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ABSTRACT

This study evaluated the computer skills and learning expectations of students in an introductory course at a regional university in the southeastern United States. A survey was administered to 595 students enrolled in sections of the Introduction to Computer Information Systems (CIS) course. The survey instrument charted such things as major and academic standing, focusing primarily on two issues--knowledge the students hoped to gain from the class and existing computer knowledge that students brought with them into the class. In addition to the survey results, 30 course catalogs from other institutions around the region were examined in order to discover what their course content included for the first computer course, whether it was identified as Introductory Computer Applications, Introductory Management Information Systems (MIS), or an equivalent class. Results indicate that more students are coming to college with computer skills, and therefore educators should move away from teaching some of those identical skills in college. In regards to different courses for business students and non-business students, this does not appear to be a trend in most institutions, but it is an option, particularly for schools where a majority of the students enrolled in the class are not business majors. (AEF)

EVALUATING THE SKILLS & LEARNING EXPECTATIONS OF STUDENTS ENROLLED IN THE INTRODUCTORY CIS COURSE

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INTRODUCTION

An interesting paradox is taking place on most college & university campuses in that there is an increasing demand for computer/information technology classes, yet the computer experience level of students enrolling in these classes appears to also be increasing. One on one discussions with students will leave you with the impression that they have already done that, been there, or seen that, in terms of technology exposure. What exactly does this mean? Are students who have prior exposure taking these classes just to "breeze" through college, or has their experience stimulated more learning desires? Perhaps the training that they have had with computers has predominantly been centered around recreational and educational software as opposed to productivity software. One student recently shared that he enrolled in the class because of his desire to become a "computer game tester", since he spent many hours playing computer games.

For those students who have been exposed to computers what exactly have they learned, how much have they learned, and where have they learned it? Regarding all students as a whole, what exactly are they looking for in these computer classes that keep filling up to capacity? Are we as educators offering them the right curriculum for the present era, or are we behind the times? Michelini and Cassidy (1995) looked at an issue similar to this when they discussed the four generations of course content in the Introductory MIS course.

Since there are many different majors taking the computer classes, and they each have different expectations and needs, would it be appropriate to customize the course to target specific groups of students? For example, is it appropriate to have one set of computer information systems courses for business students and another set for non-business students? Traditionally, the computer courses offered through the business school are targeted towards business majors with the information systems component being emphasized during the quarter. There are many students who are in these classes who are not business students and are looking primarily for computer literacy training. The study that follows was developed to find answers to some of these questions and included a survey of 595 students and a review of course catalog descriptions from 30 institutions.

BACKGROUND

This study was conducted at a regional university in the southeastern United States, with a population of approximately 14,000 students. The survey instrument was administered to a total of 595 students enrolled in sections of the Introduction to Computer Information Systems during Winter, Spring, and Summer quarters of 1996, on the first day of classes. Students are permitted to enroll in the class after taking 30 credit hours, allowing this course to be viewed as having sophomore level content, taught in the University's College of Business program. This class is required by all business majors, but it is

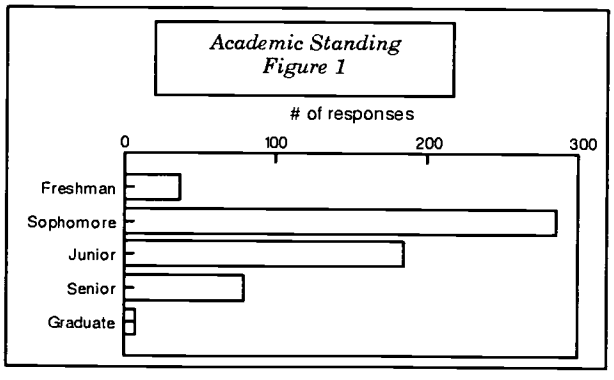
also used as a service course for many programs on campus., since it is the only "introductory computer" course of any type offered on campus, short of taking computer programming. A typical class will have at least half of the students pursuing degrees outside of the College of Business.

While the survey instrument charted such things as major and academic standing, the questionnaire primarily focused on two issues: knowledge the students hoped to gain from the class, and existing computer knowledge that students brought with them into the class. This study explored these two issues (areas of interest & areas of prior knowledge) and attempted to ascertain whether or not there is a significant difference between business and non-business students. The last section of the questionnaire focused on where the students learned their computer skills.

