Chapter 9

EVIDENCE OF IMPROVEMENT IN ACCOUNTING STUDENTS' TECHNOLOGY-RELATED PERCEPTIONS AND SKILLS

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Advances in technology require that accountants possess skills to obtain information from various sources, complete computer-based projects, and use computers as a tool to achieve other business-related objectives. Students not only need to develop skills to access information, but they also need to improve their perceived ability to utilize computers successfully. This chapter describes a project in which accounting students was required to analyze independently a publicly traded company using text- and Internet-based resources. The goal was to concurrently develop students' computer-based skills and improve perceptions toward technology. In addition, since research using non-accounting students has shown that self-efficacy and confidence in the use of technology differs between the genders, this study also analyzed gender-related differences in perceptions towards computers.

Advances in information technology require accountants to access and assimilate timely information [1]; [2]; [3]; (IMA, 1997b #294); [4], analyze relevant input, and solve unstructured problems commonly found in various consulting and strategic decision making situations [5]; [6]; [7]. Educationally, these developments suggest that accounting students should use technology to obtain information from various sources. Less obvious but equally crucial are students' perceptions of their abilities to use computers effectively (Angelo, 1993 #309). Positive perceptions of one's technological ability is essential to the successful utilization of computers [8]; [9], while negative perceptions may prevent an individual from gaining access to or effectively using computers in the workplace [10].

The goal of this study is to determine whether or not simple enhancements of existing teaching tools (e.g., a financial analysis of a company project) can further develop students' skills in accessing information and improve their perceived ability to work on computer-based projects. A major contribution of this study is in the area of student self-assessment. In an area such as technology, where measuring utilization of the latest resources is difficult, an effective measurement tool to evaluate success is through self-assessment instruments.

Efforts to develop students' skills and positive perceptions of technology should take into account any gender differences in perceptions and attitudes toward computers. Substantial research shows that female students indicate lower self-efficacy and confidence with the use of computer technology than do male students [11]; (Laundry, 1997 #306); [12]; [13].[ii] These gender differences appear to be the result of less computer exposure for females than to differences in opinion between the genders on the functionality of computers [14]. In fact, greater exposure to technology appears to narrow differences in perceptions between male and female students in

business and other programs [14]; [15]. Most of this research, however, has been conducted on non-accounting students. It is important to determine if gender-related technology differences exist in accounting students given that women are entering the profession in equal numbers to men [16], and the use of computers is now an important aspect of most accounting tasks [3]. Consequently, this paper also looks at gender differences in accounting students' perceptions toward computer-based tasks.[iii]

LITERATURE REVIEW

The ability to obtain and analyze information from various sources and the skills to solve unstructured problems are some of the attributes that have been specifically identified as requirements for future accounting graduates [5]; [2]; (IMA, 1997b #294); [4]. With greater focus on the analysis, interpretation, and evaluation of information that enters into decision processes, accountants need to become more knowledgeable of the data needs of end users [1]. For instance, accountants are being asked by management to use technology to develop and present up-to-the-minute predictive data used for various strategic decisions (IMA, 1997b #294). Furthermore, accountants are expected to add value to an organization's decision making by understanding the complex interrelationships involved in information systems, and by using their thinking skills to apply the knowledge to new situations [17]; [18]. In fact, an ability to use technical knowledge and problem-solving skills tends to characterize auditors with superior performance evaluations as they move up the firm hierarchy [19].

These developments require accountants to possess both the skills to access information and the perceived and actual ability to use computers and to work independently on unstructured tasks. Enhancing self-confidence with technology is crucial since computer anxiety and self-efficacy are important predictors of attitudes towards computers and willingness to learn about computer systems [20]. Research has shown a relationship between individuals' perceptions of the importance of technology and their proficiency in using technology [10]. It appears that attitudes towards computers have a significant influence on the effective use of computers, with these attitudes being molded by individuals' positive or negative experiences with computers [21]; [9]. Negative attitudes towards computers may prevent individuals from gaining access to or

effectively using computers in their workplaces and may even limit their chances of getting or holding employment [10]. Given the importance of information technology in the accounting profession, enhancing perceptions of confidence towards technology is vital to ensure successful utilization of technology, including computers and related software [8].

Enhancing Skills and Perceptions through Technology

Enhancing existing teaching tools through the use of technology in the classroom can facilitate the development of computer-related competencies. Technology such as the Internet conveniently allows individuals to seek out relevant items of information and go back and review sections of the information they wish to examine. This enables students to build upon existing knowledge structures and permits them to interact freely with information [22]. Moreover, technology allows students to be self-directed and have control over their learning environment, promoting more active learning (Becker & Dwyer, 1994). In fact, in a recent study ranking students' preferences for research sources, Web sources of information were ranked highest in terms of enjoyment, trustworthiness, currency, and relevancy [23].

Research also suggests that when used as a supplement to traditional methods of teaching, technology can improve certain skills and perceptions that are otherwise difficult to acquire [24]. Moreover, it can free up class time for other learning experiences [25]. The use of technology (as in this study) gives students a degree of control over the pace of work and the flexibility to choose information sources. As students work independently and access information from many sources, technology allows them to develop skills for obtaining data from multiple sources. This format also provides an opportunity to develop students' perceived ability to use computers to complete complex unstructured projects, and their ability to assimilate and use relevant information from many sources.

