

Factors Contributing to Anesthesia Residents' Learner Engagement and Learning Experience in a Mobile App: A Mixed-Method Design Study

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Background/Introduction: The rapid expansion of mobile technology in medical education has provided postgraduate medical trainees the opportunity to access their learning content anytime, anywhere. Despite the unique affordances offered by mobile technology to improve medical education, little is known regarding how learners use and engage with mobile learning content.

Learnly | Foundations is a yearlong curriculum in the anesthesia basic sciences consisting of daily lessons, quizzes, and flashcards hosted on a web-based learning management system (LMS). To take advantage of the mobile technology available and meet the changing learning needs of anesthesia residents, the Stanford Anesthesia Informatics and Media (AIM) Lab initiated the development of a proposed companion mobile application for the Learnly curriculum. Our goal in this study is to understand "when," "where" and "how" today's anesthesia residents are using mobile learning solutions, and develop a systematic model for the design, development, implementation and evaluation of mobile learning solutions.

Methods: The study is part of the protocol approved by Stanford IRB (#27444). A mixed-method (qualitative and quantitative) approach is utilized to explore postgraduate anesthesia residents' usage and preference for mobile learning tools. A focus group was conducted with 13 Stanford Anesthesia residents (PGY2-PGY4), followed by a Qualtrics survey.

The AIM Lab will also conduct a broad online survey of 1,333 anesthesia residents currently enrolled in Learnly in January 2017, which will prompt information on respondents' background demographics, mobile device ownership, mobile device usage, and perceived benefits and barriers of utilizing mobile devices in medical education.

Preliminary Results: Focus group participants reported that pressure to pass the board exam, recommendations from peers, and access to high-yield ABA-format test questions are factors that motivate them to use a mobile learning application. Factors preventing residents from using mobile learning tools include demanding OR rotations and varied expectations regarding mobile device usage from different attendings.

Data from the survey indicates that the feature that residents plan to use most often on the mobile device is quiz-taking (49%), followed by reading (42%) and flashcards (9%). When asked, "how would you like to access learning content: through a personal computer or a mobile device?" 57% of respondents said they would be more likely to access learning content through a mobile device. 35% said they would split their access 50/50 between mobile and computer devices. Only 8% responded that they would be more likely to access content through a computer.

Conclusion:

Collectively, the results provide preliminary evidence that mobile devices offer unique learning opportunities for residents outside of the classroom setting. Mobile devices also present challenges for medical educators, including the design and development of content optimized for the mobile platform, technical barriers such as connectivity and compatibility, and professionalism and privacy concerns in clinical settings. Residency programs and educators need to include learners as part of the instructional design team to fully utilize advantages of mobile learning while avoiding unintended consequences.