UTMOST Project External Evaluation
Sage Education Days Workshops
Overview

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Most workshop surveys (all but the first year's daily surveys) were presented online at SurveyMonkey.com. The registration survey provided front-end evaluation data that provided facilitators with information about participants' interests, skills, experience, and attitudes with regard to workshop topics. Daily feedback survey results on the first two days allowed workshop facilitators to adjust the workshop plans in real time in order to enhance the participants' experience. The final survey gathered summative evaluation data and included some questions identical to the registration survey so that pre/post analysis could be conducted to monitor changes in participants' responses.

There were a total of 95 registered participants at the four workshops (22 in 2011; 24 in 2012; 29 in 2013; 20 in 2014). Response rates for the registration survey averaged 61%. Response rates for the first and second daily surveys averaged 87% and 81%, respectively. Response rates for the final survey averaged 81% of the registered participants. Due to changes in the participant roster during the workshop and some respondents opting out of the pairing questions, the response rate for the pre/post paired questions was 59% overall.

Of the ninety-five registered participants, 20% were the five PIs and 23% were the ten Test Site instructors. There were forty-three other participants, five of whom attended more than one workshop. Participants were from 46 different institutions; most were from the United States, but a few were international.

Overall, the workshops were considered very effective by participants. The workshops featured talks in the mornings, time to work (individually or in groups) in the afternoons, and assembling for a report-out each day around 5:00 PM. Participants were attentive during talks and enthusiastic about their work in the afternoons. Many people worked into the evening on their projects as well. Developers and project managers were readily available to answer questions and connect people with others doing similar work. Workshop facilitators paid attention to feedback on the daily surveys and adjusted the workshop plans accordingly, adding sessions, rooms, and snacks as requested. The workshop format was praised by most attendees as being relaxed, productive, and enjoyable. In 2013, one participant said, "This week has been one of the more productive 5 days of my life."

Survey responses from the four years were very consistent. Most participants ranked themselves as either somewhat or very familiar with Sage. There were, however, several novice users each year, who requested a bit more in the way of fundamentals and introductory support. It was suggested by several participants that a foundations session be offered early in the week for those who were new to Sage.

Workshop participants said their students were mostly STEM majors, ranging between sophomores to seniors. The majority of their students were between 20 and 35 years old. Calculus, linear algebra, and abstract algebra were commonly mentioned as the course in which they did or planned to use Sage.

When asked whether they believe Sage tools and materials are an effective teaching method, participant responses were either that it is somewhat or highly effective. Participants were similarly split between describing Sage as a somewhat or highly effective learning method. Motivation was consistently high for respondents to incorporate Sage into their teaching. All these factors remained the same or increased very slightly between the pre-workshop and post-workshop surveys. Most participants described more detailed plans for using Sage after the workshop than they did before the workshop.

Workshop participants expected to improve their teaching in many ways by using Sage in their work. Among their expectations were preparing more effective and efficient teaching materials, improving student gains, creating more dynamic content for the students, and improving communication about mathematics in general. Using Sage for in-class demonstrations was a common plan for implementation; homework assignments were also mentioned frequently.

Participants looked forward to their students having an interactive math resource that they can experiment with to explore various concepts. Visualizations are seen as an important contribution to undergraduate learning in math. Sage is seen as a tool that provides a richer, deeper understanding of concepts than would be possible without it.

The main concerns people have about using Sage in the classroom were student attitude (unwillingness to learn to use Sage) and the extra time that will be needed for the Sage learning curve to get everyone up to speed. There was also concern about department buy-in for their using Sage in their courses. The user support system (google groups, wiki, etc.) was considered effective; some participants suggested having more archives of Sage implementation examples and tutorial-level resources available. Especially in 2012 and 2013, there was a lot of interest in the Test Sites' reports of their classroom implementations.