Technology and Gender

A substantial body of research identifies gender differences in the usage of computers, comfort with technology, and attitudes towards the importance of computers. For example, Landry et al. [26] compared the amount of computer usage and the psychological characteristics of accounting students. They found that males were more positive and less resistant towards increased computer usage in accounting classes than females. These results are significant given that females have been graduating with accounting degrees in equal numbers to men since 1986 [16]. Furthermore, the use of technology has now been integrated into all aspects of accounting and assurance service functions [3]; [1].

These results of gender differences are consistent with earlier studies of non-accounting undergraduate and graduate students indicating that female students have greater computer anxiety than male students [13]; [27]. Studies also show that females are less likely to enter computer-related courses due to greater computer anxiety, which can result in lower levels of satisfaction from tasks that involve technology [28]; [29]; [30]. Busch [12] assigned students a financial analysis assignment using a spreadsheet program. Self-reported perceptions indicated that, relative to male students, female students had significantly lower self-efficacy in computing as a result of less previous computer experience and less encouragement to work with computers. Studies have also shown lower self-efficacy for women in the area of computers and technology. For example, Compeau and Higgins [31] found that women have low self-efficacy, outcome expectations, and higher anxiety on computer usage. Their findings strongly confirm that both self-efficacy and outcome expectations impact on one's reactions and interactions with information technology. Other studies show lower self-efficacy in females in regard to technology, math skills, and areas of strategic management [32]; [33].

Additional research suggests that lack of exposure to technology may be the reason for females' attitudinal differences towards computer tasks [14]; [15]. Recent surveys show that men use computer technology such as the Internet much more than do women [34], and women report less experience and higher levels of trait anxiety for such tasks [35]. Using non-accounting business majors, Shashaani [14] showed that males enjoy learning about computers and working with computers more so than females. This may be the result of more computer exposure and greater encouragement to study computers for men from an early age. Even though females had less exposure to and comfort with computers, those surveyed agreed on its overall value to society. Furthermore, after taking a one-semester computer course, female students' attitudes toward the importance of computer skills and their confidence with computers improved consistently. In fact, females' computer literacy was equal to that of males' by the end of the course. Similarly, Woodrow [15] reported that male high school students had more technology experience and confidence than females at the start of a computer-related course. However, testing students before and after the course confirmed that female students' attitudes and abilities with computers were at par with male students' by the end of the study.

It appears that less computer exposure and lower computer self-efficacy in female students may account for differences in attitudes towards computers between the genders. In fact, assignments designed to incorporate technology in the classroom appear to narrow such gender difference in perceptions towards computers. This study provides an opportunity to analyze gender differences in perceptions toward computer-based tasks for accounting majors. The type of project that students worked on for this study may show that, even if female students start the assignment with lower perceived computer-related abilities, participation in the project could eliminate any gender differences. Given the widespread use of technology, assignments designed

to produce higher perceived computer abilities for all accounting students, regardless of gender, would be valuable for their careers.

PROCEDURES

Results of this study indicate that students improved their Internet skills during the project and accessed information from multiple Web-based and text-based sources in their analysis. Moreover, female students cited more Web-based sources in their written reports than did male students. Evaluation of perceptions indicate that all students improved their perceived abilities to use the computer and analyze technical problems, their project completion skills, and their understanding of the Internet. These are some of the very competencies called for by accounting recruiters [1]; [2]; [3]. Furthermore, while female students indicated lower initial perceived abilities to work on technology-related projects, participation in the project eliminated these differences. In fact, by the end of the project, females' self-perceived abilities were equal to, or greater than, those of males. Based on these results, we see a need for further research on identifying and improving the types of computer-based skills and perceptions that are difficult to teach in the traditional classroom, and exploring ways in which gender differences towards technology can be narrowed for accounting students.

The Project

Similar to traditional assignments involving the financial analysis of a business, students were required to access and analyze financial and non-financial information. However, they were also

[INSERT FIGURE 9.1 ABOUT HERE]

required to look beyond traditional sources of information used in many company analysis projects and seek out more timely information from the Internet to provide a more complete

analysis of the company. The project format (see Figure 9.1) was kept simple and flexible to ensure that students could work independently with limited faculty support.

Before the semester, the instructor prepared a project outline (see Figure 9.2) containing a detailed description of the goals of the project, company selection instructions, suggestions for the types of information to be included in the analysis, time-lines for completion, and the evaluation criteria. The description of the project clarified the requirements of the written paper and the oral report that each student needed to complete by the end of the semester to receive a satisfactory project grade. The project grade counted for 20% of the overall course grade. In addition, since students required technical familiarity with the Internet for their company research, a one-hour training session was presented on basic Internet usage in the second week of class. The instructor gave a brief overview of the Internet, including its history and some of its key technological features. The lecture covered Internet terminology, ways to navigate the World Wide Web, and demonstration of resources specifically relevant for the accounting field. An Internet assignment was also provided which included exploring the course and project Web pages, visiting several accounting related sites, and using search engines.

