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acm-w
ACM-W CIS Newsletter:
Celebrating, Informing & Supporting Women in Computing
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in this issue

From the Editors

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Welcome to our summer 2012 edition of the ACM-W Newsletter.

We are excited to share these six terrific articles with the ACM-W community that range from research articles blending retention and learning to experience articles that provide advice to women at all stages of their career or challenge the institutional bounds of our community.

We urge the community to add to this conversation. Do you want to challenge a stance? Do you want to make the community think about an issue? Then, please consider writing an article by submitting a proposal for our winter issue with new ideas and perspectives. Articles are due on October 1, 2012 (http://tinyurl.com/ACM-W-Proposal).

We will also continue our special column – "Ask Judy" where the 2011 ACM-W Athena Lecturer, Judy Olson, will answer questions from our community. If you have a difficult question about computing, your career, or general need for advice, please consider asking Judy a question here — tiny.cc/AskJudy. Judy gave some terrific advice – Katie used the conference networking advice at two conferences in the last month and it worked like a charm. Definitely check it out.

From the ACM-W Chair

Elaine Weyuker
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What a great new issue Katie Siek and Suzanne Menzel have put together! After the ever-helpful Ask Judy column, we have an article by Krause and Polycarpou, describing a study they did to assess the impact of using Formal Learning Groups on the recruitment and retention of undergraduate women in computing. Following that is Rusniak's article describing her courageous field change from biological sciences to computing while working (and being primary bread-winner) and raising 3 young children. Shankar challenges us to look at gender issues in

the workplace from a structural and institutional view and to consider ways to overcome them. Galván's helpful article addresses issues that keep women from becoming all that they can be, while suggesting ways of addressing them. The final article describes a recent meeting held in Abu Dhabi on women in computing in the Arab world, including challenges and ways of moving forward. What a wonderful mix of topics and perspectives. Thanks to all of the authors for sharing their experiences and thoughts with the ACM-W community. I encourage all of YOU to join the conversation. Tell us what you are thinking – what has been your experience as a woman in computing? What do you think we should rethink as a community? What comparisons can you make with your experiences and the world?

Elaine Weyuker with daughter Rachel, husband Tom, and mother Sylvia.

Ask Judy

Judy Olson is the 2011 ACM-W Athena Lecturer. After 40 years in both academics and industry, she has encountered a lot of sticky situations, survived, and, through every phase, was happy. She has advised many younger women in her career and thought she could broaden her reach by contributing this column. Want a question answered by Judy? Ask it at http://tiny.cc/AskJudy

Pursuing a New Research Area on the Tenure-Track

Dear Judy:

My research is in a very new area and my department colleagues don't really understand it. It feels like hitting a brick wall and I'm afraid about my chances for tenure. But I believe what I'm doing does make a significant contribution and I love it. What do I do?

Passionate Oddball

Dear Passionate:

This is a difficult situation, frustrating and discouraging. But there are things you can do to feel more in control:

First, you have to spend some time and energy explaining your contributions to your colleagues. Sign up for a seminar slot; invite sympathetic others to it in addition to your colleagues. Begin with stating clearly what problem you are trying to solve and why people should care. Practice it with friendly colleagues (perhaps exchanging time with others who need to practice upcoming conference or job talks).

Perfect an elevator speech—the 2-minute version of what you're doing and why you're excited about it. Sound excited, not defensive.

If in the end you really don't fit with your department, you may not get tenure. Ideally you will get a sense that it isn't the right place for you and find another opportunity before going through the tenure process. And if you're doing good work, - it's easy to do good work if you're passionate about it - you'll find a fit somewhere. Think about where you *would* like to be and make yourself visible to them. Find supportive people somewhere and talk to them when you're down. Talk to them when you're up. Make yourself visible to the broader community (at conferences, offering yourself as a potential speaker at other departments, etc.). Remember, many many academics move departments before finding a successful home. Don't stop going after what you LOVE.

Judy

How to Network at Conferences

Dear Judy:

I am a young assistant professor. I often go to conferences knowing no one. I find receptions the hardest; I don't know how to start talking to strangers, especially if they know each other and are chatting in a lively way. What do I do?

Lonely in a Crowd

Dear Lonely:

I pass on to you advice from my daughter that she told me when she was a new assistant professor. I have used this successfully many times!

She said to find a group of people who you'd like to join, a group that includes a woman. Stand near the woman in the group, behind her shoulder. She will make the circle bigger for you (we do that). Whoever is talking, look at him/her and nod and smile. You don't have to say anything at the beginning, only when you're comfortable. Try it. It works like a charm.

Judy

Navigating Service Obligations

Dear Judy:

My boss always asks me to do activities that do not necessarily help me move up in my career (e.g., help the staff organize the holiday party; go to a junior high to speak about being a software engineer). I think these activities are important for group morale and service to our community. However, I do not see any of my male colleagues doing these activities. If I say, "no," then I'm not a team player; if I do it, I'm taking time away from doing my work. How should I navigate this situation without sounding whiny?

Stuck

Dear Stuck:

I got a great piece of advice from my mentor when I was in industry and have used it to good effect ever since. It has two parts:

1) get the facts/data, and

2) never go to your manager with just a problem. Offer a solution that he/she has the power to approve.

So, talk to your male colleagues directly or the department admin or someone who's been around (and watchful) for a long time. Ask them what service (local, community, profession) they or others engage in. These are your facts. Assess whether indeed you serve more than they do or their service has just been invisible to you.

If you find out it is imbalanced, go talk to your manager (department chair) with facts in hand and suggest a solution. It could be that these duties be rotated among the people in the group (according to their talents), or that you are compensated for your extra time by not having to serve on some onerous committee that you have been on, or even comp time off. Decide what you want and then ask for it.

Another mentor of mine gave me another sage bit of advice: "I never got anything I didn't ask for." Men ask all the time; women don't. Ask.

Judy

How to Mentor Junior Women

> *Dear Judy:*
>
> *I am a successful mid-career professional. I would like to help the more junior women in my area. What have you found to be especially helpful in interacting with the junior women you mentor?*
>
> *Wanting To Help*

Dear Wanting:

I asked a few of my younger women colleagues what they maybe especially appreciated about my being their mentor. I thought it would be something about how things really work around here, which is expecting what, etc. But they surprised me. Here's what they said:

"You also always ask me about my family which is a major part of who I am and a part that I repeatedly hide at work."

"The interactions that have meant the most to me are not just the acknowledgement, but the joy you show when asking about my daughter. It really is rare."

So, I think it's important to include in your conversation with them things about the non-work related parts of their lives, acknowledging that those are parts of the whole person. I related this story to a male colleague with whom I co-teach so see a lot. He remarked, "Yeah, you always begin our conversations with how was your weekend? How did Daniel do in soccer?...or some such. I really like that."

Connect on a level that is more inclusive than just work - give them advice and engage the whole person.

Judy

How to Determine Authorship

Dear Judy:

I am a graduate student and my advisor always wants to be first author on our papers even though I do most of the research and writing. How can I let him know that I want to be first author? I want to keep him as an advisor and I understand that he is not tenured yet and needs publications.

Feeling Short Changed

Dear Feeling:

Order of authorship is always a tricky issue. Different disciplines have different unspoken rules and the rules even change over time. It is doubly tricky because people don't talk about it. Hurt feelings arise when we feel slighted because we perceive we have not been placed in a position in the ordering that reflects our contributions. I've been there.

I think the thing to do is to have the conversation when you begin the next project that will lead to a publication. A useful phrase you can use to open the topic is, "Help me understand how this works. What is your understanding of order of authorship, who gets included, etc. Is that what others think, too?"

