

# Women in Technology:

## Starting a Student Interest Group on Campus

Meredith Cler  
Bradley University  
906 WBradley  
Peoria, IL 61606  
+1 309 495 7908  
mcler@bradley.edu

### ABSTRACT

This paper describes the experience of Bradley University students who started a Women in Technology/Computing student group during the 2005-06 academic year. A history of the group's inaugural year is provided including mission, objectives, challenges, and accomplishments. Advice for others who wish to start a similar group is offered, including recommendations for structure, interaction with others on and off campus, and use of speakers and other resources.

### Categories and Subject Descriptors

**K.3.2 [Computers and Education]:** Computer and Information Science Education – *Computer science education, Curriculum*

### General Terms

Management

### Keywords

Women in IT, Women in Technology, Women in Computing, Women in Computer Science, Minorities, Student Organizations, Bradley University

## 1. INTRODUCTION

Forming a student organization for women in technology at Bradley University is to date the most difficult, time-consuming, and rewarding thing I have done. I hope that the description of our first year experiences will help and encourage other female students to begin their own technology student groups.

## 2. MISSION

The mission of Bradley University's Women in Technology (WiT) group is twofold: to pursue educational opportunities outside the classroom, and to educate others through outreach endeavors that promote and encourage women's participation in the field of computer technology. Members represented in our first year were CS, CIS, MIS, multimedia, graphic design majors and minors, along with prospective majors/minors and

hobbyists. Meetings and activities were not gender exclusive -- men and women were encouraged to join in all the activities supporting and promoting women's presence in the computer fields.

## 3. FOUNDING

Ms. Monica McGill, the only female faculty member of the Computer Science Department at Bradley, first contacted me about starting a women's computing group in the spring of 2005. A group of five or so women met to discuss the possibility of starting a group, what our mission should be, what kind of members we wanted to attract, and how best to attract them. We decided to host a table at the Bradley University Activities Fair [a school-run fair where all the different clubs on campus hand out information about their groups] to let people know about the formation of our group, and invite them to the first meeting.

At the Activities Fair, we handed out treats (food is always helpful!) with a flier about WiT's first meeting. Quite a few students and professors expressed interest in the group, along with people who wondered why our group was necessary. Some thought that a WiT group was discriminatory, although we did our best to explain that WiT did not put men down in any way -- we just want to encourage and support women in the technical fields, and both men and women are encouraged at our meetings.

We had ten or so women attend the first meeting, and we came up with an ambitious list of objectives.

## 4. MEMORABLE SPEAKERS

WiT held biweekly meetings, during which a speaker was scheduled to come in and talk about his/her career or specialty area. Several of these meetings were particularly memorable and are described below.

### 4.1 Retro-Tech

As a group consisting of programmers and non-CS people, we identified hardware as one of our main weaknesses. Therefore, we asked Michael Hodge, Director of Recycling For Illinois / Retro-Tech Electronics, come and speak to us. Retro-Tech takes in recycled computers and electronics, refits them, and sells them for thirty-five dollars to low-income families and students. For Mr. Hodge's first visit, he and his team brought in old computers for us to disassemble and reassemble. This may be a common activity for the more typical computer science major, but it was the first such experience for most of us. WiT members had a great time struggling to get all of the pieces in and out, while learning exactly what each part does.

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The second time Retro-Tech was featured at a WiT meeting, we installed Linux on some of their refurbished machines. Mr. Hodge gave a presentation about the positives and negatives of Linux and Windows, explaining how and why Retro-Tech installs Linux on all of their machines. He also discussed with us all the different "flavors" of Linux, with their respective strengths and weaknesses. This presentation was more detailed and hands-on than we would have received in a regular classroom setting.

## 4.2 IT Professionals

Other WiT meetings featured prominent local IT professionals. Leslie Paulson, an Information Services Manager at Caterpillar, spoke about her career path, along with what IT professionals do at Cat Logistics. Sandy Helms Bury, Executive Director of Customer Support Services at Bradley University, talked to us about her job and how she reached that position. These presentations were extremely useful to us, as these women were able to share their non-academic experiences as women in a male-dominated field.

