TECH STAR SEMINARS*

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INTRODUCTION

The Tech Star seminars constitute one of several initiatives at Washington State University (WSU) designed to promote the success of women and other under represented groups in the disciplines of science, engineering, and mathematics (SEM). Computer technology skills are increasingly important in these fields during both the student and the professional years. However, studies[1, 3, 4] indicate that women often enter college with fewer computer skills than their male counterparts. Women also have a greater tendency to question their own competence[2]. The Tech Star seminars consist of computer training designed to not only enhance computer skills, but also to increase self-confidence in both present skills and the ability to acquire new skills. The expectation is that the increases in skills and self-confidence will improve the students' scholastic performance.

DESCRIPTION OF THE TECH STAR SEMINARS

The Tech Star seminars are two-hour sessions, each of which focuses on a particular topic. The seminars that have been completed or are under construction are the following:

- Safari through Word 6.0
- Adventures on the Internet
- Magic of Mathematica
- Journey into the Depths of the Computer
- Exercises in Excel
- Power Point Productions

The material for each seminar consists of 3 to 4 group projects and a detailed reference manual. During the two-hour seminar, the students are given a brief introduction by the student facilitator, then broken up into groups of 2-3 members. Each group selects a project then proceeds to work through it. They learn from doing, rather than being shown. As questions arise that cannot be resolved by problem solving within the group, participants either refer to their manuals or seek assistance from one of the student facilitators. The last fifteen minutes of the seminar are reserved for feedback from each group. The students leave the seminar with improved computer skills, experience working within a group, a reliable resource manual, and the experience of looking up and following technical instructions. The seminars are a fun, non-threatening way to boost participants' skills and self-confidence.

DEVELOPMENT PROCESS

The Tech Star seminars are developed by undergraduate students working as a team led by Dr. Sandy Cooper. The students work either in pairs or individually and meet weekly, as a team, to discuss progress and exchange feedback on one another's work. As components of each seminar are drafted, they are distributed to team members who then work through each component and offer constructive feedback. Following this scrutiny and subsequent revision, seminars are tested on a larger pilot group. Several of the projects were piloted in a new course, *Women, Science, and Culture*, offered at WSU this past Spring semester. The remaining seminars will be piloted in Fall 1998 with first-year SEM students. After the Spring 1999 semester, the Tech Star seminars will be transferred to the WSU Student Computing Services for future administration. At that time, an on-line version of the Tech Star manuals and projects will be accessible through the WSU Women in Math, Science, and Engineering web site.

BENEFITS TO STUDENTS

The Tech Star seminars directly benefit two distinct groups of students: those that develop and lead the seminars, and those that take the seminars. Two of the authors of this paper, Claudia Pacioni and Tamara Mobbs, are members of the student development team. This section reflects their perspectives on the benefits that Tech Star brings to students.

For students developing the seminars, the entire process has provided numerous benefits. In addition to the obvious value of pay, their jobs provide exciting opportunities to learn new skills particularly relevant to SEM and to research material they find fascinating. One of the Tech Star developers is an electrical engineering major. In researching the material for the seminar, "Journey into the Depths of the Computer," she was able to probe into some of the mysteries that first attracted her to her major. Now she is writing the reference manual on the material that she found so absorbing - how all the little electronic, magnetic, and mechanical pieces of the computer work together, beautifully harmonized, to produce the incredible results utilized every day in school and the workplace. Through the process of producing and reviewing the manuals, the team

members hone both problem solving and group process skills. They gain self-confidence in deciphering and interpreting technical writing, as well as the experience of writing technical manuals for their peers. The final process of producing the manual solidifies their learning experience. As facilitators of the seminars, they gain still more experience to take into their careers.

Students taking the seminars also derive a great benefit from the experience. These seminars should definitely fill a void in students' technical skills, because SEM students often are expected by their instructors to use skills that they actually never found the opportunity to acquire. In many cases, students spend more time learning the software than the content of the course in which they are expected to use the skill. Tech Star will allow students to concentrate more on the coursework, rather than how to operate the tools needed to complete the labs or projects. Participants will also get the valuable experience of working within groups to gain knowledge through assisted, hands-on exploration. Most importantly, the seminars provide busy students a time-efficient, no-cost, and fun way to learn the skills they really need to know for their coursework and future professions.

CONCLUSION

The Tech Star seminars give the students comprising the development staff in-depth experiences in computer technology, technical writing, and seminar facilitation. The Tech Star participants gain skills in computer technology, working in a group situation, and gaining knowledge through assisted, hands-on exploration. The expectation is that they will leave the seminars with enhanced computer skills; increased self-confidence in their skills and their ability to acquire skills; and greater comfort using the computer as a tool in their coursework. The expectation is that this will contribute to higher retention of women and other under represented groups in SEM.

REFERENCES

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