As an aside, I have opened many, many potentially uncomfortable conversations with "Help me understand…" It's not too confrontational; it makes you appear humble and wanting some help as opposed to demanding something.

As recommended in a previous note, it might be best to do some investigation of others' practices before you talk to your advisor. Talk to your chair or a trusted senior person about how authorship ordering works in your field.

I was given advice about authorship by a senior colleague once when I was already established. He said, "Even if this was your idea and your input was critical to this paper's success, even if you actually wrote the first draft, put yourself last. You already have a good reputation. Putting yourself last will make you look generous."

Judy

Have a question for Judy? Ask here: tiny.cc/AskJudy

An Exploratory Study on Recruitment and Retention of Women in Undergraduate CS: Collaborative Learning with Formal Learning Groups

By Julie Krause and Irene Polycarpou
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Introduction

Percentages of women in computing jobs and in university programs are not where they should be. As a result, recruiting and retaining women in the field of Computer Science (CS) is of utmost importance. At our university, Colorado School of Mines (CSM), where only 13% of the undergraduate students enrolled in the CS program are female, we are looking into ways to promote female participation in CS.

The use of collaborative learning in various forms has been shown to improve recruitment and retention of women in CS studies (Chase & Okie, 2000; Horwitz & Rodger, 2009; McDowell et al., 2006; NCWIT, 2011; NCWIT, Barker, & Cohoon, 2008). Since our Introduction to CS course (CSCI 101) at CSM incorporates formal learning groups (Johnson, Johnson & Smith, 1991), which is a form of collaborative learning, we decided to conduct an exploratory study on formal learning groups' potential to promote recruitment and retention of women in our CS program. Our work was supported by a National Center for Women & Information Technology (NCWIT) Academic Alliance Seed Fund award sponsored by Microsoft Research. In this article we discuss the findings of our exploratory study.

About Formal Learning Groups in Introduction to CS

In CSCI 101, the introductory CS course at CSM that was first offered during the Fall 2010 semester, students work in formal learning groups as an integral part of their learning experience. Teams of four to five students work together in class over a period of several weeks and each student participates in approximately four different groups throughout the semester. With the exception of the first group formation of the semester which is completely random, group formations are determined using a randomized algorithm that, based on students' previous grades (including programming assignments and quiz scores), creates groups with similar average performance. As a result, groups have varying combinations of female and male students, as well as CS majors and non-majors.

Much of the content of CSCI 101, which is a course designed to present a broad variety of CS concepts, is covered via formal learning groups. For at least twenty minutes of each fifty-minute class, students work in groups to do problem solving as a team or to teach one another about topics they have investigated on their own time. During each class period, students are presented with a "learning group

assignment" and are given time to divide up problems among group members. Each group member is then responsible for investigating specific topics and completing related problems outside of class. Groups are encouraged to duplicate coverage on completion of problems between two or more students. In the subsequent class, students teach one another what they have learned. If different students come up with different solutions, they can do additional work as a group to resolve discrepancies and ask the instructor for additional clarification.

A Student Teaches Her Group During a Learning Group Discussion

Throughout group discussion time in class, instructors observe groups and answer content-related questions. Furthermore, during this time instructors verify that students have come to the group sessions prepared. Students' course grades are negatively impacted if they come unprepared numerous times throughout the semester. Following the group discussion time, an instructor facilitates a class-wide question and answer session to clarify content questions, delivers a short lecture, and often assigns problem-solving tasks to groups.

As motivation for students to be invested in teaching their peers, 10% of each student's course grade is dependent on their group members' performance on individually completed quizzes, which are administered at the end of the multi-week period that a given set of groups worked together.

For the course, when the class size is 40-60 students there are two instructors - as was done during the semester of our study. When the class size is fewer than 40 students, there is only one instructor.

Study Methods

We used both quantitative and qualitative data collection and analysis for our study. Our research included collecting data from students, so we obtained approval from our Institutional Review Board prior to beginning our research. We conducted surveys with open-ended and closed-option questions including surveys administered at the beginning of the semester and at the end of the course. Additionally, one-on-one interviews and focus groups were conducted at the end of the semester to gain more in-depth insights into students' perceptions. The participants of the study were students who were enrolled in CSCI 101 during the Spring 2011 semester. All students (20 females and 82 males) were invited, but not required, to participate. Fifteen female students and 61 male students (76 students total) responded to all of the surveys. Additionally, a randomly selected subset of students was invited to participate in an interview or focus group. We invited all female students, 12 of whom agreed to participate. Whether they

Julie Checks in on a Group During Discussion Time

were selected for an interview or a focus group was random. The number of male students selected was chosen to match the number of female participants. Four female students and four male students participated in interviews. We conducted two female focus groups with four students each and two male focus groups with three students each; the discrepancy was due to the fact that two male students did not attend their focus groups.

The surveys, interview questions, and focus group guides were designed to garner students' perceptions of their experiences with learning groups in CSCI 101. We also measured changes from the beginning to the end of the semester in students' intent to pursue CS studies to determine if recruitment and retention were successful. Furthermore, we investigated different group formations (e.g., combinations of female / male students) to explore whether certain formations were more or less beneficial to female students, and to identify properties of groups that students associate with more effective groups.

Findings

Recruitment and Retention Success

We found that there were no significant changes in students' interest in majoring in CS after taking CSCI 101. Of the students who came into the course as CS majors, all but one male student retained an interest in the major, indicating that retention of students in the major was primarily positive. Of the students who came into the course undeclared or with non-CS majors (roughly three quarters of the female students and one half of the male students), two male students lost interest in majoring in CS, whereas one female and two male students gained an interest in majoring in CS. While there was one female student who decided after taking CSCI 101 that she was then interested in pursuing a CS major, overall these results indicate that recruitment into the major was not necessarily successful.

Students' Perceptions of Formal Learning Groups

Through surveys, students reported on how they compared learning groups to traditional learning methods and whether learning groups had an impact on their intent to study CS. Through interviews, focus groups and open-ended survey questions, students also reported on their general perceptions of learning groups in CSCI 101.

Many female students who took the course reported that they learned from and enjoyed formal learning groups. For example, when asked to compare learning groups with traditional learning methods, more female students indicated that learning groups were positive compared to traditional methods than those who indicated that learning groups were negative compared to traditional methods. Male students, on the other hand, indicated a preference for traditional methods. When students were asked to rank five instructional methods used in CSCI 101 (participating in learning groups, reading the textbook, observing lecture, programming in Python, and playing educational games in class) in terms of how much they learned from each method, many female students (40% of the females who took the surveys) ranked learning groups as the method from which they learned the most. Similarly, 40% of the female students ranked learning groups as the method they enjoyed most.

When asked if learning groups had an impact on their intent to study CS, most students indicated that learning groups did not have any impact. However, of the two female students who indicated that learning groups did have an impact on their intent to study CS, both students indicated a positive impact.

Some of the most interesting findings were the specific benefits and drawbacks of learning groups that students reported in open-ended survey responses or in interviews or focus groups. Positive aspects of learning groups that students reported were that having group members depend on them provided additional motivation to work hard, that learning groups helped them to feel comfortable asking questions due to the small group setting (as contrasted with asking questions in front of a large class), and that learning groups gave students the opportunity to meet people. The most common benefits that female students in particular reported were the added comfort in participating and the additional interactivity with others that learning groups provided.

