IT Training for Students, Who Needs It?

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Abstract

This presentation will be a discussion of two Information Technology training programs at the university/college level. The two programs are "The Student Peer Trainers" (SPT) and "The Freshman Year Seminar Technology Lab" (FYS). Both are charged with the duty of providing computer-training classes that will help students learn the skills they need to complete their academics, including instruction on basic computer comprehension, Internet tools and popular software.

The focus of our discussion will center around an evaluation of both programs which was conducted in order to determine the efficacy of IT training programs. To do this, we will attempt to answer three key research questions: Do students need Information Technology training to complete the tasks required by their academic programs; Do students use the learned skills for their academic work; Do the students find the training valuable?

We'll begin with a description of the Student Peer Training program, detailing the types of students who utilize the service by gender, major, grade level and computer experience level. We'll outline those courses that are the most and least popular, comparing course attendance rates and other factors that influence student attendance rates. In addition, students' comments about why they attend IT training sessions and if they find them useful will be discussed. The second part of the presentation will examine The Freshman Year Seminar Technology Lab. We will provide a history of how and why the program came into existence, and what the future holds for this type of Information Technology training. We'll also examine characteristics of the students who completed the program by gender and experience level, the comments they had for the program including the programs' strengths and weaknesses.

The data will provide us with a complete picture of computer-training programs, an accurate evaluation of their worth, and the students who use them. This information is perhaps most useful for administrators at institutions of higher education who are faced with meeting students' need for acceptable Information Technology training. However, it is applicable to all persons interested in the role of computer training.

Introduction

Technology is quickly becoming an integral part of the post-secondary educational experience for most Americans. It is generally accepted that today's students would not be able to function in their academic careers without the assistance of the computer for completing assignments, communicating with teachers and peers, and so on. Information Technology training also is an important part of the students' preparation for employment, arming them with the skills required in today's market place.

Colleges and universities are finding new ways to incorporate Information Technology education with traditional academics. There is a great variety in these training programs, each suited for the different environments. We will

take a look at two examples.

The first sample comes from the University of Wisconsin-Madison, where the Division of Information Technology administers a program called the Student Peer Trainers (SPT). The SPT program offers free, non-credit IT training courses during the evening and weekend hours that are open to all UW-Madison students. Classes are one-time sessions and students can attend as many or as few sessions as they need. There is no pre-registration for classes, and students are served on a first-come, first-served basis with the maximum attendance for every course being approximately 20 students.

The second model comes from the Freshman Year Seminar Technology Lab (FYS) instituted at Carroll College. The FYS program requires all entering freshman to attend the technology lab, which consists of a two hour class session, meeting once a week for six weeks. Students must pass the lab, or attend the series again in the Spring semester. Grades are given a pass/fail basis, and the course is focused on helping all students achieve a passing grade. Students are allowed the option of testing-out of the Technology Lab prior to the start of the semester.

Training Goals

The goal of any training program is to produce a motivated user who has the basic skills needed to apply what has been learned and then continues to learn. In the case of technology training at the university/college level, the goal is to arm students with computer skills used in their academic careers. We will examine the SPT and FYS programs and determine if they are achieving this goal. With this objective in mind, we will examine the programs, their history, the students who use them and understand how students use learned computer skills to complete their academic work.

Evaluation of the Student Peer Trainers

Conducting an evaluation of Information Technology training programs can take several different paths. For our purposes we will be investigate three specific areas of the SPT program in an attempt to build a comprehensive picture which will allow us to apply an accurate judgment. The three areas are attendance data, course evaluation data and survey results. Each area provides us with information about the students who use the program and their preferences in Information Technology training.

Attendance

One of the first areas we should examine in our attempt to evaluate the Student Peer Trainers is the data from attendance statistics covering all years the SPT program has been operating (1994 to present). From the course attendance lists we can study a variety of characteristics in relation to student participation such as class topic, type of class, platform, time, day and overall number of attendees. These areas can be compared across years and analyzed within each year of the program's existence. The following discussion will provide a summary of these results.