After the training, students responded to various pre-project questions on their Internet skills and perceptions. Thereafter, students worked independently on their projects throughout the semester. This involved virtually no class time, other than an occasional reminder of the project. The instructor periodically generated in-class excitement about the project by interjecting current events related to students' selected companies. Students utilized the instructor's office hours or e-mail to get help or direction on their information gathering, analysis, and project write up. Project presentations were scheduled for the last week of class at which time students also responded to various post-project questions. Students were evaluated on

their knowledge of the company, their presentation skills, and their ability to evaluate their companies intelligently. Written reports were graded based on a number of criteria, including substantial analysis of and conclusions about the company, grammatical correctness, appropriate format and writing style, and proper bibliography and citations.

Study Design

The 56 students (26 males and 30 females) from two different sections of an advanced accounting taught by the same instructor participated in the project.[iv] Since no significant differences were observed between the two classes for any of the variables in the study, the combined results of the two sections are reported. Table 9.1 compares the demographic information of male and female students who participated

[INSERT TABLE 9.1 ABOUT HERE]

in the study. The results show no differences in the overall GPA between the male (mean = 3.00; SD= .56) and female (mean = 3.03; SD= .50) students (t = - .259; p = .796). Furthermore there were no gender differences in the age and the accounting GPA of the students.

The project was evaluated by testing students' Internet-based skills and by apparent changes in perceptions towards computer-based assignments. A comparison was also done to see if improvements in self-perceptions affected actual use of the Internet. Additionally, gender effects were analyzed for each variable. The variables were measures at both pre- and post-project stages. The pre-project scores were obtained after students went through the one-hour training session on basic Internet usage. The post-project measures were obtained at the end of the semester. Therefore, any changes in scores from the pre- to the post-project stage reflect the impact of the project on the variables.[v]

Students' technical skills were determined by evaluating improvements in their Internet knowledge at the pre- and post-project stage. Written assignments were evaluated to see if students acquired the skills to access information from multiple sources. Additionally, several self-reported measures tested students' perceptions before and after the project. Students reported on their perceived ability to use computers to solve complex problems, their ability to work independently to complete problems independently, their knowledge of searching the Internet for information, and the perceived usefulness of the Internet for analysis. Finally, a comparison was made between students' perceptions and actual Web usage[vi].

Students' Internet Skills

Separate multiple-choice tests were conducted before and after the project to evaluate students' Internet skills and understanding of the Internet. Students responded to 10 questions concerning World Wide Web address formats, definitions of Web terminology, ways of maneuvering around the Web, and types of search engines available (See Figure 9.2). The responses were recorded (out of 10) to obtain separate pre- and post-project scores. Students were not graded based on these results. Before the start of the project, the Internet knowledge questions were tested to determine if the pre-project questions were similar in difficulty to the post-project questions. The pre- and post-project questions were combined into another questionnaire, in random order, and administered to 22 additional accounting students who did not participate in the study. Each student's responses were graded to obtain a separate score (out of 10) of their performance in the pre-project and the post-project questions. The results indicate no differences the students' performance in the pre-project (mean = 7.18; S.D. = 1.96) and the post-project (mean = 6.73; S.D. = 1.80) questions (p = .429). This indicates that the pre- and post-project Internet knowledge test questions were of similar difficulty level.

Table 9.2 presents the Internet knowledge scores for all 56 students combined, and separately

[INSERT TABLE 9.2 ABOUT HERE]

for male and female students. Panel A of Table 9.2 indicates that the post-project Internet knowledge scores (mean = 7.82; S.D. = 1.73) were significantly higher than the pre-project (mean = 7.12; S.D. = 1.92) scores (z = -2.98; Wilcoxon Matched Paired Signed Rank test $p = .003$).[vii] These results indicate that this project improved students' Internet skills.

The scores were computed separately for male and female students to get a finer measure of Internet knowledge (Panel B of Table 9.2). There were no significant differences between the scores of male and female students at the pre-project and the post-project stage ($p > .05$). The post-project Internet knowledge scores of male students were significantly higher than their pre-project scores (mean = 8.19 vs. 7.42; $p = .025$). Similarly, female students also had significantly higher post-project scores than pre-project scores (mean = 7.50 vs. 6.86; $p = .045$). It appears that students of both genders have similar Internet knowledge coming into the study and both improved these skills as a result of working on the assignment.

Skills to Access Information from Multiple Sources

Two independent coders evaluated the text and bibliography of each student's written assignment to determine the number of Web-based information sources (e.g., analysts' projections from the Internet) and text-based information sources (e.g., annual report) used in the analysis. The coders evaluated each student's written assignment and counted only those sources that were used substantially in the analysis. Since they demonstrated a high degree of agreement with each other (correlation = .928; $p < .001$), the average of the two coders was used in the analysis.