Some of the concerns about learning groups that students reported were that working with groups had the potential to cause misconceptions or poor understanding of content, and that the quality of the learning group experience varied greatly depending on the group members (e.g., some groups were open to teaching, whereas others did not teach sufficiently and students felt they needed to learn everything on their own as a result). Although learning group discussions in CSCI 101 were monitored and instructors provided clarifications regarding content misconceptions as needed, these findings indicate that a rigorous approach to observing and influencing learning group interactions is needed for learning groups to be most successful. For example, instructors could observe groups and assign grades for students' participation during the observation.

Specific Group Formations

Students completed surveys to evaluate their specific groups and those survey data were analyzed to determine whether specific group formations had an impact on female students' experiences in learning groups within CSCI 101.

One surprising outcome was that we found that female students in our study did not necessarily prefer working in groups with other female students (i.e., groups consisting of more than one female). Although many of the groups that were reported by female students to be successful in general were comprised of more than one female, when female students were asked directly about their preferences there were a variety of responses. We acknowledge that our sample size was small - 11 female students responded to this question during an interview or focus group. Five women reported that they had no preference – for example, some stated that they were used to working with all males so it did not make a difference. Three women reported that they did prefer having other females in their groups, stating reasons such as not feeling ignored in those groups. Finally, three women reported that they preferred being the only female in a group. The students who indicated that they prefer groups without other females reported reasons such as getting along better with male students and not needing to compare oneself to other female students when there are no other females in the group.

There was also a spread in students' preferences for homogeneity or heterogeneity in levels of CS experience and ability levels within groups, although there was a slight tendency toward a preference for having a mixture. Students' comments suggest that there may be advantages in constructing learning groups in CSCI 101 with varying experience levels, but that groups with extreme variations are only beneficial if the highly experienced students are not condescending to the less experienced students, but rather take on the role of teacher in the group.

Students were given the opportunity on a survey to provide details regarding why their best groups were more effective or more inclusive, and why their worst groups were less effective or less inclusive. The characteristics of effective groups that appeared to be most important to students were preparedness (group members coming into group discussions prepared to teach their assigned content), motivation, and willingness to contribute to the learning group discussions (especially providing thorough explanations). For students to feel included in the teaching and learning process within groups, it was important for the groups to socialize and have fun together, to have members who were friendly, and to have members who listened to and valued other students' input.

Students Consult the Textbook During Learning Group Time

While the properties that students described were not necessarily properties that can be controlled by placing specific combinations of students together in groups, students' feedback may be applied to improving learning groups. For example, to promote inclusive behaviors in group members and help students to feel that their input is

valued, it may be beneficial for instructors to collect and act upon feedback regarding other group members' performance to encourage positive behaviors and discourage negative ones.

Concluding Remarks

Results from our study indicating that female students enjoyed and learned from formal learning groups in CSCI 101 suggest that incorporating learning groups into an introductory CS course may have the potential to promote female students' interest in CS. There were not any specific combinations of students that were identified as being decidedly more or less beneficial to female students' perceptions of groups, but certain characteristics of groups such as motivation, preparedness, and approachability appear to be needed for fostering positive group environments.

CSM continues to offer CSCI 101 with formal learning groups and will continue to hone the implementation to optimize learning for all students and to attract more women into CS. We hope that others may be inspired to use collaborative learning in their classrooms as a way to boost female students' confidence in participating and hopefully to encourage their interest in CS. We also hope others will take away some valuable lessons from our findings and experiences.

About the Authors

Julie is a recent CSM M.S. graduate who worked on this study as part of her Master's thesis under the advisement of Dr. Irene Polycarpou. Julie was motivated to work on this project while co-teaching CSCI 101.

Julie Krause

Irene Polycarpou

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Nevermind Where You Are... See Where You're Going

by Kathy J. Rusniak
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Educating oneself is a long and arduous process. It's easy to get caught up in where you are right now and how comfortable or uncomfortable the situation feels at the moment. This is the point at which it is of utmost importance to stay focused and start doing some envisioning of your future self and future successes. See yourself having an important and highly lauded career and see yourself able to handle technically difficult projects. Yes, you have important commitments now and yes there is some sacrifice involved (from you and others) in getting yourself to the next level. But feel how rewarding it is to have gotten there, to have the career and abilities you dream about. Then hold onto that feeling, tightly. Time passes quickly, and the sacrifice and struggle are replaced by satisfaction and happiness for you and those around you. Although it is a great position to be in, to support and inspire others, I want to share my thoughts on success in school and life with others because every day is a struggle for me and I know others feel the same. I'm a full-time working mother of three children all under 5 years old who decided in 2009 to go back to school for a masters degree in Software Engineering. I work part-time on my degree and anticipate completion in fall of 2012. Deciding to further educate myself was easy. Taking grad-level computer courses (I have a background in Biology), balancing a full-time job, small children, and a husband at home, plus all the adventures and misadventures that life has to offer... well I imagine I'll look back on this as the challenge of my life.

It All Started…

It all started the way these things often do. And I don't mean going to grad school as the next step after finishing a bachelor's degree. I wish I had been that kind of traditional student. Actually, I did try grad school, briefly. My undergrad degree was in BioScience and I spent about six weeks in a five year Ph.D. program in Biochemistry. I liked the orderliness of technical subjects, but I didn't have the confidence as

a young adult to try the things that really interested me, like math, physics and engineering. That lack of confidence seems silly now, but I didn't really have a mentor to guide me at the time. I'm the first person who even went to college in my family. Right from the start the Biochemistry program was not a good fit, unfortunately, although it was certainly a great opportunity. Instead, I went to work for a big pharmaceutical company as a formulations technician. After a few years and a lot of restlessness, I worked in academia as a staff researcher. Working for a reputable pharmaceutical company had been satisfying professionally, but lacked an outlet for my desire to continue learning. Working for a reputable university was satisfying intellectually, but lacked security and mobility. Finally, I seized an opportunity to be an R&D tech in a nanotech start-up's engineering department. Intellectually and professionally I was happy, for a while. And then I started having kids, which brought out a higher level of competitiveness and determination than I realized I possessed. I worked frenetically and earned a promotion almost every year in return.

My Professional Awakening

Then IT happened — the situation alluded to previously that started me on my current path. I realized that, despite my promotions, despite my R&D Engineer title, I had only a semblance of control over my position and career. The engineering department's work slowed down and I was transferred on 'labor loan' to the biologics branch of my company. It was natural to be picked to do the cross-training work because of my biology background, but reluctance prevailed. I was happy in engineering, really happy. For me, there was nothing better than the freedom and creativity involved in designing and testing a product or process. And working in Nanotechnology was challenging and adventurous in itself. Then I started wondering what would happen if my company laid me off or closed, as start-ups do have a certain amount of associated risk. Would I have enough experience to be hired as an engineer elsewhere? Would I have to settle for a traditionally low-paying bio-related tech or research position again? Had I already missed great opportunities because of my perceived comfort and security in that particular engineering position over the last few years? My husband had been in the restaurant business for years and that was never a stable environment in his experience. So when we had kids, he stayed home. Consequently, uncertainty and instability in my career was just not an option.

Designing Our Future

During this time, the idea to go back to school started to grow larger and larger in the back of my mind. But there were a lot of questions too, of course. Such questions can be blockades against moving forward, or they can be tools with which to formulate the most optimal course forward. So my husband and I worked through them. He was already watching our then 1½ and 3 year old kids full-time, so no adjustment there required, although he had to agree to longer days alone with the kids and less

household help from me, which was a large sacrifice on his part. Vacation time would have to be saved for days when studying and homework required extra attention. Working full-time was the mainstay of our family, so I would have to look forward to long nights and extended periods with little sleep. That seemed manageable too. Financial support of all kinds exists for adults returning to school, so the question there was only how to manage school with the least amount of debt at the conclusion of my studies. My biggest hurdle was, and still is, how to find acceptance with spending less time with my children. Justification for being less available as a trade-off for increased stability was easy enough. But actually coming home late or spending time on weekends for studying and schoolwork would not be easy at all. In the end, this was a mental adjustment that I would continually work with throughout the journey and I decided it would be as much an impetus for continuing (making the time lost have value and purpose) as it would be for quitting. After addressing these questions and doing some research, the plan was hatched for me to return to school for a degree in Software Engineering.