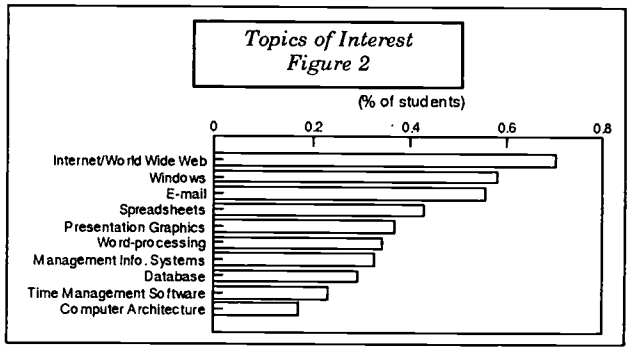
RESULTS

Overall Summary

Of the 595 students who were surveyed, 265, or 45 percent were business majors. For 79 percent of the students, this was a required class, leading to the obvious conclusion that many other degree programs on campus are requiring their students to obtain some computer experience. The academic standing of students enrolled in the course is charted in Figure 1, and indicates that the majority of the students, 285 or 48 percent, are indeed sophomores, which is the intended audience for this course. Junior level students consist of the next largest group, at 185, or 31 percent. This would be consistent with expectancy since business students are required to complete this course before their junior core business classes. Freshmen made up 6.2 percent, seniors at 13.3 percent, and graduate students at 1.3 percent.



Students were able to peruse a list of topics and indicate which ones they were interested in becoming more proficient. The responses are charted in Figure 2 by rank order. As you can see, only a few concepts that will be tackled during the quarter held the interest of a majority of students. The most popular item of interest was learning more about the Internet/World Wide Web, with 70 percent of the students selecting this topic. The least popular item of interest was learning about computer architecture at only 17 percent. This statistic supports the comment said by many students to teach them more about "how to use the computer, not how the computer works". Two other topics, Presentation Graphics, 36 percent, and Time Management Software, 23 percent, are not as desirable, perhaps because students aren't aware of their function or purpose. Many students generally enjoy working with Presentation Graphics, after completing their homework exercise, they just aren't aware of its' functions or capabilities beforehand. Learning more about word-processing is not a top priority, probably because those students who have used computers, have more than likely been exposed primarily to word-processing software.



On the next section of the questionnaire, students were then asked about the self- perception of their level of expertise upon entering the class. They ranked their perceived knowledge on a scale of 1 to 5, with 1 representing no prior knowledge, and 5 representing extensive knowledge. Table 1 summarizes the frequency of responses for those who circled a 1, indicating no experience with the material. In addition the table also shows the mean response for these topics.

The results clearly indicate that nearly 89 percent of the students have used word-processing software. Most, if not all, of the students should have used word-processing in their English composition course, which is a prerequisite for this computer course. Knowing this information, the 11 percent of students who have not had experience with word-processing , could be transfer students who have taken the course at another institution, students have placed out of the English course after taken a advanced placement test, or the graduate students. The results also indicate that more students are learning to use e-mail and the World Wide Web, before taking this class. Many courses across campus are incorporating this element of information technology into their curriculum, which would explain why half of the students are familiar with it.

TABLE 1

PRIOR COMPUTER KNOWLEDGE ALL STUDENTS

Topics	% of those with no experience	mean response
Word-processing	11.1%	3.27
DOS/Windows	20.5%	2.65
E-mail	49.4%	2.05
Internet/WWW	46.4%	1.99
SpreadSheets	57.1%	1.78
Database	62.4%	1.64
Presentation Graphics	71.8%	1.46
Time Mgt. Software	82.9%	1.26

The last section of the survey attempted to ascertain where students obtained computer experience, assuming they had any. They could have circled one or more out of the four options available: school, home, job, and other. Table 2 summarizes the results of those students who indicated they learned their computer skills from one or more of these options. Nearly 70 percent of the students have used computers in school, but what the question did not clarify was the level of school - grade school, high school, or college? It is refreshing to see the number of students who have access to technology at home, given the demographics of the students at this particular university. Only 20 percent of the students have used computers at work, which is surprising considering the infusion of information technology into all aspects of industry, even in low-wage, service oriented jobs, which most students rely upon.

TABLE 2

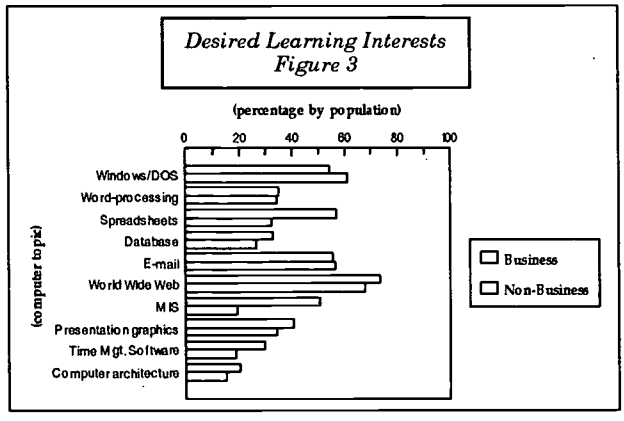
WHERE DID THEY LEARN THEIR SKILLS?

	frequency	percent
School	407	68.4%
Home	242	40.7%
Job	118	19.8%
Other	15	2.5%

Differences Between Business and Non-Business Students

This section of results will focus on the differences in responses between business and non-business students, to see if there are any differences in desired expectations and skill levels. The first set of results, summarized in Figure 3 displays the percentages by population, of the desired learning interests. In all of the topics except Windows/DOS, word-processing, and e-mail, there is a higher percentage of learning desire on behalf of the business students. Learning more about word-processing and e-mail averaged out to about the same between the two populations.