Panel A of Table 9.3 shows that students, on average, cited approximately the same number of text- based sources (4.11) as Web-based sources (4.16) in their written report (p = .884). It appears that students did look beyond the traditional information sources used in many company analysis projects demonstrating the access information from multiple sources. In addition, there was a gender difference in the types of information sources cited (Panel B of Table 9.3). Specifically, while female and male students used the same number of text-based sources (4.50 vs. 3.66, respectively; p = .460), female students used significantly more Web-based sources than did male students (5.26 vs. 2.87, respectively; p = .008).[viii]

[INSERT TABLE 9.3 ABOUT HERE]

Perceptions towards Computer-Related Tasks

A questionnaire was administered both pre- and post-project to assess students' perceptions of their project completion skills, ability to use computers to solve problems, and their understanding of the Internet as an information source. The questions were formulated utilizing a five-point Likert-type of scale[ix]. Table 9.4 contains the means and standard deviations of students' pre-project and post-project responses to each question. In addition, Wilcoxon Matched Paired Signed Rank test compared the pre-project and post-project scores for each question.[x] Panel A of Table 4 reports three questions that measure the assignment's influence on students' perceptions of technology applications and information search skills. The internal consistency of these three questions was calculated to determine if they were testing similar constructs (Cronbach's α: 0.72). One common metric for evaluating internal validity is that the Cronbach's Alpha should exceed .50 [36]. Since the internal consistency measure exceeds this threshold, the three questions, taken together, provide a valid indication of perceived project completion and information search skills. Panel A of Table 9.4 reports that students claim to have improved their ability to successfully

complete an unfamiliar project (question 1), their perceived ability to use the computer and analyze a technical problem (question 2), and their perceived knowledge of searching the Internet for information (question 3). As students worked independently (with guidance from the instructor) on this type of assignment and accessed information from various sources, they appear to have improved their perceptions of working with computers to solve complex assignments. Given the importance of information technology in the accounting profession, enhancing of students' attitudes towards computers and their willingness to learn about computer systems is crucial for their professional development [20]; [8].

[INSERT TABLE 9.4 ABOUT HERE]

Panel B of Table 9.4 reports other perceptions of the general usefulness of the Internet in providing information that that students may use for various types of tasks. The variables in Panel B are independent of one another. The results indicate that students report an improved understanding of the utility of the Internet (questions 4 and 5), and felt that using the Internet should be an important aim of an upper-level accounting class (question 6). This suggests that, in addition to improving students' perceptions of working on computer-related projects, such an assignment can increase their perceived familiarity with the Internet and improve the understanding of the medium's functionality.[xi]

Additional analysis tested gender differences in perceptions towards the project and information search skills. Table 9.5 shows that at the pre-project stage female students had lower perceived ability to use technology to work independently (question 1) than did male students (mean = 3.41 vs. 3.80; p = 046). This is consistent with prior research showing that females have greater anxiety and less confidence in completing computer-related tasks [12]; [13]. However, the assignment narrowed the gap between female and male students with no significant

differences in perceptions between the genders at the post-project stage (mean = 4.00 vs. 4.23; p =. 157).

[INSERT TABLE 9.5 ABOUT HERE]

Similarly, females' perceptions of their ability to use computers to solve complex issues (question 2) was lower than that of male students at the start of the assignment (3.46 vs. 3.92; p = .038), but this gap was narrowed by the end of the study (4.20 vs. 4.19; p = .941). Additional analysis indicates that the change in perceptions from the pre-project to the post-project stage was greater for female students than for male students (.74. vs. .27; p = .046). Finally, students' understanding of the Internet as an information source (question 3) was not significantly different at the pre-project stage between female and male students (3.26 vs. 3.65; p = .145). However, female students' perceptions were marginally higher than that of male students at the post-project stage (4.38 vs. 4.36; p = .082). Once again, for this variable, the change in the perceptions from the pre-project to the post-project was greater for female than male students (1.37. vs. .73; p =. 028).

These results indicate that, while students of both genders had similar pre- and post-project technical knowledge of the Internet (Table 2), female students indicated lower perceived ability for completing computer-related tasks at the start of the study. However, similar to prior studies [14]; [15], exposure to this type of Internet project improved females' perceived ability to a greater extent than for males.

Comparing Students' Perceptions and Web Usage

Finally, we analyzed the results to determine if improvements in perceptions affected students' actions. Note that the internal validity of the project completion and information search perceptions in Panel A (Table 9.4) was reasonably high (Cronbach's α: 0.72). Therefore, these three variables were combined to provide a composite measure of perceived project completion

and information search skills. The sample was partitioned into two groups based on a median split of the composite variable scores to separate students who have higher and lower improvements in their perceived skills. We then investigated the number of Web citations in students' written reports (Panel A of Table 9.3) was different between the two groups. The results indicate no differences in Web citations of students in the low composite score group (mean = 4.05) and high composite (mean = 4.26) group (Mann-Whitney Test P Value = .948). This indicated that students who had the greater improvements in perceptions were at least as heavy users of the Web as those who had lower improvements in perceptions. It appears, therefore, that improvements in perceptions did positively impact the use of the Internet when the annual report projects were written up.[xii]

DISCUSSION

Enhancing an existing teaching tool, like a company analysis research project, can concurrently develop computer-based skills and improve perceptions toward technology. The project assessment indicated that students improved their Internet skills over the course of the semester and showed strong interest in the project. Written assignments indicated that students utilized skills to access information from multiple sources by using both Web-based and text-based sources. Female students used more Web-based sources in their written project reports than did male students. Analysis of perceptions indicated that students improved their perceived ability to use the computer to analyze a technical problem, to successfully complete an unfamiliar project, and to increase their understanding of various Internet sources. Furthermore, female students showed greater improvements than did male students on their perceived ability to use the computer to conduct research, solve problems, and complete unstructured tasks. In addition, perceived

improvements in skills appeared to impact actual uses of Web-based sources in the written assignments.