Bringing the Design to Life

Getting started took a lot of effort. There were applications to fill out, recommendations to collect, doctor appointments for immunizations, and planning and scheduling to be done. A lot of these things I hadn't thought about since my undergraduate days almost 10 years earlier. Because I have a background in Biological Science, I also had to take some prerequisite courses at the local community college to officially qualify for entry into the Masters program. Rather than getting too overwhelmed by all the details, I made lists and emailed them to myself. Whenever I finished a task, I made the font gray and put the item at the end of the list so I could see and track my progress continuously. The basic programming classes were another adventure in themselves. I didn't hold any preconceived notions going into the start of these classes and I didn't think at all about the Masters program that would start the upcoming fall. It seemed a self-defeating behavior to start a new plan with a head filled with too many details and expectations.

The fit was good this time, really good. Programming, configuring and analyzing computer systems, really suited me. Friendly classmates (mostly male) and excellent professors (exclusively male) gave me a sense of support and community from the beginning. But the material itself is what drew me in so that I was compulsively studying and working whenever I had a spare minute and long into the night as well. It didn't feel like an effort at all to make time for the classes and course work. Late nights, early mornings and coffee shop study sessions were filled with interest and anticipation.

Life Happens…

Yet opposition awaited, even as I settled into being a student again. Now when I say opposition, I just mean forces that do not necessarily facilitate the mental or physical requirements for luxuries like adding

grad school to family and work life. For one, in the middle of my first official semester of grad school, we found out we were going to have our third child in the beginning of the next summer. Rather than speculating about possible complications, we just kept moving forward and waited for any scheduling conflicts or health concerns to present themselves. But there was no conflict or concern. I went to class for the rest of fall 2010 and through spring 2011 as usual, making little note of my condition except to briefly discuss with my professors what to do if the baby came during finals. But my youngest son was born weeks after finals ended and weeks before summer session started. Perfect timing! The other big event of the spring semester was that my husband got injured in an accident just before finals. The injury was related to the property we were renting, so we had to move. I had to delay final projects and exams to be with him and move the family to a new location. Luckily my professors were more than accommodating with arrangements for finishing my classes over the summer. Just weeks after the move, our son was born. My husband started feeling better then too and all was calm for a few weeks. Yet my husband's condition was uncertain well into Fall 2011 and my going to class while he was undergoing multiple surgeries was very demanding and stressful for everyone.

In trying times like these, it is easiest to just put everything extra on hold. I seriously thought about it a few times. Staring at a computer screen during bouts of morning sickness (that usually came on at night when I was ready to study) and not wanting to think about anything else when an immediate family member was ill are circumstances no one would criticize a person for giving in to. I thought a lot about how things would be for us a few years in the future. Young kids are a smaller expense and older kids are a larger expense. We don't have a fancy lifestyle, but I like to keep them as immersed as possible in both physical and social activities. Also, my oldest was approaching 5 years old quickly. Time would pass and I'd suddenly be looking back at either successfully overcoming the current obstacles or wondering how much different my life and my family's opportunities would be had I not let the circumstances of life steer me off-course. When you look at things in this light, there is no question of what to do.

Overcoming Circumstance with Insight

Now the beginning of 2012 is here and graduation is on the horizon. There are still some grueling hours and days and months ahead, but they don't worry me. My patient and dedicated husband is feeling much better now, finally. And my kids are healthy and happy, including my large and active 7-month old son. My kids continue to ask why I come home so late some days and will I be gone again the next day and when will I stay home? They get honest explanations crafted especially for the 3 and 4 year old imagination, while I make the most of my time with them with lots of fun activities and focused attention to make up for my time away. Everyday I get done just as much as I can before I can't keep my eyes open any longer, and it works out.

For us, I really think the key to it all has to do with perspective. Anything can be considered positive or negative, an obstacle or a tool. I've gotten a lot of practice turning problems into helpful devices for planning and progress. I admire people that have the foresight and fortitude to continue straight through undergraduate and graduate school all at once. But for those that are "traditional-path" challenged, the long and adventurous road can be just as successful. Which is why I say, see yourself not as a still point along a route but in motion toward your goal. Keep your destination always in mind and you'll be surprised how fast you arrive. And now that my destination is on the horizon, things are looking a little different to me. I'm starting to hope that, rather than 'the' challenge of my life, maybe this is just the preparation.

About the Author

As part of my undergraduate Biological Science program, I studied Environmental Science, Biology, Molecular Biology, Physiology, Chemistry and Biochemistry. My BS in Biological Science was completed at Southern Illinois University, Carbondale IL in 2001. After briefly considering graduate Biochemistry studies in Chicago, I was employed as a formulations technician for a chemi-luminescent immunoassay platform at Abbott Laboratories in Abbott Park IL. From there I became involved in circadian rhythm and disease model studies in the Department of Neurobiology and Physiology at Northwestern University, Evanston IL. Most recently, my work involves the analysis of materials and systems used in a nanoscale encryption process intended for the authentication and protection of pharmaceuticals and medical devices at NanoInk in Skokie IL. Graduate studies towards a Masters in Software Engineering are ongoing at Loyola University Chicago.

Life explorers extraordinaire: (L to R) Elise – 4yrs, Liam – 3yrs, Evan – 6 months and me. (My husband Tony is behind the camera.)

Confronting Institutional and Structural Inequities in Computing and Academia

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Organizations such as CRA and ACM-W celebrate the achievements of women in computing and provide concrete opportunities for funding, mentoring, and recruiting them. The field of computing now extends well beyond computer science and provides opportunities in new fields, such as design, policy, and user research, just to name a few. We are told that this is a great time for women to study computing because there are so many jobs to be had. Yet we are still underrepresented in the field, especially at higher institutional levels. Why? "The diversity problem" is not just one of numbers (or lack thereof). I argue that it is about our institutions themselves and what they expect of us.

I recently reread an essay I first encountered in graduate school. In her classic 1991 essay "White Privilege: Unpacking the Invisible Knapsack". Peggy McIntosh lists the benefits that being white give her, a list of 26 certainties and privileges she has just by being white. Although McIntosh was discussing race, her implications obviously hold for gender. I was struck by the realization that there is still too little discussion of two vital topics in academic (and computing) life: invisible privilege and structural inequity. In this brief essay, I will offer some reflections on both.

As a social scientist, I am trained to focus on the institutional, social, and political dimensions of whatever I study. But none of us can afford to ignore these dimensions of our work. We can't afford to think about men/women, life with partner/life without, partnered/single, and most of all, the mythical "work-life balance", just as individual issues. Instead, we should ask ourselves how they reflect and perhaps shape our broader concerns. In my own case, personal circumstances and experiences have indeed shaped how I think about privilege and institutions now, but so have the institutions where I have worked and studied. Ageing (my own and that of my family's), health challenges (ditto), an international move (in July 2011, I moved from the Midwest of the U.S. and joined the faculty of the School of Information and Library Studies of the University College Dublin, Ireland), and a wider circle of friends and colleagues suggest to me that there is still a great deal to talk about.