A careful analysis of the attendance rates for all classes conducted by the Student Peer Trainers, shows us that classes with the highest attendance rates across all years (1994 to 1998) were "Internet Part 1-Introduction to the Internet", and "Email Skills" in that order. "Hands-on" classes attracted a higher percentage of students over "Lecture" classes for every year reported. That is, students preferred classes where they were able to learn at a computer, over classes that were taught in a traditional lecture style with no student-computers. Almost all courses taught by the Student Peer Trainers occur during the evening hours to accommodate students' schedules. There was no outstanding timeslot that was most popular among students. The SPT courses are also offered on a variety of days, including weekdays and weekends. Wednesdays (during 1996-97) and Sundays (during Fall 1997) were found to be the most popular days for students, that is they reported the highest average attendance.

Finally, the overall attendance rates (the total number of students attending courses held by the Student Peer Trainers) have been declining since the beginning of the program in the 1994-95 academic year. Specifically, the attendance rates have shifted from 1617 in 1994-95 to 1300 in 1995-96 and 1319 in 1996-97. The average and median attendance numbers also show a slow decline over the four academic years with average attendance rates of 9.74, 8.44, 6.83 and 6.03 students and median rates of 9, 7, 6 and 5 students from 1994-95 to 1997-98 respectively. Interestingly, attendance rates in "Special Request" classes has been increasing dramically. "Special Request" classes are sessions held at the request of a university instructor for the students in his/her degree-credit course only. The topic and other course characteristics are prearranged by the faculty and SPT staff.

Course Evaluations

Another area that should be examined in our attempt to appraise the Student Peer Trainers' program, is the analysis of SPT course evaluations. Using data gathered from the evaluations we will be able to examine the students' demographic data and how they valued the Student Peer Trainers' program.

The majority of students attending SPT courses submitted a course evaluation. The evaluation forms are completed voluntarily by course attendees at the end of each training session. For example, the data show us that more women than men submitted evaluations for every year of the program.

Other data collected from the course evaluations reveal that the academic-major most often reported by students was "Business", although there was a great variety of majors listed with no department, school or college having a significant majority. One of the most notable results was the high number of graduate students that attended SPT courses. The graduate student population out numbered all other classes (freshman, sophomore, etc.) by at least four to one. Third, most students rated themselves as having "average" computer knowledge, that is "three" on a scale of one (never used) to five (expert). Finally, for every year of the program's existence, the students rated the SPT courses, their content, the class materials and instructors as " Very good" or "excellent", based on a scale of 1 [poor] to 5 [excellent].

Survey of Users

The third and final area under examination is the collection of results from a survey of users. In a mail survey sent to SPT attendees, students were asked questions about their SPT experience, their computer use, and the computer use of their peers. The data here show us that the majority of students use computer skills learned from a SPT training session for their studies. Specifically, 61% of survey respondents said they learned a computer skill in the SPT program that helped them do their academic work.

The computer skills used most often by students, as reported on the survey, were Electronic Mail, Researching via the World Wide Web, and Word Processing. The computer skills students felt they and their peers needed training on were similar: Word processing, Email and using the World Wide Web.

Finally, students reported many reasons for preferring the Student Peer Trainers over other forms of IT training. The most popular reasons reported were: "It is free", and "I can ask questions".

Evaluation of the Freshman Year Seminar Technology Lab

The evaluation of the Freshman Year Seminar took an almost entirely different approach than that used for the Student Peer Trainers. Because of constraints from the environment, the Freshman Year Seminar evaluation involved an examination of the students who tested-out of the program, students who completed the program, their comments and the comments of other campus stakeholders. Before we examine this data, however, we will discuss the history of the program, including how and why it was developed.

The Freshman Year Seminar Technology Lab (FYS) has been a required course for all freshman entering Carroll College since 1998. Prior to this, the FYS lab was taught as a part of the larger Freshman Year Seminar course which also included instruction on writing, research, and academic work in general in at the collegiate level. Previously, students were required to register for the course, "Introduction to Information Technology" and complete the class as a part of their Bachelor degree requirements or as a prerequisite to other computer science courses. The FYS lab has taken the place of this requirement. It was determined that the Carroll students would need to have and use IT skills early in their academic careers, so the freshman class became the target audience.

