickness

Rebenitsch and Owen (2016)
What is cybersickness, how do we diagnose and treat it, and how can we prevent it?
Research:
VR in the Anatomy Classroom

Han, Kosaka, Seung-Chul, Itokazu, and Kuboa (2017)
VR in the anatomy classroom
Students greatly enjoyed using the technology
What is being used now in the classroom?

**Trelease (2016):**
- Cadaver dissection is still the gold standard
- Models
- 2D pictures (books, e-books)
- PowerPoints
- 3D computer images
- Mobile devices with anatomy apps
- VR
What VR products are out there?

**Cardboard: Many brands**
- Google VR Cardboard
  - Around $15

**Lower Level VR Headsets**
- Google Daydream
- Samsung Gear VR
  - Around $100

**Middle Range VR Headsets**
- Oculus Go
- HTC VIVE Focus
- Oculus Quest
  - All between $200-700

**High End VR Headsets**
- Oculus Rift S
- HTC VIVE Pro
  - $800-1200
What apps are available?

HTC VIVE's
Oculus Rift
https://www.youtube.com/watch?v=Q5jStFXoO0M

Oculus Rift
https://www.medicinevirtual.com

Oculus Go
What do students think?
Colorado State University
https://www.youtube.com/watch?v=zDrLMgYZcac
What’s next?

• Work with your institution to get the hardware and software

• Figure out what’s best for your students
VR is still new and developing

There isn’t a lot of research right now determining the effectiveness of VR

The long terms effects of using VR are still unknown

Determine if this style of teaching is right for your students:

1. Does the cost outweigh the benefit?
2. Does the headache of implementation outweigh the benefit?
References:


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