Yes, I can share more than 20 years of experiencing and listening and watching. Female students wonder why their male PhD classmates receive more plum research assistantships while they receive less prestigious TAships. Female colleagues question why they are receiving lower salaries than their male colleagues and ask why they receive more or more onerous (and often invisible) service and teaching assignments than their male colleagues. Some of them find themselves on the receiving end of subtle (or not) expectations for taking parental leave or being partnered, expectations that they cannot fight without

significant political blowback. Women who question the distribution of resources or higher expectations for themselves have told me of marginalization in their institutions for speaking up. Still others question inequitable hiring, pay, promotion, and tenure while enduring other kinds of bias (against disability or even being single, to name a few). None of these show up – indeed, they are explained away and ignored – when we focus on diversity as an "increasing numbers" activity and diminish the institutional factors getting in the way.

But it's not just me, of course. There is some research that suggests gender-appropriate behavior is enforced via social arrangements and interactions at work (Marshall and Taniguchi, 2011; Ely and Padavic, 2007; Wayne and Cordeiro, 2003). That men and women are treated differently with respect to family leave, volunteer and service assignments, and leadership roles in the workplace, has empirical support.

Of course, if we don't place such experiences in their appropriate contexts, any one of these can be questioned and countered. For every woman I know that has been overlooked or even insulted, I know another woman who has been supported and championed in her work. Indeed, male friends have routinely told me that there are many situations in which "men have it worse" and then half-jokingly say that they of course are not entitled to have an opinion because of their gender.

I don't know how to counter such claims because they rest on the refusal to acknowledge invisible privilege. This isn't a contest as to "who has it harder and why". That is an argument no one will win – except, perhaps, those who are served by perpetuating the stereotypes of what academics (and women and men) should be. It's also important to note that these issues will not just be simplistically solved by increasing the numbers in academic programs so that our successes are reflected well (and of course, accrue positive attention to our institutions for their forward thinking policies on gender and work) in newsletters, Websites, and photos. There are still concerns to be named and claimed. These concerns are doubly important for women in fields such as computing where there are still more men than women at every rank and in every industry and gender expectations are perhaps more invisible and thus more insidious. Are we getting equal salaries to our male colleagues? Is the service we are being asked to do as academics on par with that of our male colleagues? What I want to do is to deflect attention from individual responsibility for making choices to widespread systemic, and yes, insidiously sexist assumptions about the "right" way to be an academic in an increasingly untenable system.

In short, it pays to be optimistic about our future as women in computing, but vigilant about the issues that get in our way. Deeper institutional and structural problems often stymie our collective efforts to increase diversity. Unfortunately, these structural and institutional power structures are often the most difficult to fight. Perhaps this is because most people are not attuned to them or even worse, perpetuate them (accidentally or not).

Diversity in computing and diversity in academia are not just about putting more women on the cover of a magazine or touting how many have been recruited for our graduate programs. It's about equal pay for equal work, institutions that support families of all kinds, and acknowledge disability. We need policies that recognize that men and women have children and parents or none, no partners or multiple partners, or partners of the opposite sex or same sex. That passions and interests and community matter. That physical and mental health cannot be sacrificed to an institution or a job.

What can we do as individuals? We can share resources, be honest about our successes and failures, think carefully about the kind of scholars and human beings we want to be. Men can refuse to participate in panels and discussions that don't include women. As educators, we can encourage our male and female students (and each other) to study those subjects that specifically teach us the tools and language to understand structure and institutions. And, of course, the tools to change them. We need to fight for ourselves to be human beings, not just human doings, by maintaining our interests and passions and families, and share our challenges with each other. When we are in positions of power, we can work to unearth the invisible, question the unquestioned, champion the unpopular. Most important, we can address privilege and inequity not as problems for each of us to solve or overcome by ourselves, but as institutional and policy concerns that diminish us all, by talking and writing about them.

Acknowledgements

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What Can We Learn From Computer Engineer Barbie?

by Claudia Galván
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Where it all started

Growing up, I never played with or owned a Barbie. Like many would-be engineers, I played with Legos. It's not that I had anything against Barbie — I liked the dresses and the hair — but I always preferred to *build* things or, even better, *understand* how things worked. When Barbie Computer Engineer appeared in stores, my curiosity led me to analyze what things Barbie does well that *woman* engineers can learn to help them move up the career ladder.

We are all familiar with the under-representation of female engineers at all levels in the engineering field. Although women today are a majority of those earning bachelor's degrees, they remain severely under-represented in leadership roles in engineering and the physical sciences.

The recent December 9, 2011 article by Claire Cain Miller, "Where Are the Women Executives in Silicon Valley?" brought further visibility to this subject:

> *"Of California's 400 biggest public companies, technology companies have some of the lowest percentages of women directors and executives, according to the annual Study of California Women Business Leaders. Only 5.2 percent of directors in the semiconductor sector are women and just 7.7 percent have more*

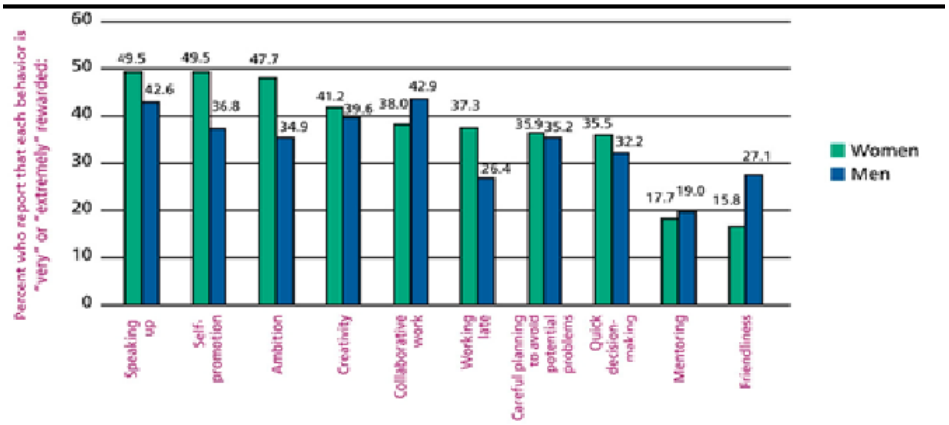
than one woman director, compared with 40 percent of companies in all other industries. Just over 9 percent of directors in the software sector are women."

These low numbers are partly a reflection of the number of women graduating from technical fields, but also reflect the challenges the few women that are in technology face in getting and maintaining top level positions. Women in technology often find themselves being the only woman in the room and not fully understanding the playing field. In this article, I provide tools to help women in technology climb the career ladder, based on research from experienced women in technology and my own experience working in Fortune 500 companies and as a VP of Career Guidance for the Society of Women Engineers in Silicon Valley.

When I was a young developer, I remember sitting in my office all day, eating at my desk, and holding meetings in my office. One day, my manager mentioned that I should get out of my office more. At that time, I did not fully grasp the importance of what he was trying to tell me: *That to get ahead, you need to be able to network, influence, and have mentors.* It was not until I was nominated to an executive program for women, that I started to understand that working hard and having technical skills is not enough to move ahead; soft skills like communication and leadership are what will help you to the get to the next level.

According to the Anita Borg Institute 2008 Research paper by Simard et al: *Climbing the Technical Ladder: Obstacles and Solutions for Mid-Level Women in Technology* (http://www.anitaborg.org/news/research), the top three perceptions of rewarded behavior among mid-level technical people are: speaking up, self-promotion, and ambition. See (fig. 1)

Perceptions of Rewarded Behaviours at Current Company Among Mid-Level Technical Women and Men



These are exactly the same three characteristics we women shy away from so as to minimize the perception of being "too assertive".

The answer to this paradox is *balance*. You *can* speak up in a timely and credible manner. You *can* promote yourself in a subtle manner and you *can* and *should* show ambition by asking for what you want.