Desired Learning Interests
Figure 3



The three topics of interest that business students showed a significantly higher interest in mastering included spreadsheets, time management software, and MIS. Using a 2 dimensional chi-square analysis, table 3 shows the significant differences when comparing the two groups of students at the 99 percent confidence level. Two of the three topics, spreadsheets and MIS, are of notable importance since these concepts are specifically targeted towards business students.

TABLE 3

SIGNIFICANT DIFFERENCES IN LEARNING TOPICS

concept	business	non-business	chi-square	significance
spreadsheets	56.6%	31.9%	37.28	.0000
time mgt.	29.4%	18.5%	10.03	.0066
MIS	50.6%	18.8%	69.18	.0000

Students were questioned on most of these same topics and were asked how much prior knowledge they had in these areas upon entering the class. Their responses were measured on a 5 point scale with 1 indicating no prior knowledge and 5 indicating extensive knowledge. Using a two-tail t-test, Table 4 shows the areas of significant difference at the 95 percent confidence level of the mean responses. As seen in the results, business majors showed more familiarity with five of the eight concepts than did non-business majors.

TABLE 4

SIGNIFICANT DIFFERENCES IN PRIOR KNOWLEDGE

concept	mean response of business students	mean response of non-business students	t-value	significance
Win/DOS	2.88	2.46	4.27	.000
Spreadsheets	1.92	1.67	2.76	.006
Database	1.77	1.53	2.93	.004
Time Mgt.	1.36	1.17	3.72	.000
Graphics	1.59	1.35	3.30	.001

Review of Course Catalogs

In addition to the survey results, 30 course catalogs from other institutions around the region were also examined in an attempt to discover what their course content included for the first computer course, whether it was identified as Introductory Computer Applications, Introductory MIS, or an equivalent class. The primary purpose for this was to identify if any schools were offering different courses for the various student groups, primarily business vs. non-business students. The course catalogs examined were institutions located in Alabama, Georgia, North Carolina and South Carolina, and consisted of 2 year colleges, 4 year colleges, and universities.

While it is difficult to quantify exactly what is being offered and to whom, just by looking at course descriptions, it appears that 29 of the 30 institutions introduced the use of software application literacy in the course. The Management Information Systems component was also included in 19 of the 30 school's first computer course. Seven of the institutions had multiple "introductory computer" courses, targeted for different majors. One particular institution in Georgia offered three different Introduction to Information Technology courses: one for Liberal Arts, one for Education, and one for Business majors. Another school also offered three courses: one for Business, one for Education, and one for Computer Science majors, but students could only take one of the three. Five of the schools offered courses for Business students and non-Business students at the same time. It is interesting to note that at one major university (Georgia State, 1996-98 catalog) the institution required students to have certain basic computer skills before enrolling in the College of Business, and it was the student's responsibility to obtain these skills using whatever means possible before taking any business course. The university then quantified computer skills into six basic categories, and any or all of these were used as prerequisites to the various business courses.

CONCLUSIONS

Many other educators have also looked at the issue of appropriate curriculum, and have designed their course content according to their

findings. Examining the course catalogs of 30 other similar institutions in the southeastern United States revealed many different course offerings that are probably appropriate for the demographics of their student population. It is difficult to define what the best approach for course content is but it does seem that more and more students are coming in to college with computer skills, and therefore we should be able to move away from teaching some of those identical skills in college. At one point in the next decade or so, it would not be far fetched for a majority of the 4 year colleges and universities to require basic computer skills as a prerequisite to entering college, just as one institution has already done.

In regards to different courses for business students and non-business students, it does not appear to be a trend in most institutions, but it is an option, particularly for those schools where a majority of the students enrolled in the class are not Business majors. Another solution is to offer all students a basic computer literacy course at the freshmen/sophomore level, and have all business students follow up with a Management Information Systems course at the junior/senior level, which is currently being suggested for this particular school. For the administration at these institutions who are concerned about the credit hours generated from this course, this solution would appear to generate more revenue since business students would be required to take both the computer literacy course and the MIS course, while still retaining all the other students in the computer literacy course.

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