An interactive platform to enhance knowledge and understanding of ovarian neoplasm: A pilot media program to standardize clerkship education

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Abstract
Clinical clerkships at Augusta University vary in level of student’s exposure to patients due to geographical locations of clerkships. Standardizing clerkship material will lead to more accurate patient diagnoses and treatment. This project describes the development of a pilot e-learning module to enhance clerkship experience through standardization of the media.

Introduction and Purpose
Third-year medical students have the opportunity to be placed throughout Georgia to carry out the nine clerkships. Due to geographical location students are exposed to different patient populations, creating varied exposure to diseases and clerkship preceptor experiences. A lack of clinical exposure to patient diseases makes it difficult for students to observe and therefore retain patient presentation. Thus, different preceptors using different methods makes it challenging for students to observe the patient’s presentation on their own.

The main purpose of this project is to standardize clerkship clinical instruction despite differences in location, preceptor, and media, thus allowing for blended learning. “The use of blended resources reduces barriers associated with lack of patient availability for specific, infrequent and/or rare diagnoses encountered.”

Materials & Methods

1. 3D model manipulability
   - Increases retention
   - Emphasizes didactic material
   - Creates blended learning experience
   - Availability and supports adaptive learning
   - Differential diagnosis questions

Interactive pelvis
A pelvis MRI was obtained and brought into Pixologic Zbrush for editing and the addition of the aorta, branches, and uterus. The pelvis was uploaded to Sketchfab for 3D model manipulability.

Diagnostic imaging, histology, and illustrations
Ultrasound images were collected and exported from Pimeco Horos into Garden Gnome Object2VR, where the HTML was then embedded into Captivate allowing for user scrolling. Histological images were obtained from the department of pathology and added into Captivate with highlighted rollovers on the necessary structures. Molecular illustrations were added to define the tumor markers for malignant neoplasms by use of didactic coloring. Other illustrations include anatomy, ovarian torsion, patient signs and symptoms and didactic women to illustrate age groups, in total, 12 illustrations and 7 molecular tumor marker illustrations are included in the module. The media combined created a blended learning experience between the clinic and online learning bridging the gap of pathologies not seen during the clinic hours.

Interface
Captivate was used to create this multi-platform project, due to the HTML programming ability and responsive design capability. HTML was the final file type due to availability on all devices without the need to download a Flash player or the newest version of Adobe Acrobat Pro.

Results
A study proposal was developed to track third-year clerkship students’ scores on the ungraded quiz and the interactivity throughout the module through D2L. This quiz tracking on D2L is set up with sharable content object reference model (SCORM) in Captivate. These scores will be compared to those students that did not utilize the module and their scores on the weekly assessment. A focus group will be convened to discuss the level of effectiveness with the interactivity, types of images and questions. This information will be utilized for iterative improvement of the current module and as a template for standardizing whole clerkship media.

The module will be considered successful if:
1. Students perform higher on their weekly clerkship quiz compared to the module.
2. Students can recall information from this pilot better than topics without the module on their SHELF exam.
3. Students can recognize patient presentation of early signs of ovarian cancer resulting in a higher diagnosis rate at stage 1.

Conclusions & Discussion
The approach to this solution was efficient with the use of Captivate in an academic setting. Captivate allows for versatility with the many types of output formats and ease of integration of different media types. HTML leads quicker than the HTML/SWF output on the LMS for the final output. Captivate proved to be a great solution for creating e-learning modules.

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Bibliography