The results demonstrate the value of using specifically designed assignments to develop computer-based attributes that seem difficult to teach in the classroom. The project uses minimal class time and provides a relatively simple way of building key abilities of tomorrow's accountants. While developing skills provides students the competencies to access technology, improving their perceived abilities is vital to insure the successful utilization of computers in the workplace. Combining strong skills and high perceived abilities should allow students to access, synthesize, and analyze timely information from various information sources when working on an appropriate independent assignment, the very competencies that are being called for by accounting recruiters [1]; [2]; [3]; [4].

This study provides findings of gender differences in accounting students' perceptions toward computer-based tasks, and suggests that the differences can be narrowed through exposure to technology. The results show that this type of assignment not only helps develop vital skills, but also ensures that female accounting majors improve their perceived ability and self-efficacy in performing computer-based tasks. Since women comprise over half of the accounting graduates entering the profession [16], any educational tool that reduces gender-based differences in attitudes towards computers can be valuable.

One limitation of the study is that perceived benefits from the project might not actually translate to changes in learning. That is, the increases in perceptions could simply result from students' overall positive impressions of the Internet. However, testing on several dimensions of students' perceptions, improvements in skills, and project interest provide support for the findings. Another concern is that the sections used to evaluate the project were taught by the

same instructor in two different semesters. The results however show that there were no differences in the pre- or post-project scores between the two sections, suggesting that both classes received the same type of instruction.

While developments in technology provide unique opportunities for educators, research suggests that the benefits of technology may be dependent upon the learning situation and the characteristics of the students [37]; [38]. This study shows that some types of technology can be used effectively to supplement the traditional education process and help teach skills and perceptions needed by future accountants. However, important characteristics such as a student's gender may mediate the benefits of computer-based teaching tools. Therefore, research needs to further explore ways in which the use of technology in the classroom can benefit students with different psychological and other characteristics. Studies also need to investigate additional ways in which the classroom can be used to improve technology-related skills that are in demand in the workplace. The findings of such research can greatly facilitate the development of effective pedagogical tools.

CONCLUSION

This study addresses the concern that today's accounting students may be lacking in vital skills necessary to succeed in their future professional endeavors. Specifically the profession is calling for individual who have sufficient technological proficiency to be able to deal with today's highly computerized business environment. Additionally, the profession is calling for individuals who are able to seek out solutions to complex problems in unstructured environments and be able to communicate these solutions in clear and coherent oral and written form.

A class project was designed to motivate students to use technological innovations, specifically research using traditional library resources, on-line databases, and the Internet to complete an independent research project. The project involved obtaining up-to-date information on a publicly traded company, analyze the findings, and communicating the results in an oral presentation and written research paper. Little class time was allotted to completion of the project, rather students were expected, with instructor guidance, to conduct their research and prepare their presentations outside of class. Since the content of advanced accounting classes is quite demanding, allowing additional class time for such a project would not be possible.

The results of the study indicate that in the process of researching their companies and preparing their reports, students gained vital skills called for by the profession. In addition, the students reported that their confidence in their ability to use technology and to work independently to complete such a task was significantly increased. Pre- and post-project self-assessment tools were designed to measure students' perceptions of what was gained from completing this project. Other instruments measured quality and quantity of output and resource utilization used in conducting the research and preparing the presentations and reports.

This study reports on an example of a project or application that could easily be adapted for other venues. Although undergraduate accounting majors were used in this study, it could easily be used at any academic level within any discipline to achieve similar outcomes. Implications for reference material providers, specifically campus libraries, indicates a strong benefit to students for providing on-line resources for conducting research.