> *I truly believe that there is no secret balance at work to ensure one success and instead, there are only two routes to go: opportunities to be taken or opportunities to be lost. I always ask myself.... which route do I want to take?*
> *Luciana Vecchi*
> *Business Product Manager, Globalization, Adobe Systems*

What can we learn from Barbie? Can women in engineering take advantage of some of the soft skills that Barbie is known for? What are the basic tools to help advance women engineers in the workplace?

Barbie, not your typical Role Model

Barbie, with her impossible proportions, has often being criticized for not being a good role model, but girls love to role play with Barbie: getting her dressed up, taking her places, and playing with her girlfriends. Banking on this, Mattel and the Society of Women Engineers hope the Computer Engineer Barbie generates increased interest among girls in becoming an engineer when they grow up. Only time will tell, however it is proven that having role models can make a difference in a child's life and choices.

For now, women engineers are in a unique situation in the workplace. As technical women, they often find themselves being the only woman in the room — this can create a sense of isolation. How can women successfully participate in these all guys' conversations and join the game?

During their careers, women generally focus on working hard, getting the job done, being reliable, on top of balancing work and family. With all that work, women in technology shrug at the thought of going to a networking event, or even leaving their office to go for lunch (*ahem*) or taking the time to build relationships. There is already too much on their plate.

This isolation can preclude some technical women from fully understanding the workplace dynamics and expected behaviors, which often can result in getting bypassed for promotions and big projects.

Which behaviors do we need to change to have more control over our careers? I narrowed it down a few of Barbie's skills that, as women in technology, we can use:

1) Hang out in the game room *or Networking 101*

We will review some skills to make the best of your time and connections.

2) Chat with BFFs or Mentor and be Mentored

How do you find mentor? What does it take to become a mentor? Many women pass on the opportunity to being mentored and becoming a mentor. We will review the mentoring process and the expectations of the different roles.

3) Standing up on your tippy toes without falling *or the Art of Speaking up*

Do you find yourself not speaking up or speaking too much? We will discuss how to find the right balance and tone.

4) Look and act the part or Showing your Ambition

Some women engineers struggle with lack of confidence, we will discuss the tools to show your skills in any situation.

Let's get started.

Hang out in the Game Room

Game Room for Barbie is where she hangs out with her friends and establishes relationships. Networking events, especially industry ones are great places to, establish relationships and, *yes* expand your network! I have heard every single excuse in the book from my women engineer friends: "I don't know anybody", "I don't drink wine", "I don't know how to network", "I am too busy", etc.

The truth is that we are afraid of getting out of our comfort zone. Initiating conversations and talking to strangers can be hard work if you do not know how to start. We need to make the time.

Finding a networking event is easy. Search the web for conferences, meet-ups and associations. Many times you can join mailing lists to get informed of upcoming events and many of them are free. Once you find the one you are interested in, register and put it on your calendar.

Barbie would bring a BFF or buddy with her, or yes, she would go by herself and run into someone new and start to *chit chat (see below).* The benefits of going to networking events are getting out of your office, seeing other companies' campuses, and getting free food and wine. Networking events also host great speakers that you can learn from and, of course, don't forget to have fun.

Then once you decide to go to the networking event, do some prep work.

1) First, be selective in which networking events you are planning to attend and have a game plan. Ask yourself the following questions:

Why should I attend this particular networking event? Try to attend conferences and networking events in your industry and professional area at least once a month. This allows you to keep current on topics and meet experts and expand your network in your industry. You can RSVP on Facebook or LinkedIn so that other people know you are attending.

Who do I want to meet? If you are interested in attending the event because of the speaker, make a point of looking up their bio online so that you can recognize the person and, later on, introduce yourself. If you want to meet other industry experts make sure you mingle and meet at least one person. After you make this connection, follow up with a personal email.

What can I learn? From speakers, panelists or just attendees, conferences are a great place to hear the latest and greatest in your industry or areas of interest. Who is hiring, who is laying-off, and the hottest industry trends. Come prepared to share some non-confidential (of course) information. Remember you are also the spokesperson for your company — represent it well.

2) Bring your business cards. If you forget your business cards, ask for the card of the people you meet to continue the conversation by email, over coffee, and certainly connect on LinkedIn. Make sure to jot down about what you discussed to remember later on who they were later on.

3) Prepare a 30-second elevator pitch about yourself. What do you want to communicate about yourself and specifically think about how you want to be remembered?

What do you do once you get there?

Plan to go with someone or by yourself. In either case, look around for people you know and say, “hello,” catch up and also go ahead and meet some new people. Start a conversation with people who are *standing by themselves* by first introducing yourself and your companion. Here are some good openings:

1) Hi, I am <your name here> from <your company name here>. Is this your first time at this event?
2) What brings you here tonight?
3) Provide a sincere compliment or ask a question

Remember the Rule of Three. Whenever you meet someone, try to find 3 things that you share in common... You will find that it really helps in meeting diverse people…and building a great network.

Alex Woody
Senior Manager, Program Management, EFI

Once you have established a connection, use your 30-second elevator pitch. One of the key tips I learned is to close with “Ask me about _____” where you fill in the blank with your area of expertise that you would like to be known for or remembered.

Additional advantages of attending networking events are meeting potential mentors and recruiters. Even though you may not be looking for a job, it is great to have a network of recruiters for when you decide to make a change.

Another way to expand your network inside your company is by joining the Employee Resource Groups (ERGs) also known as Affinity groups, bring together people with similar interests to discuss common topics, find referrals for local professionals (dentist, etc.), and provide invitations to attend networking events. Some of the best leads for networking events have come from the women’s group I belong to in the company.

Chit Chat

Chit Chat is about getting out of your shell and connecting with others — getting feedback in an informal setting to further expand your network.

Start by connecting with your coworkers first — they are the low hanging fruit. Take fifteen minutes a day to get to know them better in a familiar setting. For example, when getting a coffee, don’t rush back into your office, take the time to “hang out” a few minutes by the coffee machine, do some small talk and get to know the strangers in your hall. Small talk ranges from talking about the weather to asking opening questions like ‘what group do you work with?’ to ‘how was the traffic?’ — anything to break the ice.

You can also use chitchat to influence others. If you are planning to bring a new idea to a meeting, you can ask in an informal setting what someone thinks about your idea. This is a great way to get feedback beforehand and resolve any issues or decide to delay putting your idea forward until it is more fully baked.

Use chitchat before and after meetings. This is a great time to build rapport and strengthen relationships.

Lastly, treat chitchat as Thanksgiving dinner conversation: stay away from religion and politics, do not complain, criticize or gossip. Listen and share the goodies!

Chat with BFFs

I wish I had known the importance of having a mentor when I was younger. Having a group of mentors has allowed me to get feedback and insights that otherwise I would not have had. You need to decide whether you need a coach, a mentor, or both. A coach gives someone advice to achieve a particular goal: be a better presenter, better manager or executive; manage your career, etc. There are professional coaches you can hire for a fee. With mentors, you can bounce ideas off them to help make important

decisions, share experiences and also provide candid feedback on bettering yourself. Mentors are like a *board of directors that provide direction and advice on your career. However, beware of having too many mentors that can lead to inaction.*

How do you find a mentor? First, look around you — start with some close friends. They can provide you with candid advice and insight. Then look for people who you admire. Is there someone super successful who you wonder, "How does she do it?" Go ahead and ask her to be your mentor. Go to a conference and invite the presenter for coffee. Explain your situation and that you are looking for a mentor to discuss some upcoming decisions and ask if s/he can help or if s/he can recommend someone.

