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| **2015 Women for ATSU Awards Application** |
| **Timestamp** | Tools for technology-enhanced active learning at SOMA |
| **PROJECT TITLE** | Tools for technology-enhanced active learning at SOMA |
| **DETAILED PROJECT BUDGET** | Funding is requested for one set (108) of QT devices and ResponseWare licenses for year 1 students, and 108 ResponseWare licenses for year 2 students. Bundle QT device, 12 month TP Cloud & ResponseWare $40 x 108= $4,320.0012 month TP Cloud & ResponseWare $19.99 x 108= $2,158.92TOTAL=$6,478.92 |
| **MINIMUM FUNDING REQUESTED** | $4,978.92There is money set aside for gaming in Dr. Fred Schwartz’s HERSA grant. $1500 could potentially be used for the proposed enhancement of active learning in our curriculum, but it would require rebudgeting from already allocated expenses.  |
| **FUNDING REQUEST** | $6,478.92 |
| **PROJECT DESCRIPTION** | The School of Osteopathic Medicine in Arizona (SOMA) is unique in that students spend only one year on the Mesa campus. At the beginning of their second year, students are dispersed to 11 community campuses associated with community health centers (CHC) across the U.S. At these sites, students receive their basic science and clinical science instruction from Mesa faculty via distance technology, specifically, by vodcasts (video podcasts). Although year 2 students receive in-person instruction at their CHCs for activities including medical skills and osteopathic principles and practice, their connectivity, sense of community, and academic satisfaction decrease significantly from years one through four (1). Year 2 students at the CHCs receive approximately 20 hours/week of instruction in the form of vodcasts. Efforts to increase the interactive nature of this material are needed. One intervention that has the potential to improve student connectivity, sense of community, and academic satisfaction is audience response technology. Audience response systems (ARS), or clickers, are active learning tools that involve most to all students in a classroom. Today’s medical student, with an average attention span of seven minutes, grew up in an era of video games and Web-based applications, and expects rapid, interactive feedback. ARS were designed to electronically poll large groups, allowing individual responses on hand-held keypads (clickers), and immediate reporting of aggregated results (feedback) in graphic form. ARS are considered useful instructional tools because they increase interaction between faculty and students, allow for formative assessment of student knowledge, maintain students’ attention during lectures, and focus students’ attention on key points (2). Higher education students have positive attitudes about the use of ARS, and perceive that they are more attentive and engaged when ARS is used during lectures. Students who engage interactively with each other and with the instructor learn concepts better, retain them longer, and can apply them more effectively in other contexts than students who sit passively listening (3,4,5).Approximately ½ of SOMA faculty use TurningPoint (TP) ARS for year 1 interactive lectures. The response of SOMA students to TP ARS lectures where a variety of game elements and mechanics were incorporated (‘gamified’ TP) was extremely positive (Pettit et al, submitted). We have the potential to create these interactions for year 2 students using TP ResponseWare. With a ResponseWare license, students can ‘click’ responses on their personal device (iphone, ipad, laptop, android devices, desktop, ipod touch) from anywhere across the U.S. Student licenses for ResponseWare, combined with our existing Zoom videoconferencing technology, would allow students at each CHC to join an interactive lecture being delivered from the Mesa campus. Students would simply log onto the instructor’s presentation, and answer questions within the presentation by ‘clicking’ on their mobile device. This information is sent through the internet to a receiver on the Mesa campus. Aggregated feedback would be displayed immediately on the Mesa computer for all participants. Students at 11 CHCs would be able to see one another because of Zoom technology, and view each others’ responses because of TP ResponseWare technology. One obvious game element that could be incorporated in these interactions is CHC competition! Varying the delivery of year 2 basic science and clinical science content with methods like these may enhance learning, and help prevent a sense of isolation by fostering a sense of community and connectivity.Students can access external information on their mobile devices; as such, ResponseWare should only be used for non-graded responses. At SOMA, a few departments use clickers for attendance and graded responses in year 1. For these situations, TP clicker devices are required because students cannot access external information on clickers. The clicker that TP currently supports is known as a QT device. Benefits of the QT device over its predecessor, which SOMA currently has, include secure, password protected responses (FERPA compliance), and a large text pad that allows all types of responses, including short answer/essay responses. Short answer/essay responses provide rich material for discussion during lecture. Purchase of QT devices and ResponseWare licenses for year 1 students would provide flexibility for students and faculty, and student experience with ResponseWare prior to moving to their CHC in year 2. Funding is requested for one set (108) of QT devices and ResponseWare licenses for year 1 students, and 108 ResponseWare licenses for year 2 students. QT clickers would remain at SOMA for each year 1 class.Bundle QT device, 12 month TP Cloud & ResponseWare $40 x 108= $4,320.0012 month TP Cloud & ResponseWare $19.99 x 108= $2,158.92TOTAL=$6,478.92Funding from Women for ATSU would help fulfill an ATSU SOMA goal to improve technology-enhanced active learning in our curriculum. This award would allow us to offer synchronous, interactive lectures at 11 CHCs across the U.S., using a method already shown to increase engagement of SOMA medical students. In addition, student clickers at the Mesa campus would be upgraded to a FERPA compliant model that allows all types of responses, including short answer/essay. References 1. Vora RS, Buick Kinney M: Connectedness, Sense of Community, and Academic Satisfaction in a Novel Community Campus Medical Education Model. Acad Med 2014, 89:182–187. 2. Stoddard HA, Piquette CA: A controlled study of improvements in student exam performance with the use of an audience response system during medical school lectures. Acad Med 2010, 85(Suppl 10):S37-S40.3. Freeman S, Eddy SL, McDonough M, Smith MK, Okoroafor N, Jordt H, Wenderoth MP: Active learning increases student performance in science, engineering, and mathematics. PNAS 2014, 111(23):8410-8415.4. Handelsman J, Ebert-May D, Beichner R, Bruns P, Chang A, DeHaan R, Gentile J, Lauffer S, Stewart J, Tilghman SM, Wood WB: Scientific teaching. Science 2004, 304:521-522.5. Wood W: Clickers: A teaching gimmick that works. Dev Cell 2004, 7:796-798. |
| **EXPECTED OUTCOMES** | Year 1 students (Mesa):Technology-enhanced active learning improved at SOMA by providing students with the latest generation of clicker, and experience with ResponseWare prior to moving to their CHCs.Year 2 students (CHCs):Student’s academic satisfaction improved by increasing their engagement with didactic material delivered via distance technology.Student’s sense of connectivity increased by providing interactive ARS sessions with Mesa faculty in which students participate synchronously with their peers across the U.S., and view real-time feedback on each other’s responses. |
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