Library: Using VR to Enhance Anatomy Education for Medical Imaging Learners

Chelsea Misquith M.I.
Emerging Technologies Librarian
Ruth Lilly Medical Library

Debra Patterson M.S., R.T.(R)(MR)(CT)
Assistant Professor of Clinical and Imaging Sciences Programs
Department of Radiology and Imaging Sciences
Introduction: VR in Medical Imaging

- Undergraduate medical imaging students:
  - Bone Densitometry (BD)
  - Cardiac Interventional (CI)
  - Computed Tomography (CT)
  - Nuclear Medicine (NMT)
  - Magnetic Resonance Imaging (MRI)
  - Mammography (M)
  - Vascular Interventional (VI)

  - Limited interaction & retention
VR at the Medical Library

Nexus Collaborative Learning Lab, IB 207
24/7 access for students, on demand for faculty and staff

Services:
• 4 HTC Vive headsets and stations
• Touch-enabled IQ-Wall with Solstice
• 3D Printing Service
• TechTalks and classes/events
• Google Cardboard and Virtuali-Tee
• AR shirt
Development of VR Labs

- **VR Lab Student Structure**
  - First cohort: 19 students from CT, NMT, MRI & VI (6 pairs/1 triad)

- **Familiarity (1/19)**

- **VR Lab Content Structure**
  - Learn
  - Interact
  - Enjoy
  - Accountable

Lab 1: While in the 3D Organon VR Anatomy program, go to the body system where you would expect to find the external jugular vein. Once you have located this anatomy answer the following questions:

a. The EJV:
   i. runs on the _____ side of the _____.
   ii. arises from the _____.
   iii. receives tributaries from the ______, ______, and _______.
   iv. empties into the: _______
Implementation of VR Labs

- VR Lab Orientation
  - NEXUS IQ Visualization Wall
  - 3D Organon Anatomy

- VR Lab 1 (Assist/Observe)
- VR Labs 2-4 (Independent)
  - Labs revised based on:
    - Observation
    - Feedback

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Lab 2: Select the neuroimaging anatomy of your choice, inspecting it completely byBring it close to you and viewing it from all angles. Note any characteristics, adjoining anatomy, etc., to find connections that will assist you in understanding a process or retaining anatomical knowledge for your modality.

Example: If I were to select the pituitary gland, I would inspect it and state that it is a very small pea-sized structure, therefore my MRI slice thickness in the coronal and sagittal planes is very thin (~2-3mm) to allow for increased detail.

Overall, I think the lab is awesome, but if I were to change something it would be to make it a little more modality specific.

I would like if each week we had a different anatomy section we could explore and make our own assignment in a way.

I felt that I only looked at parts and filled in the blanks because I had to.

I am not well versed with nuclear medicine scanning so I was able to look up a few articles in regard to NUGA studies and found it extremely interesting. This modality is very different from MRI but also very similar so it has been interesting to learn more about Nuclear Medicine and how our exams differ and also the similarities between them.

I enjoyed being able to choose anatomy I am interested in looking at and how it plays a part in MRI. I because I had to. I am not well versed with Nuclear Medicine so I was able to look up several articles in regard to NUGA studies and found it extremely interesting. This modality is very different from MRI, but also very similar so it has been interesting to learn more about Nuclear Medicine and how our exams differ and also the similarities between them.

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Lab 2-4 Feedback & Future Applications

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✓ Ultrasound (US)
✓ Radiography (R)
VR at the Medical Library

Questions?

Nexus Collaborative Learning Lab: https://library.mednet.iu.edu/nexus/
• 3D Printing Service Guide: http://iupui.libguides.com/3Dprinting
• VR Service Guide: https://iupui.libguides.com/VRAR
Email: rlmltech@iu.edu