Be open to reaching out to male mentors as well; as my friend Linda Holroyd, 2011 Business Journal's Woman of Influence says: "*having a man as a mentor is the 'secret sauce' to moving to the top"*.

Do not discriminate based on age. Mentors do not necessarily have to be "older and wiser," reach into the younger population for a unique point of view. This is especially important if you are working with or managing Millennials (a.k.a. Generation Y – people born between the late 1980s and early 2000s).

Once you established the mentor connection, set up regular meetings, and set up an agenda. These have to be set up *by you*, "the mentee," who will be driving the mentorship relationship. Keep the meetings short and focused and decide beforehand how long the relationship will last. It may transition into a friendship after your objectives have been met. Also, as needs change, you may need to re-evaluate the mentoring relationship and mutually decide to move it in another direction or select a new set of mentors. Always discuss expectations, especially confidentiality agreements.

> *Never underestimate the value of talking out a work issue with a mentor. Just the process of talking a problem through with someone you trust can give you the perspective you need. Often the flash of insight you're seeking will follow. Take the time to find a mentor.*
>
> *Michaela Guiney*
> *Product Engineering Director, Cadence Design Systems*

Mentors can be inside or outside your company and can be in different geographies.

When I first started to work in my last company, it was the first time I worked from a remote site (I always worked in headquarters). I approached one of the senior directors in EMEA to become my mentor, as I needed to understand from his experience the best way to work with the company's headquarters. We had video and conference calls and I felt I gained insight into the company's distributed development

process. For my mentor, the relationship was beneficial because I provided insights into Silicon Valley culture and best practices, a win-win for both of us.

Consider becoming a mentor yourself. At any age, in any stage in your career, you can help others by sharing your experiences and point of view. Being a mentor allows you to learn from others' experiences and get insight into other organizations. Your role as a mentor is to listen, share your experiences, be candid and tactful, ask questions, and be the cheerleader of your mentee.

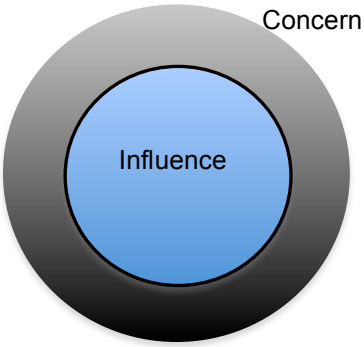
> *Every woman will benefit from becoming a mentor to an up and coming woman, be it a junior at work, college grad, or a high school student. I learn as much from my mentees as I do from my mentors. My mentoring sessions help me reinforce values I believe in and enable me to progress on my path with confidence!*
>
> *Preethy Padmanabhan*
> *BDM, Cisco & (In) Entrepreneur*

Standing up on your tippy-toes without falling

When you stand up to speak up, is like standing on your tippy toes, you need you're your balance. Remember, *Speaking up* is the *key* perceived rewarded behavior for Mid-Level managers.

> *Fake it till you make it. Sometimes my legs have shaken under the table in a meeting, but I kept on track with my point. When you first practice being firm, you might come across [as] too strong or weak. Don't give up. If you've not done it before, it takes practice, and doing it is the number one way to learn. I read that woman earn less and get less promotions because they don't ask for raises and promotions as much as men.*
>
> *Natascha Thomson, MarketingXLearator*
> *B2B Marketing/Social Media Consultant*

Do you find yourself not speaking up or speaking enough at meetings? Do you find yourself stretched too thin and scattered? *Do you ask for what you want?* How does Barbie stand on her tippy-toes without falling?



Circle of influence

Here are three Golden Rules to follow:

Number 1: Determine ahead of time your circle of influence versus your circle of concern. This is a key skill to keep you focused on your strategy.

What is the difference? Your *circle of influence* includes areas directly related to your job that will impact you, your team, or your project performance. Your *circle of concern* includes areas you may be interested in, or have some expertise in, but they *do not* directly impact you, your team, or your project performance. It is surprising how much time and energy we spend on our circle of concern. *Choose your battles inside your circle of influence* to maximize your credibility and focus.

> *A key difference between a leader and a follower is the ability to speak up assertively, respectfully and strategically with the intention of forging relationships and creating results.*
>
> *Linda Holroyd*
> *Founder and CEO, FountainBlue*

What this means is to be *timely and intentional* when you speak up. *Timing* includes deciding *when and how* to bring up a subject. If a random thought comes to your mind, *hold it*. Wait to bring up any new subjects or suggestions during a meeting until you have done your homework. The best strategy is to use chitchat to test the ideas ahead of time and then bring up the subject at a meeting.

Being *intentional* means thinking and preparing beforehand. When you are intentional, you are prepared, you are *credible*. And you are credible when you *believe in yourself and follow your values.* Use intentional questions that demonstrate *critical thinking and are not confrontational*, ask using a tone that communicates *interest*. For example:

Move from the *What* to the *How*.

What happened? → *How* did this happen?

Another effective question is:

Can you give me some examples of….

In case of disagreement, always *acknowledge the others point of view* and provide *alternatives*. Choose your battles; do not argue for the sake of arguing. Save the energy for areas in your circle of influence. For example:

What do you think? Have you considered?

If someone asks you a question and you do not know the answer, acknowledge it without being defensive and let the person know that you will get back to her with the answer. Summarize the points and assign actionable tasks.

Speaking up is especially important when attending a conference call; it is tricky to find the pauses in order to interject with your comments. However, do ensure you participate. A few years back, I had a very tall person working in my team who attended conference call meetings and did not participate. I mentioned that it was important that he add value and use the calls as an opportunity to build visibility with the remote teams. He responded that he was tall and did not need any more visibility, to which I responded that *on the phone we are all the same height.*

Your presence needs to add value. If in doubt, ask the organizer for the details of the agenda and plan your contribution. Select attending meetings strategically based on impact and building influence. In any case, come prepared. Do your homework.

Number 2: Ask for what you want.

Before you ask for what you want or need, you need to be clear about what it is. If you do not ask, it is a 100% sure you will not get it. Here are some rules of thumb:

a) Take the risk and again be *intentional so that* what you ask is part of your bigger career goals.

b) Take the time to understand *who the decision makers* are

c) Chit chat and use your mentors for guidance.

d) Be prepared. Before you do ask, be clear; be positive, confident and timely.

Number 3: Show your accomplishments and ambition

Do you think showcasing your accomplishments and ambition is a bad thing? Lack of ambition is what keeps us behind most of the time.

When one of my managers took maternity leave, I ended up reporting to the GM of my division for a short time. I was surprised to find out that he did not know what I was doing. From then on, I ensured that I had skip-level meetings not only with my GM but also with my managers' peers to report the status of my group and projects and ask for feedback. This resulted in a promotion the following year.

If you do not have a career development plan, create one. It is important to be clear on what you want so that you can communicate to your manager and others that can help you achieve your goals. If people ask you, "What is your plan?" you can let them know. Create a 30-second pitch on your goals, too.

Look and Act the Part

Have you noticed that Barbie has an outfit for each profession and occasion? When she is a doctor, she is dressed as a doctor; when she is politician she dresses and stands like a politician. Capable women engineers should *act and dress* the part.

Acting the part

Barbie is not all about clothes and hair — she is also about self-confidence

Being a woman engineer with self-confidence will make you more rounded and will help your career path. Much has been discussed about the *Imposter Syndrome*, the self-doubt, questioning your own capabilities, and competence. If you continuously doubt your accomplishments and believe what you have achieved is by pure chance, you suffer from Imposter Syndrome. Self-doubt shows. Manage your smile, be direct, brief and confident when you speak, keep eye contact and take space.

