

## Group E: Product Concept Statement

“Operation: Confidence”

Surgical residents experience a 50% failure rate on surgical procedure competency oral exams. As a result, these residents express a lack of confidence in their ability to operate without the support of an attending physician. Partnering with INOVA’s Advanced Surgical Technology Education Center (ASTEC), we propose supplementing existing methodologies for mastering procedural knowledge with a mobile, personalized, learning support application.

According to the Situated Cognition Theory, a learner experiences greater mastery of skills and/or knowledge through the process of explaining, diagramming, or otherwise articulating understanding in a collaborative setting. “Operation: Confidence” will serve as a repository for annotated, self-created/selected resources and will offer collaborative space for connecting residents, experts, and instructors through discussion and evaluation of these resources. This system connects to the cloud and INOVA intranet and has a push function for updating resources. We envision surgical residents improving their understanding of surgical procedures, increasing their passing rate on their exams and, thus, their confidence level in the operating room; a positive emotional impact, indeed.

## Technical Explanation

Surgical residents experience a 50% failure rate on surgical procedure competency oral exams. As a result, these residents express a lack of confidence in their ability to operate without the support of an attending physician. Within this broader problem, research suggests that residents struggle with maintaining healthy study habits while completing their rotations. A 2010 survey by Edson, Beckman, West, Aronowitz, Badgett, Feldstein, Henderson, Kolars, & McDonald found that 57% of residents spend less than four hours a week reading in their field. Though little research has been done on the study habits of residents, a 2012 report by Korbage and Bedi found that 81% of respondents believed that they would improve their study habits if they had access to material through a tablet or handheld device.

In order to meet the needs of medical residents, we propose creating an app that would help residents and doctors alike store and retrieve study materials through their tablets or mobile devices. Our device would have four major components:

- The ability to download and publish electronic documents and videos;
- The ability to annotate and comment on downloaded resources for personal reference and for contributing to a larger community dialogue;
- The ability to receive push notifications of available new resources; and
- The ability to organize information in a variety of ways based on their personal preferences.

The device would work by connecting to the INOVA intranet and/or a designated cloud holding electronic resources. The resident would have the ability to download the material most valuable to them and then organize that information. Because the information will be available in the cloud, we intent to offer a way for residents and doctors alike to add comments and evaluate the available resources. This feature provides a platform for useful, asynchronous communication and collaboration within the INOVA community. Along with having access to a body of information, the app would also have a push notification that would connect residents to the latest electronic resources of their choosing.

As the needs of the client become clearer, the application will be refined to better facilitate the user's experience.

There are similar products currently on the market that can serve as inspiration toward our design. Some of the most common PDF readers include Evernote, Googlereader, and Dropbox. These applications allow for the storage and annotation of PDFs, but

they are designed for individual users and lack the community of practice approach we would like to build upon. There is also a medical subscription-based web/app that appears to have many of the features we wish to incorporate called UptoDate.com. Although this site may appear similar, we believe that we can offer a product tailored to the individual needs of INOVA.

In regard to scope, this product would include resource material made available by ASTEC and INOVA, along with materials gathered by individual users. It would not store any personal identifiable information or personal health information, and it will not provide medical advice, recommendations, or instruction on medical procedures beyond what is found in medical journals.

## **References**

Edson, R. S., Beckman, T. J., West, C. P., Aronowitz, P. B., Badgett, R. G., Feldstein, D. A., ... & McDonald, F. S. (2010). A multi-institutional survey of internal medicine residents' learning habits. *Medical Teacher, 32*, 773-775. DOI: 10.3109/01421591003692698

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