ACM-W: Objectives and Activities

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When I first started my academic career, I joined the ACM because I was working in a Faculty of Computing and 4-5 years later I became the Australian ACM-W Women's' Ambassador. We promoted the Women's Council of the ACM. In 2011, Regional Boards were developed in the ACM. Australia was not considered large enough to have our own regional board. However, I focused on promoting computing courses and careers to women.

ACM-W is part of a 100,000 member organization, the world's largest educational and scientific computing society. It was formed out of Columbia University in the USA in the 1940s. The ACM-W is the Women's Council within this organization.

The ACM-W has a mission to celebrate and to advocate for the full engagement of women in all aspects of the computing field. In most westernized nations there has been a steady decline in female participation in computing and technology fields this century. Since 2000, in Australia, the number of students going on to this career path has declined by 75%, both male and female. It is not seen as an attractive career path due to various reasons. These reasons are not confined to one culture, one country, or one organization.

In Australia, young women believe that it is a career for geeky males, perpetuated by TV series such as the IT Crowd and The Big Bang Theory. However, there is also a belief since 1950s-60s that men are better at mathematically based careers than women. It is also considered as a chilly career for women. The workforces are not accepting to women and the work hours are onerous if you have a family to support.

There are very strong gender perceptions in computing. In 2008, when I was an ambassador for the ACM-W, I presented a paper with my colleague Dr Annemieke Craig where we drew on the experiences of ACM ambassadors. An example we used was from Japan. When Mariko Kato in 1970s said that she wanted to study physics, her parents stereotypically said that's not a career for women. However, she was resilient and pursued her career at Keio University. In the same paper, we also investigated cultural differences according to Hofstede's measures of cultural differences. Our conclusion was that one type of intervention to encourage this career path to women does not work for all societies. For example, in India, it is more about getting equal access to education for girls.

The ACM-W focuses on three main programs. There are celebration events for women in computing, support for ACM Chapters that reside within universities, and scholarships for women computing students to

attend research conferences. They used to sponsor the Athena Lecturer Award, but that's now a project within the ACM in general, not within the ACM-W.

In the Celebration events, there are over 30 distinct events held each year worldwide. The ACM provides funding for hosting celebrations, and they are flagship events. It's a celebration to bring together academics, professional women and research students, and even undergraduate students in computing. If your college wanted to move down this path and you are a student, they will send the organizer to an event that's running somewhere else and then the organizers can bring that information back to the college.

At present, ACM-W has funding from the Oracle Academy, Microsoft Research, and Google for scholarships. They have funding from Google for the Athena Lecturer Award and continuing support from Microsoft Research for the celebrations and the community college-related activity. Thanks to the sponsors, the ACM-W can continue to support, celebrate, and advocate for more women in computing. They are also increasing their global reach. With the student chapters the ACM-W will value add existing student experiences.

If the students in your college or university want to start a chapter, the chapter will be recognized this on the ACM-W webpage. The ACM will provideleadership training for the students who are running the chapters. They will also share resources from current chapters to new chapters and provide two-way support.

In Japan, there is already one ACM-W chapter at Osaka University. You can find out the name of the chapter chair at this college from the ACM-W website, or other universities could start their own chapter or run a celebration event here in Japan.

The ACM-W also has a scholarship program promoted through chapters and newsletters. They connect current students with worldwide research conferences. These scholarship programs are awarded to women computer science students interested in attending research conferences. The students don't have to present a paper. It is good for PhD students to be part of the poster competition. It is a part of the pipeline program designed to encourage Bachelor's level students to move to Master's level or Master's level students to move to a PhD. There are approximately 40 awards per year out of which 20% are for Bachelor's level (BA/BS), 15% from Masters, and 66% from PhD. In awarding scholarships, 48% were awarded to PhD and a greater proportion to Bachelors and Masters with the aim of encouraging the pipeline.

The conferences supported are 18 ACM SIGs (Special Interest Groups), and each of these SIGs have their own specialty and their own conferences. SIGCSE (Special Interest Group in Computer Science Education) is always held in America and presents a fascinating opportunity for learning but also for networking and getting ideas back to your university. There is also the Information Technology and Computer

Science Education (ITICSE) conference that is part of this program that is usually held in Europe, but last year it was held in Peru for the first time.

I was the co-chair for several Celebrations of Women in Computing in Australia. The first one we ran in Australia was in 2006. We tried to run it like an academic conference and that was hard in Australia, because the government has started ranking conferences according to their reach and influence. Starting a new conference is very difficult. Our reach was going to be limited for Women in Computing. After that first one, we changed it to a Celebration. While we have an academic stream and we have a poster stream, we also invite professional women and panels, and we encourage intermixing. We invite organizations, because it is an opportunity to make connections with bright scholars. On the panels, we encourage women to tell their own stories.