The FYS lab consists of a two-hour session, meeting once-a-week over 6 weeks. The lab is graded on a pass/fail basis and all entering freshman must pass the lab or be required to take the session again. The lab includes instruction on basic computer terminology, working with networks, popular software packages, and Internet tools.

Gender

The population of students involved in the FYS lab is restricted to all freshman at the college, and in examining this population we were confined to an examination of a small amount of demographic data: gender and experience level. Of the 449 entering freshman, 195 students tested-out of the program with 68% being female and 32% male. There were 254 students who completed the FYS lab, with 26 students failing the course. Of those who passed, 71% were female and 29% were male.

Experience Level

When examining the experience level of students in the FYS lab, there are three categories of data available. First, we have the separation of students into those who tested-out of the lab, and those who proceed through the program. Those students who tested-out were assessed to have at least a basic level of computer comprehension and enough experience to succeed in a college environment which will require them to use information technology frequently. Those students who completed the program had a lower level of experience upon entrance, and were brought-up to a working level by the end of the course. From the data cited above we can see that 43% of the freshman tested-out and 57% completed the FYS lab.

During the span of the program there were two anecdotal assessments of students' experience level. First, during the session on word processing skills, students in 15 of the 17 labs were asked to self-identify themselves as "not having prior word processing experience". Of the approximately 200 students, 3 persons were identified as having no experience. A similar procedure was used to identify students who were inexperienced with Internet skills. The same group of students was asked, "who has never used the Internet before" and approximately 12 students identified themselves. Of course there are several limitations to this informal survey, students may be reluctant to be singled out, and students may misunderstand the meaning of the terms "word processing" or "Internet", however, we are given some useful data. That is, approximately .7% of the freshman siad they had no experience using a word processor and 3% said they had no experience with the Internet.

Course Evaluations

Carroll College course evaluations are given to all students during the last course of the six-week session but prior to the final examination. The evaluation consists of seven questions, two of which will be discussed here. These questions asked the students to identify the weakness(es) and strength(s) of the course. We will examine the weaknesses and strengths of the Freshman Year Seminar Technology Lab as identified by student attendees.

A random sample of approximately 60 course evaluations from 15 of the 17 sessions were collected an coded to identify consistent and influential themes. The weaknesses and strengths were combined to find cross-over themes and the four most significant will be discussed.

First, students cited the pace of the course. This came in the form of comments such as "course went too slow" and "the course went very quickly". This is an important theme because it confirms that students do have a variety of experience levels and find it disturbing when a class does not match their learning speed. Identifying this weakness

may help administrators and instructors understand the importance of tracking students and possibly dividing them by ability level.

The second group of comments pointed to the types of topics presented and their usefulness. Here, students suggested that some of the material was “unimportant” or that is was “common knowledge” or that “I will probably never use (the information)”. On the positive side, several students identified the usefulness of topics in statements such as “Learned valuable information that will be used in other classes”, “Learned more in-depth about already known topics” and “covered necessary materials”. Also, many students took the opportunity to identify a specific topics they found most useful. These included the “Internet” (mentioned most), “Email”, the “Carroll (Network) System”, and “word documents”.

A third theme that emerged from course evaluations focused on the length of the class, with comments such as “six weeks is way too long” and “the course was so short”. The course was developed to follow the format of other computer science courses which last six weeks. In addition, class length was determined according the number and difficulty of the topics.

Our fourth group of comments was geared toward the presentation of the material. Specially, this set included statements such as “It was hard to stay interested” and “it was taught in a fun and interesting way”. All comments given in this category tell us that students place a certain level of importance on the presentation of information in a interesting and exciting manner. This is a concern, not of Information Technology alone, but of almost every academic discipline. What these data tell us is that students are likely to be more accepting of the training materials when presented in an engaging atmosphere.

As with the SPT program students were given an opportunity to rate the course on a scale of 1 (Excellent) to 5 (Very Bad). The average rating from 15 of the 17 courses was 2 or “very good”.

Conclusions

Conducting an evaluation of Information Technology training programs such as the Student Peer Trainers and the Freshman Year Seminar Technology Lab serves many purposes. First, we are given a method for validating the worth of these programs and IT training for students in general. Second, the evaluations document ways in which students use computer skills for completing their academic work. Third, the results help administrators better understand students' IT training needs. Finally, the evaluations can help instructors identify weak areas and learn how to adapt their classes to better suit student use.