## 4.3 Student Presentations

Some of our favorite presentations were given by WiT's own members. One multimedia major taught us how to use Adobe Flash, and a graphic design major explained what a graphic designer does, and how it relates to IT. We also enjoyed a "Favorites Night", where each member brought in her favorite website or tech toy to share.

## 4.4 Faculty Presentations

Ms. McGill, our faculty advisor, gave us a live demonstration of Linux. It was extremely educational and enjoyable (with some of us enjoying the many penguin-themed built-in games far more than anticipated).

Dr. Vladimir Uskov, Professor of Computer Science, presented his grant work, because it pertains directly to Bradley's new WiT group -- he received a grant to improve the number of female computer science majors at Bradley.

Mr. Alex Uskov, one of the Department's staff members, set up servers to teach us some popular computer games, like Counter-Strike and Unreal Tournament. While he didn't appear to win over any gamer converts from the group, it was highly instructive to see exactly how many of our peers spend their free time.

## 5. COMMUNITY OUTREACH

Our group identified community outreach as one of WiT's main goals. As women, we may be perceived as more approachable than our male peers, due to the stereotype that computer science males are geeks, unable to speak comprehensibly to non-computer literate adults. We are also careful to avoid jargon, as that seems to be the most frequent complaint of the general public. We wanted to take advantage of these aspects and present seminars throughout the year, targeted at the public.

### 5.1 Internet Security

The first seminar presented by WiT was *Internet Security*, offered during Bradley University's fall Parents' Weekend.

Approximately fifteen parents were taught the basic fundamentals of internet security -- the nature of viruses and spyware, how to identify a secure connection, when to use a credit card safely, and how to best protect personal computers. The workshop ended with all participants completing a tutorial about setting up Windows Firewall, updating operating systems, and installing and running antivirus and spyware software.

### 5.2 Squeak

The next seminar was offered during Siblings' Weekend, and was therefore targeted at children ranging from elementary to high school age. Our audience consisted of fifteen or so children accompanied by their college-aged siblings. We taught the participants a program called Squeak -- software that teaches users some of the basics of object oriented programming. They were taught to use Squeak to draw a car, and then drag and drop commands for the car to follow.

### 5.3 Technical Jargon for the Technically Challenged

Through conversations with "technically challenged" family members and acquaintances, it became clear that the buzzwords are often the most confusing thing about the Computer Age! Accordingly, WiT's final public seminar was titled *Technical Jargon for the Technically Challenged*. It was offered as part of the University's spring Parents' Weekend schedule and covered basic technical vocabulary. The attendees were particularly interested in flash drives, common website extensions, and the differences between viruses and spyware.

## 6. GROUP TRIP

Over the University's spring break, four members of WiT took a trip to St. Louis, escorted by Ms. Sandy McDermott, Bradley University Career Center Associate Director, who works with all IT majors. While there, we visited several different companies hiring IT graduates -- Edward Jones, AT&T, and JBM Electronics (a very small hardware company). At Edward Jones, we took a tour of the data center and talked to two of their IT women -- one of whom was a Bradley University graduate. AT&T had a panel of IT women for us to talk to, along with some of their newest IT hires, whom we got to job shadow as well. JBM Electronics mainly allowed us to see the difference in work environments between large companies and small companies. Our visits helped convince both AT&T and Edward Jones to participate in Bradley's upcoming job fairs.

## 7. LIMITATIONS

WiT's first year on the Bradley campus, of course, was not an unmitigated success, and learning about the challenges we faced will help other undergraduate women establish successful Women in Technology groups. We did not accomplish every objective we had set for ourselves. Probably our foremost goal was to talk to local high school and middle school girls; to encourage them to stay in math and science, and to consider computer science as a career. This slipped through the cracks as some of our other needs took precedence. We also hoped to create a website for WiT so newcomers and the curious could be directed to helpful information.