The ACM-W provided funding which allowed us to support a keynote speaker. We advertise by sending the poster competition to all Deans of Schools of Computing in Australia and encourage them to sponsor the registration for 2-3 of their students. There was an award for the first, second, and third in the poster competition. We also invited government ministers depending on where we were located. We also brought in a woman's leadership consultant to run an event. The prize for the student who won the poster competition was enrolment in a women's leadership course for 12 months. The women's panels were extremely interesting. They all talk about the imposter syndrome, a feeling of self doubt that you don't belong in computing. It's energizing to hear from women who are successful and who have brilliant careers in this field.

The Australian Celebrations were sponsored by the ACM-W, but unfortunately it's been very quiet since 2014. In Australia, students on campus are 60% female apart from technical universities where males still dominate. Margolis and Fisher published a book called Unlocking the Clubhouse, which was about how they turned around a male-dominated faculty at Carnegie Mellon University. I was inspired with it. Our women's group started as a chapter of the ACM-W. It still exists, but not as a chapter. It's now self-sustaining. At Swinburne University, where I used to work, there were less than 10% women in software engineering courses. Our information systems course, which is more about communication, had only 17% females.

We got a university grant to investigate this issue and start a women in computing group. I have provided a copy of the paper that I wrote with a colleague on how to develop the group, what you need to do, and how to make sure it remains sustainable. Our group became part of the marketing for our university. We ran events in the University. All new female students were invited within the first 2 weeks of starting a semester to a Welcome lunch hosted by the Dean to let them know that we would support them but also to let them know there was a space where they could come and talk to us for further support. In monthly lunches, we would invite alumni and 4th years and make it a sharing event and a safe space.

Every female student new to the University in the Faculty of Computing received a welcome email and an invitation to join us. When I set up the group, I had one postgraduate student and one undergraduate student as managers. We were the first women's club in the university to get on Facebook and that built a much stronger community because students are transient beings on our campuses. Not everyone could come to the lunches, but we could share all the information. It grew and turned into a fabulous alumni site as well. I won an award for this. We also ran an employment seminar for everyone each semester. We also petitioned the Dean to put a line in the budget for few small events each year for Women in ICT group.

Regarding the scholarships, Alana, one of my students, won one of the scholarships to go to an American conference. When Alana returned, she became a champion for women in IT. She ended up being an ambassador within the university group and worked with me on a major grant that promoted computing to secondary school students through a female-focused curriculum. She went on to work with ThoughtWorks. Alana, another student of mine, and I presented at a women's conference in India. This is an experience that I cherish as an academic.

The major grant I won was from the Australian Research Foundation. My colleagues and I, (Julie Fisher and Helen Forgasz from Monash University and Annemieke Craig from Deakin University) designed a curriculum that was female focused. We had realized that outreach programs were important, but it had to be more than outreach. This curriculum was embedded in a secondary curriculum in co-ed schools as part of the elective program. Our book, "Digital Divas: putting the Wow back into computing for girls" won an award last year, and through the Knowledge Unlatched Project, the book can be downloaded for free. It is a frank reflection on what we did right and what we need to do better if we are going to make a difference in the future.

Alana worked with me as web manager and created that logo that we carried through this program, embracing color, embracing females. The female focused curriculum was about teaching computing in schools and not about teaching programming. I have a very strong opinion on this new push worldwide that every child should code. We never talked about coding for coding's sake. We had modules written on healthy menus. We provided the students with challenges. We had modules on image making. They were written for the Victorian Secondary School Curriculum with teacher resources and student resources. The Image Making module unpacked how images are manipulated with technology for magazines for example. Then we had myth busters where they had to create a short presentation on busting the myths about why girls can't do computing. We used the Alice storytelling language which introduces them to a drag-and-drop programming language. Last year when I was at a panel in Peru, I argued against this push worldwide that every child shall code. My argument is, it has to suit their interests and that we have to work with the teachers. All my research on gender and computing shows that the two main factors influencing students' career choice are parents and school teachers. That's why I moved to another university to a School of

Education where I'm working with pre-service teachers to make them feel confident with computing but also to break down the myths and stereotypes.

The objectives of ACM-W are to empower women in computing and to celebrate, inform, and support. I'm here representing the president, the ACM-W Chair Valerie Barr. My friend who used to be the Turkish ambassador is now in charge of an ACM-W Europe, Reyyan Ayfer. In India, we have Sheila Anand. They are the three major boards There are others in charge of celebrations and chapters. Our website is women.acm.org.

Thank you for your time.

Q&A/Comments Session

Q1. The contact person for ACM-W in Japan is not a Japanese in Osaka University. In Japan, the big barrier is language unlike developing countries where they are knowledgeable in English, so they can communicate more with ACM. What is your view of Japanese women researchers?

Catherine Lang
I did not read out the chair of the chapters name, because it wasn't a Japanese name, but it's obviously someone studying at a University in Japan who sees the value of connecting globally. That doesn't mean you can't communicate everything else in your language. There is no reason why you can't replicate some of these activities with sponsorship and tapping into resources. Perhaps for chapters and celebrations here, it might initially need some academic guidance before it can be handed over to your students.