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ENDNOTES

FIGURE 1-Flow Chart of Company Analysis Project Activities

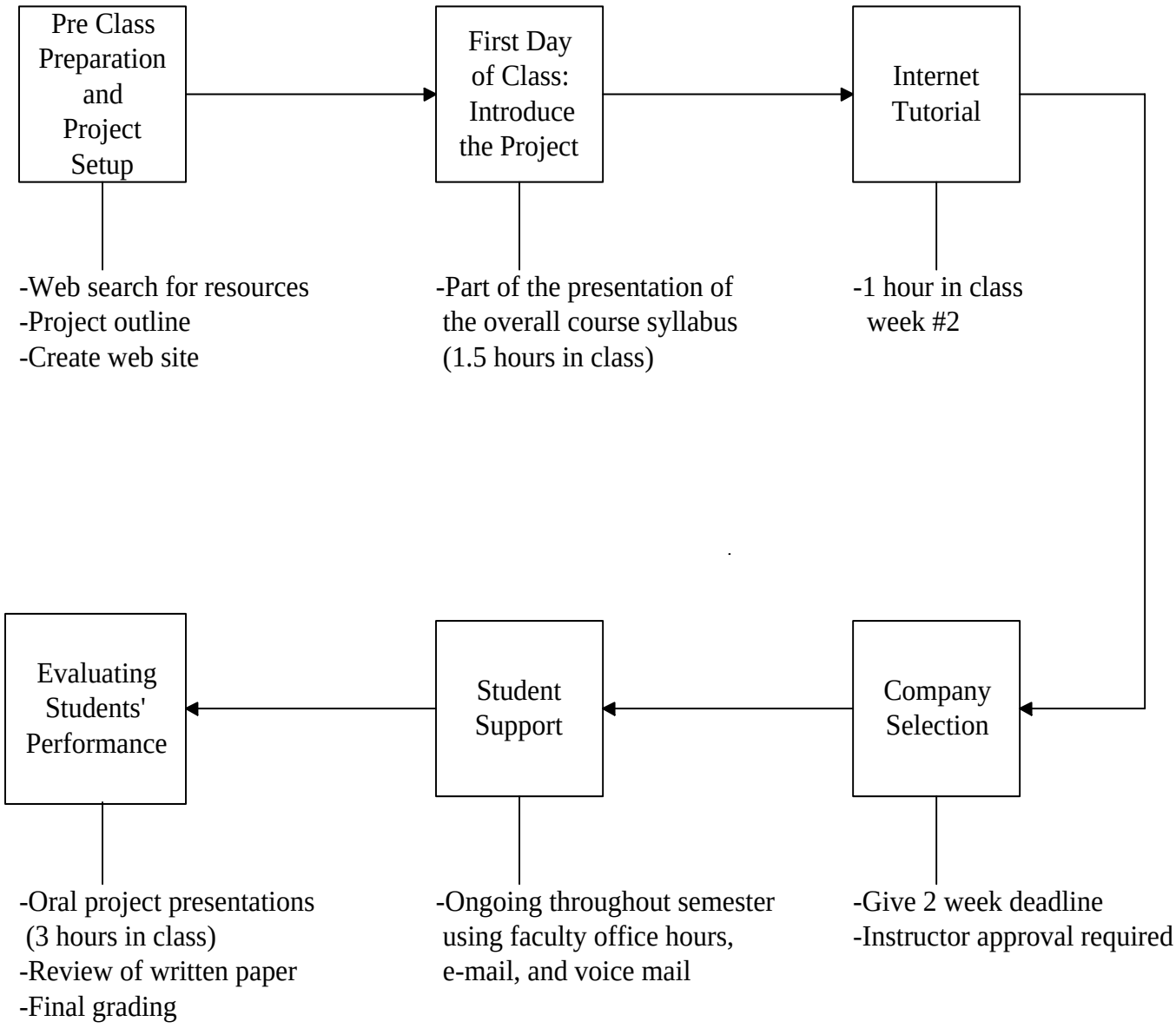

Figure 9.1

Excerpts from Company Analysis Project Description

Your report must be based on the *most recent information available* on your company, its industry, and the economic environment. In order to access this information, you must rely only on sources that are up-to-date and accurate. Keep in mind that you will be evaluated based on how effectively you are able to incorporate the most "cutting edge" information on your company into your report. *This type of information is readily available over the Internet***.**

You could use the following information to gather information on your company:

The company's annual report
The company's 10-K Report to the SEC**
The company's last few Quarterly Reports
Recent articles in The Wall St. Journal, other newspapers and business publications
The company's web site
Fortune 500 (from Fortune Magazine)
Fortune 500 (a listing of companies with annual reports on-line)

Your project should include, but is not limited to, the following information:

The name of the company
The year of the annual report and other sources
What comparative years are given?
Is this a consolidated financial report?
Who is the auditor?
What type of opinion is given?
What method of inventory valuation is used?
What method of depreciation is used?
What are the primary products of services provided?
What is interesting about the management letter?
Describe a footnote disclosure you found interesting
Where is the company located?
How are the company's securities currently performing?
Is there anything noteworthy about the company since its most recent financial report?
Is there any recent event that might impact the future of the company?
Provide some information about the company that is not presented in the financial statements or the Annual Report
What do financial analysts think about your company, its performance and its future prospects?
Ratio analysis:
Compare to prior years and to industry standards
Include at least two ratios from each category
Explain what the ratios indicate about your company
Conclusion:
Is this company positioned well? Why?
Is this company a good investment? Why?
Other comments

(**Underlining denotes hyperlink)

Figure 9.2

ADVANCED ACCOUNTING I
INTERNET QUIZ

Name: _____ e-mail address:_____

Knowledge of the Internet has become a hot commodity in the job market. Based on our discussions in class, test your Internet knowledge by answering the following questions. Your responses will not be graded. I am only interested in assessing whether the class as a whole has understood basic internet usage.

