SEES Summary: Software Engineering Educators Symposium 2014

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ABSTRACT
This report summarizes our experience organizing and holding the Software Engineering Educators' Symposium (SEES) in Hong Kong, China in 2014. We describe the event, feedback received from SEES attendees, and lessons learned holding SEES outside the United States of America (USA) for the first time in its history. We hope that future organizers will find this report useful to improving future offerings of SEES.

1. INTRODUCTION
Since the inception in 2002 of the Software Engineering Educators' Symposium, its focus has been on improving the recruitment, education and retention of students in software engineering. Until 2014, SEES was collocated with ACM SIGSOFT International Symposium on Foundations of Software Engineering (FSE) only in years that FSE has been held in the USA. SEES in the USA was funded by a grant from the USA National Science Foundation (NSF) and by ACM SIGSOFT. In 2014, SEES moved outside the USA for the first time to Hong Kong, China, where it was held on Nov 17 with FSE 2014. Because NSF sponsorship can only be used for faculty working at universities in the USA, SIGSOFT was the only sponsor for SEES 2014.

SEES 2014 attracted a total of 22 participants (including speakers). Although comparable in number to attendance at past SEES, the SEES 2014 speakers and attendees were more international, coming from both Western and Asian countries. Figure 1 illustrates the distribution of SEES 2014 participants by country (left side) and broader region (right side). From either perspective, Asian countries, in particular China, dominated the participants in SEES 2014.

The majority of SEES 2014 attendees paid a registration fee and their own expenses to attend. However, thanks to support from SIGSOFT, tutorial speakers and a few selected attendees were compensated for registration and lodging, and all attendees were supported for a discounted dinner.

2. PROGRAM
The SEES 2014 program consisted of five tutorials and one panel. It offered more tutorials than any previous SEES (the maximum number of tutorials in the past was four) and continued a recent SEES trend of convening a panel of experts to discuss emerging issues in software engineering education. All SEES 2014 speakers served on the panel, giving the SEES 2014 panel a record number of panelists.

The morning consisted of three tutorials. Mary Lou Soffa from the University of Virginia gave the first morning tutorial on "Educating Diverse Software Engineering Students." She shared best practice for attracting and retaining underrepresented students in software engineering, in particular women students. Yuriy Brun from University of Massachusetts gave the second morning tutorial on "Interactive Classroom Games for Teaching Software Engineering." He presented collaborative in-classroom activities that place students in situations that motivate them to learn to communicate effectively. Xianping Tao from Nanjing University gave the third morning tutorial on "How to Promote Students' Problem Solving Abilities: The Practice of Course Reconstruction and Its Flipped Classroom." He described a curriculum combining several fundamental computer science and programming courses into one comprehensive problem solving course, and showed the benefits it produced for students in their course grades and research potentials.

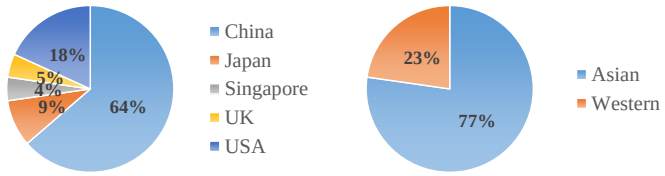

Figure 1. Participant distribution.

The afternoon consisted of two tutorials and a panel. Tao Xie from University of Illinois at Urbana-Champaign gave the first afternoon tutorial on "Gamifying Teaching and Learning of Software Engineering and Programming." He introduced Code Hunt and Pex4Fun, two projects that offer a web-based educational gaming platform for teaching and learning programming and software engineering. Qianxiang Wang from Peking University gave the second afternoon tutorial on "Online System and Big Data for Software Engineering Education." He advocated the use of online big data systems for collecting and mining large volumes of educational data for advancing software engineering education progress.

Finally, Laura Dillon from Michigan State University moderated a panel on "Software Engineering Education for the Real World." The speakers and attendees engaged in a lively discussion of difficult questions faced by software educators, such as how to provide sufficient real-world context for students to understand the scope of software engineering problems, how to teach the soft-skills students need to be successful in software engineering, how to overcome limitations of large lecture-based courses in a scalable manner, and how to create in-class activities to drive active learning.

3. FEEDBACK
Feedback received from SEES 2014 attendees was enthusiastic and uniformly positive. Comments included:

"It is really a great pleasure to participate (in) this event."
"(We) would definitely like to participate (in) the event next year if possible."
"The symposium helps a lot to our teaching method in universities."
"I learn(ed) something about SE education in different regions."
"I enjoyed a lot and learned a lot in SEES 2014."
"Some of their (speakers') experience can be really helpful for our university."

Attendees also praised the organization of SEES, with comments such as:

"SEES is a great success."
"Personally, it is a successful workshop."
"I personally think SEES 2014 was very organized and excellent."

SEES attendees from universities in unrepresented areas in China, who have few chances to practice English, provided their feedback in Chinese.

They expressed that it was an honor to attend SEES 2014 and learn insights and techniques for software engineering education from international speakers. They spoke about the importance of software engineering education and said that SEES 2014 taught them that they have a lot to catch up on, both in teaching practice and communicating languages.

SEES 2014 was organized by Chang Xu from Nanjing University and Xuanzhe Liu from Peking University, in consultation with Laura Dillon, Frances Paulisch from Siemens AG in Germany, and Will Tracz from ACM (SIGSOFT Chair). The organizers went to great lengths to advertise SEES 2014 to both international researchers and teachers who registered for FSE 2014 and faculty in Chinese universities for whom travelling to Hong Kong was convenient and economical.

From the organizers' perspective, the whole program went smoothly. Speakers and panelists showed passion in sharing their knowledge and experience in software engineering education. Nevertheless, the program schedule was tight. Some in-class activities, e.g., those provided in Yuriy's tutorial, could not be allocated adequate time. Lunch ran late, and the time for the panel had to be compressed. This problem might be alleviated by such measures as posting tutorial materials on the SEES 2014 website,[1] so that attendees can learn details at their own pace later; reducing the number of tutorials; and better communication of timing constraints to the restaurant where lunch is held.

4. CONCLUSION

This was the first time SEES was organized outside the USA. SEES 2014 organizers faced funding challenges because the event was not eligible for sponsorship by the USA NSF. SEES 2014 organizers addressed this problem by supporting only invited speakers and a few selected attendees using limited sponsorship received from ACM SIGSOFT. To include a networking dinner for all participants, a portion of the SIGSOFT funding was used to provide a partial subsidy for the dinner and participants paid a reduced cost. Most participants (82%) chose to attend the dinner, as in past SEES. The publicity strategy of advertising SEES to FSE 2014 attendees and to Chinese educators successfully attracted an international group of participants. Similar strategies can be applied in the future if SEES will again be held outside the USA.

5. ACKNOWLEDGMENTS

The SEES 2014 organizers would like to thank Will Tracz, SIGSOFT Chair, for his generous help in coordinating their application for the SIGSOFT sponsorship. The organizers would also like to thank Laura Dillon, SIGSOFT Vice-Chair and past SEES Co-Chair, for her patient answers to numerous questions about organizing SEES 2014. The organizers would also like to thank S.C. Cheung, FSE 2014 Chair, for both his encouragement of SEES2014 and his help in tedious logistics coordination.

[1] http://cs.nju.edu.cn/changxu/sees/index.html