The above discussion led us through an evaluation of the Student Peer Trainers and the Freshman Year Seminar Technology Lab, two Information Technology training programs at institutions of higher education. We looked at several groups of demographic data about the programs and the students who use them. This information allows us to answer questions such as: Do students need Information Technology training to complete the tasks required by their academic programs; Do students use skills learned in IT training programs for their academic work, and; Are the programs meeting their goal of helping students learn computer skills needed to complete their academics?

We first answered these questions by examining the Student Peer Trainers. The results of a survey given to SPT users provided a direct conclusion. A total of 570 students were asked: Did you learn computer skills in class that help you do your academic work? Of the students who responded, 61% answered “yes” and 39% “no”. To harvest more specific data the students were also asked, "What computer skills do you use for your schoolwork"? The top three answers were Electronic Mail, Researching the World Wide Web, and Word Processing. This data is in accordance with SPT attendance records. The two courses with the highest average attendance (across all four years of the program’s existence) were "Internet Part 1" and "Email Skills". In addition, the majority of students were satisfied with their Student Peer Trainer experience, as shown by the results of the SPT course evaluations. Most students gave an overall rating of "very good" to the program, the course content, materials and instructors. With these data in hand, it seems a fair conclusion to state that the Student Peer Trainers are achieving their goal: Teaching students computer skills that they will need to know for their academic work. This is based on the great

majority of survey respondents who answered yes to this question and listed several computer skills, learned from SPT classes, which they use for schoolwork.

The examination of the Freshman Year Seminar Technology Lab took a different approach. In this evaluation, we described the history of the program, the students who use it, and their comments about the experience. The answer to the first question (do students need Information Technology training to complete the tasks required by their academic programs) was a clear "yes" for the Carroll College environment. It was, in fact, part of the impetuous for establishing the technology lab as a part of the Freshman Year Seminar. The program was developed in part to address a demand by campus faculty and staff to have students that are better equipped to utilize the Information Technology resources. Approximately 43% of the freshman class tested-out of the class, of which 68% were female and 32% were male. Of the 254 students who completed the course 90% received a passing grade.

The second and third questions used in the evaluation (Do students use skills learned in IT training programs for their academic work, and; Is the program meeting its goal of helping students learn computer skills needed to complete their academics?) were answered through a collection of course evaluation data. Students cited several topics they were grateful to learn including the Internet, Email and word processing programs. Other students gave direct answers to these questions in statements such as "Learned valuable information that will be used in other classes".

In addition, we saw several comments from the students which centered around four themes, the pace and length of the class, the course topics and their usefulness, and the presentation of material. Most themes had students weighing in on both sides, providing positive and negative comments. This data from this section can be used to address concerns of students to improve future FYS labs, and also to build upon the existing strengths.

Recommendations

There are several recommendations for Information Technology training that can be brought to light based upon the data examined here. One, it is important for students to know a variety of computer skills to complete their academic work (including electronic mailing, searching via the World Wide Web, and word processing). If institutions expect students to know and use these skills, training should be provided .

Second, institutions should understand the value of providing IT training via classroom instructors. There are several reasons why students prefer learning computer skills in a classroom, such as the ability to ask questions, a preference for the live interaction of a class and the hands-on experience.

Third, it is recommended that institutions come to better understand the populations who use computer-training services. In the case of the Student Peer Trainers, the largest population was graduate students and it is recommended that action be taken to raise the awareness of IT training services among the graduate student population. For the Freshman Year Seminar Technology Lab, the circumstances dictate that the freshman be the sole target group. Once we know the population, steps can be taken to identify and address their specific learning needs.

Fourth, institutions who do not require a course in Information Technology training should institute marketing methods that help students to learn about other IT training services. These methods can include brochures, student newspaper advertisements, word-of-mouth announcements, and electronic messaging. Whatever method is utilized, it should be widely distributed throughout the campus environment, clearly tracked and evaluated.

Finally, it is recommended that institutions who provide IT training programs keep detailed attendance records in order to track the types of data presented here, and better understand how IT training services are utilized by the student population.