> *I learned this the hard way: Never start speaking with phrases like "This might not be a good idea…", or "Maybe I'm wrong, but…" You'll immediately sabotage your credibility. Just say what's on your mind.*
>
> *Karen Bartleson*
> *Sr. Director, Community Marketing, Synopsys, Inc.*

Did you know that smiling at the wrong time could reduce your credibility? You must manage *when and how* to smile. When you communicate, be brief and direct. Manage the tone of your voice; keeping a tone that communicates *energy and belief* in what you are saying. Project confidence, this includes: taking space, your posture, where you sit in the room, and how you position your body. Look around, guys *know* how to project confidence and mark their territory.

Dressing the part

Last year, I and other women engineers gave presentations at work. I noticed that each one of us was dressed in the same outfit: jeans and black top. Yes, we were all wearing *"the uniform*." Women in technology are a minority, and we have been *programmed* not to bring attention to ourselves, *to blend in*. We do not want to be seen as *sex* objects — we want to be seen as capable engineers. And what do

capable male engineers wear? Jeans and a black top. Needless to say, this works to a certain extent, however this also can make us *invisible*.

Most engineering shops have an unspoken dress code. To crack the code, start to look around. See what other people are wearing.

Start with the end goal in mind when selecting outfits. Convey to others that you are technically credible and professional, while bringing the right level of attention to yourself.

Start by finding your unique personal style. Barbie has friends that help her shop. First, try out your clothes and ask your friends for their opinion. Second, discard anything that does not pass the test. Lastly, do a full inventory and cleanup of your closet as described in Tip #2. Make sure that you feel good and comfortable in your new style. Dress to the next position in the org chart.

If you are buying multiples of the same top to be efficient and cost effective, change your habits and take some risks. First impressions are critical, so remember to look and act the part.

Closing thoughts

Working hard and having top technical skills is not enough — we must aspire to be intentional in managing our careers using soft skills. Network and chit chat to expand your circle of influence. Believe in yourself. Look and act the part. Be mentored and be a mentor. Use your uniqueness in the work place to your advantage and remember to be BFFs to other women; you will not be alone.

About the Author

Claudia Galván is a senior technology leader. This article is based on research, shared experiences and personal viewpoints. I would love to hear your comments and questions! Please email me at: claudia.galvan@hotmail.com or follow me at Twitter: @cgalvan.

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New York University Abu Dhabi (NYUAD) hosts the first regional workshop on Women in Computing in the Arab World

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Regional Conference on Women in Computing in the Arab World Attendees

On March 4th and 5th, 2012, New York University Abu Dhabi (NYUAD) played host to the Regional Conference on Women in Computing in the Arab World, the first gathering of its kind in the region. The roughly 40 attendees included women currently from the computer science field in Algeria, Canada, Egypt, Jordan, Kuwait, Lebanon, Morocco, Palestine, Saudi Arabia, Syria, the United Arab Emirates (UAE), and the United States, who gathered to discuss the plight of women working in IT fields. The consensus was that while growing numbers of women in the region are being drawn to computer science and IT fields in several Arab countries, there is still a great need to increase this number as the IT sector grows. According to organizer Sana Odeh, NYUAD Affiliated Faculty and NYU NY Clinical Associate Professor of Computer Science, the main goals of the conference were "to provide an opportunity for prominent regional and international women in computer science to come together to exchange ideas for research and innovation in computing, to discuss opportunities for collaboration throughout the region and world, to figure out strategies to increase female enrollment in computer science, and to explore the role of women in tech start-ups, and to talk about positive trends as well as difficulties in the field." Her work on the conference seems to have paid off, and the conference along with related projects will be continued in the future. "It was evident that it hit a chord among all of the participants," says Odeh enthusiastically, noting that the participants decided to create an organization for women in computing that will be linked to similar organizations in the US. Presenters agreed across the board that there is a lack of data regarding women and IT in the Arab world, and a full study on women computing in the Arab world is being planned to build upon the initial findings of the conference.

Panel presentations were centered on innovations in computer science research and the role of IT in social and economic development. Presenters representing a variety of academic institutions in the Arab world and companies from Microsoft to Google, gave updates on the state of technical women in their

Workshop Panelists

respective countries. Professor Shayma Alkobaisi of United Arab Emirates University shared about the difficulty of acquiring funds for research in the Gulf, lack of role models, and the trend of women dominating the student body in technical university classes although they do not go on to enter the workforce in IT fields. Alkobaisi seemed optimistic when describing a UAE government program that funds Emirati women to pursue advanced degrees in ICT before joining the UAEU faculty. “We have a lot of work to do but I think we’re going in the right direction, *Inshallah*.”

At the end of the second day, the conference findings were summed up in a public lecture. Sukaina al-Nasrawi of the United Nations Economic and Social Commission for Western Asia (UN-ESCWA) highlighted the potential training more women in IT has to improve development in the MENA region, which is below the world average in the growth of IT infrastructure. According to her, workshops and summits like the one that took place at NYUAD play a significant role in combating these issues and encouraging governments to take actions supporting technical women.

NYUAD was also honored to hear from Deanna Kosaraju, Vice President of Strategic Initiatives at the Anita Borg Institute for Women and Technology, who emphasized the need to not just “increase the pipeline” of women in IT but to change the culture of technical companies, focusing on their executive practices and organization. Kosaraju, also was Vice President of Programs, has been in charge of running the Grace Hopper Celebration for Women in Computing in the US for the past 6 years and also founded the Grace Hopper Celebration in India. Her work addresses a need she identified in her presentation to those at the conference in Abu Dhabi: the need to focus on improving the lives of technical women around the world, not just in the US or the countries in which they are educated. Happily, it seems the first Regional Conference on Women in Computing in the Arab World was a significant step toward doing just that.

For more information on the Regional Collaborative Workshop on Women in Computing in the Arab World, visit *http://nyuad.nyu.edu/women-in-computing/*

About the Author

Leah Reynolds is a junior studying Social Research & Public Policy at New York University Abu Dhabi. She also serves as an editor for the school's publication and blogs at http://parallellife.blogspot.com.

Dates & Deadlines

- *August 7* - Grace Hopper Celebration of Women in Computing Academic Sponsorship Sign-Up Deadline
- *October 3-6* – Grace Hopper Celebration of Women in Computing 2012 in Baltimore Maryland
- *October 10-12* - Inaugural NZ_OzWIT Conference/12th Australian Women in IT Conference (NZ_OzWIT 2012) in Christchurch, New Zealand. Papers are due on June 20, 2012. More info: http://www.ozwit.org/index.php/upcoming
- *November 1-2* – Rocky Mountain Celebration of Women in Computing (RMCWIC 2012) in Fort Collins, Colorado. Papers are due on September 21, 2012. More info: http://rmcwic.ucar.edu/
- *August 1* - ACM Distinguished Member Nominations are due http://awards.acm.org/html/amg_call.cfm
- *September 5* – ACM Fellow Nominations are due http://awards.acm.org/html/amg_call.cfm
- *October 1* – Submit a proposal for the next ACM-W Newsletter. Submissions can be made online here: **http://tinyurl.com/ACM-W-Proposal**
- *Rolling Deadline* – Consider applying for an ACM-W Travel Scholarship – these student scholarships provide support for women undergraduates and graduate students who wish to attend research conferences. Deadline information is available at http://women.acm.org/participate/scholarship/index.cfm. Information about scholarship recipients and their conference experiences is available at http://women.acm.org/participate/scholarship/in_her_own_words.cfm#acmwscholars.
- *Anytime* – Consider nominating or hosting an ACM Distinguished Speaker - http://dsp.acm.org/