1. To access the Internet, one needs all of the following, except:

a) a server
b) a modem
c) a provider
d) a browser

2. Which of the following is a valid e-mail address:

a) dean@nc.edu
b) joe@johnson@NBX.COM
c) DAVE.IRS. GOV
d) ELU123@TESTING.jojo.Gov

3. Web Site addresses begin with what?

a) http://www
b) ://www
c) //http://
d) www

4. Which of the following is NOT a valid domain extension (suffix of a web address)?

a) com
b) exe
c) edu
d) org

5. If I am "surfing the net" with a web browser such as Netscape Navigator and I come to a page that I want to come back to later on, I:

a) move to a different machine
b) send an e-mail
c) set a bookmark
d) none of the above

6. Which one of the following is a search engine?

a) Internet Explorer
b) Java
c) Yahoo
d) Internet

7. What is the name of the language you use to write a web page?

a) HTTP
b) FTP
c) URL
d) HTML

8. Which of the following terms is a "browser"?

a) Internet Explorer
b) World Wide Web
c) Launcher
d) E-mail

9. A word that looks underlined on a web page is usually what?

a) an important word
b) the web address
c) "link" to another web page
d) a mistake

10. What does "URL" stand for?

a.) Universal Research Laboratory
b) United Record Libraries
c) Uniform Resource Locator
d) Uniform Record Language

Table 9.1

Analysis of Students' Demographic Details by Gender* - Means (Standard Deviation) and T Test P Values

	Males (n = 26)	Females (n = 30)	P Values
GPA	3.00 (.56)	3.03 (.50)	.796
Accounting GPA	2.98 (.61)	3.14 (.47)	.259
Age**	24.6 (4.72)	24.3 (2.68)	.797

* This table analyzed if there are any difference in the overall GPA, Accounting GPA, and age between the male and female students who participated in the study.

** The participants consisted of traditional (full-time) undergraduate students and part-time evening students, who tend to be older than full-time students.

Table 9.2

Students' Pre- and Post-Project Internet Knowledge Scores- All Students (n = 56)

Panel A: Internet Knowledge Scores* - Means (Standard Deviation) and Wilcoxon Matched Paired Signed Rank Test

Variable	Pre-Project**	Post-Project	Z Statistic	P Values***
Internet Knowledge Scores (out of 10)	7.12 (1.92)	7.82 (1.73)	-2.98	.003

Panel B: Internet Knowledge Scores Split by Gender- Means (Standard Deviation) Mann-Whitney Test P Values

Variable		Male (n = 26)	Female (n = 30)	P Values****
Internet Knowledge Scores (out of 10)	**Pre-Project**	7.42 (1.90)	6.86 (1.84)	.183
	Post-Project	8.19 (1.32)	7.50 (1.99)	.252

* Internet Knowledge Score was based on responses to ten questions concerning World Wide Web address formats, definitions of web terminology, ways of maneuvering around the web, and types of search engines available.

** The pre-project Internet Knowledge score was obtained in the second week of the semester aft the students went through some basic training on Internet usage. The post-projects scores were obtained at the end of the semester.

*** Wilcoxon Matched Paired Signed Rank test was used to analyze differences in the pre and post project scores.

****Mann-Whitney tests were used to analyze differences in male and female scores.

Table 9.3

Number of Web-Based and Text-Based Sources Used in Written Analysis* - Means (Standard Deviation) and Mann-Whitney Test

Panel A: Number of Web-Based and Text-Based Sources- All Students (n = 56)

Text Sources	Web Sources	Z Statistic	P Values
4.11 (3.11)	4.16 (3.48)	-.146	.884

Panel B: Number of Web-Based and Text-Based Sources by Gender- Mann-Whitney Test P Value

Variable	Male (n = 26)	Female (n = 30)	P Values[2]
Text Sources	3.66 (2.79)	4.50 (3.36)	.460
Web Sources	2.87 (2.87)	5.26 (4.08)	.008

* Text and Web-based sources were determined independently by two coders who evaluated the text and bibliography of each student's written assignment. Only those sources that were used substantially in the students' analyses were counted.

** Mann-Whitney tests were used to analyze differences in male and female scores.

Table 9.4

Students' Pre and Post-Project Perceptions- All Students (n = 56)
Means (Standard Deviation) and Wilcoxon Matched Paired Signed Rank Test

Panel A: Project Completion and Information Search Skills[*] -
(1 = Very Poor; 5 = Very Good)

	Question	Pre-Project[**]	Post-Project	P Values[***]
1.	Ability to use technology to work independently and complete unfamiliar projects	3.59 (0.72)	4.11 (0.62)	.000
2.	Ability to use computers to analyze information and evaluate technical issues	3.67 (0.91)	4.20 (0.64)	.000
3.	Knowledge of searching the Internet for information	3.44 (1.06)	4.52 (0.57)	.000

Cronbach's α: 0.72

Panel B: Other Perceptions of Students[****]
(1 = Strongly Disagree; 5 = Strongly Agree)

4.	Internet provides an easy way to find out company information	4.28 (0.90)	4.61 (0.67)	.032
5.	Internet search for company information is more time-consuming than going to the library	2.21 (1.24)	1.89 (1.18)	.042
6.	Learning to use the Internet to access information should be an aim of an advanced accounting class	4.23 (0.93)	4.49 (0.85)	.044

* Panel A indicates the changes in pre and post project perceptions of students' project completion skills, ability to use computers to solve problems, and their understanding of the Internet as an information source. Taken together, these perceptions provide an indication of students' project completion and information search skills.