One of the biggest challenges during our club's first year was leadership. Our leadership structure was three officers: a

president, vice-president, and a secretary/treasurer. As we were in our first year, the duties of each officer weren't spelled out very clearly -- so it was easy for the bulk of preparation and implementation to fall on the president and faculty advisor's shoulders.

We have done our best to address these shortcomings for WiT's second year -- we have committees headed by thoughtful students to talk to schools and create a website, and our officers are all students who are very dedicated to our cause.

## **8. ADVICE**

The purpose of this paper is to serve as a resource for students and professors hoping to start their own women in technology interest group. While starting WiT at Bradley has been extremely rewarding, it has also been difficult at times. The following recommendations may help other who decide to start a similar club.

### **8.1 Talk, talk, talk**

The most important thing we learned in our first year was how to talk to people -- those who are curious about the issues with women in technology and those who are supportive, along with those who believe these groups are inherently discriminatory, or doubt our mission or the value of this kind of group.

Several people stated that they believe WiT as a group is discriminatory against men. In response, we state that our group's goal is merely to support and encourage women in technical fields, not to put men down in any way. Men are encouraged to attend our meetings and presentations.

Others ask why there are so few women in the field. The facts we cite are that fewer women stay in math and science, games targeted at women are very rare -- being a gamer is an increasingly common reason for becoming a computer science major -- and that few guidance counselors encourage people to pursue computer science. For example, before taking a programming class to fulfill a different major's requirement, I had only a vague idea about who computer science majors are, and the skills and characteristics someone needs to be one.

Others doubt that women are underrepresented in computer science -- and if they are, why should we do anything about it? These people may be the most difficult to deal with, as they are often quite adversarial -- it is best to take a calm and firm tone. Statistics help: for example, less than 10% of Bradley's CS majors are female, and the percentages are similar in other technical majors -- the highest is 30% in multimedia. Also, the communication skills many women bring to the field are very highly sought after in today's job market.

It is important to the answers at hand to these questions, and to believe strongly in your group's mission. Do your best to resist getting into a persecution mindset, as it is easy to do when being confronted in this way.

### **8.2 Use the Career Center**

The campus career center can be your strongest ally. Its staff can help you find speakers, facilitate work site visits, and give presentations on job fair and resume techniques. WiT's contact at Bradley's career center, Ms. McDermott, has been absolutely invaluable to the group's formation and continued success.

### **8.3 Talk to classmates**

Classmates, male and female, can help you come up with interesting topics to cover in a meeting, can help you and your group to network more effectively, and provide an avenue to educate students going into the IT field while promoting your cause. Some of our most well-attended meetings and presentations were successful because WiT members talked about the group and its events in class.

### **8.4 Non-IT people**

Don't hesitate to talk to non-IT students and professionals as potential members or resources. One of the most active founding WiT members was a political science major. Others were graphic design, construction, or communication majors. Make sure that you involve all of them in your group -- they will bring a broader exposure to different fields, and it will make group meetings infinitely more interesting!

### **8.5 Involve faculty**

Your professors will be very interested about what your group is doing, and why. They may be interested in coming to talk at one of your meetings. The better acquainted faculty members are with your group, the better your relationship with the CS department will be! Our faculty and CS department have helped us do much more than we had originally envision. Faculty and departmental support, both financial and otherwise, will be invaluable to you.

### **8.6 Believe in your mission**

Most importantly, believe in your cause. This may go without saying, but it truly is the best thing you can do for your group. If you are motivated and committed, everything else is achievable.

## **9. CONCLUSION**

As a founder and leader of Bradley University's new Women in Technology group, there has been nothing more fulfilling during my college years. Our voices may sometimes be overshadowed, we are strong in spirit, and can do nothing more important than support and encourage each other. I believe that the stereotypes of people in IT are negative for everyone -- both men and women. As the computer science pioneer Grace Hopper said, "The most dangerous phrase in the language is, 'We've always done it this way'".

## **10. ACKNOWLEDGEMENTS**

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