** The pre-project Internet Knowledge score was obtained in the second week of the semester aft the students went through some basic training on Internet usage. The post-projects scores were obtained at the end of the semester.

*** Wilcoxon Matched Paired Signed Rank test was used to analyze differences in the pre and post project scores.

**** Panel B indicates the changes in perceived pre and post project improvements in students' understanding of the utility of the Internet and whether learning to use the Internet should be an aim of an advanced accounting class. The variables in Panel B are independent of one another.

Table 9.5

Gender Differences in Pre- and Post-Project Perceptions – Means (Standard Deviation) and Mann-Whitney Test P Value

**Perceptions of Information Search and Project Completion Skills*
(1 = Very Poor; 5 = Very Good)**

Variable		Male (n = 26)	Female (n = 30)	P Values**
Ability to use technology to work independently and complete unfamiliar Projects	**Pre*** Project**	3.80 (.80)	3.41 (.61)	.046
	Post Project	4.23 (.65)	4.00 (.58)	.157
Ability to use computers to analyze information and evaluate technical issues	**Pre Project**	3.92 (.97)	3.46 (.81)	.038
	Post Project	4.19 (.63)	4.20 (.66)	.941
Knowledge of searching the Internet for information	**Pre Project**	3.65 (1.01)	3.26 (1.08)	.145
	Post Project	4.38 (.57)	4.63 (.56)	.082

* This table indicates differences in perceptions for males and females at the pre project and post project stages. The variables measure perceptions of students' project completion skills, ability to use computers to solve problems, and their understanding of the Internet as an information source. Taken together, these perceptions provide an indication of students' project completion and information search skills.

** Mann-Whitney tests were used to analyze differences in male and female scores.

***The pre-project Internet Knowledge score was obtained in the second week of the semester aft the students went through some basic training on Internet usage. The post-projects scores were obtained at the end of the semester.

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[1]. We would like to thank Laurie Pant, Gail Sergenian, and participants at the Suffolk University Faculty Development Seminar.

ii. Consistent with Bandura (1977), self-efficacy is described as personal judgments of one's capability to organize and execute courses of action to achieve goals.

iii. While other variables such as ethnic, racial, or socio-economic differences may also impact perceptions towards computers, this study restricts itself to analyzing gender differences.

[iv]. The participants consisted of traditional full-time students and part-time evening students. There were no differences between the results of the part-time and full time-students.

[v]. One potential concern is that Internet usage experienced by students during the semester in other courses may have driven the observed results. We identified nine students (four males and five females) who were enrolled in an Accounting Information Systems (AIS) course at the time they participated in the project. The AIS course also provided students exposure to computers. The results for all variables were analyzed by removing the nine students from the sample and yielded findings similar to those reported in the study. Therefore, the full sample was used in the paper.

[vi]. Since the Kolmogorov-Smirnov Goodness of Fit Test showed a normality violation for the skills and the self-perception variables ($p < .05$), appropriate non-parametric tests were used for the analysis.

[vii]. The results indicate that students started with reasonably high scores at the pre-project stage and improved upon them during the project. The high pre-project scores could be because students

went through some training on basic Internet usage before the project. This was done to ensure that all students had some base line knowledge of the Internet before the project.

[viii]. Note that there are significant differences between the post-project and pre-project Internet knowledge scores for male students (mean = 8.19 vs. 7.42) as well for female students (mean = 7.50 vs. 6.86) [Wilcoxon Matched Paired Signed Rank test $p < .05$].

[ix]. Similar methodology has been used in Basu and Cohen (1994) and Sergenian and Pant (1998) to examine the impact of a course assignment on students' perceptions.

[x]. Additional analysis was done to determine if the pre-project perceptions of the students were representative of other accounting seniors. The pre-project questionnaire was administered to another group of eighteen accounting seniors who did not participate in the study. Comparisons between the two groups indicate no significant differences in the mean perceptions for any of the questions. This suggests that the pre-project perceptions of students in the study are similar to the perceptions of other accounting seniors from the same institution.

[xi]. Four additional questions tested students' general perceptions of how pleased they were at having chosen accounting as a major, if they expected and found the overall course to be interesting, and the usefulness of other data sources. There were no significant pre- and post- project differences in students' perceptions for these questions (all $p > .1$).

[xii]. Students' also rated their overall interest in the project on a five-point scale (5 = Very Interesting; 1 = Not at all Interesting) and indicated a mean interest level of 4.18 (S.D. = 0.77). In fact, an overwhelming 85.7% (n = 48) of the students rated the project a four or five, suggesting their approval for such an assignment. No significant differences in the mean interest level were observed between the male and female students.