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ABSTRACT

Not-for-profit organizations employ 11% of all U.S. workers; these organizations are often the recipients of hand-me-down hardware and software. This study investigates accounting students' expectations of the information technology available to and used by not-for-profit organizations. In this descriptive study, based on two different surveys, students had much higher expectations of number of paid staff and amount of hardware than the reality of Louisiana nonprofit organizations. Clear discrepancies existed between student expectations of number of software applications in use and actual use reported by nonprofits. Accounting students ranked accounting software as the most important software for nonprofits, yet only 44% of nonprofits reported the use of this type of package. Students clearly think that not-for-profits in Louisiana are more technology-rich and technology-savvy than the not-for-profits report about themselves. Includes 10 tables and four figures. (Contains 11 references.) (Author)

DO ACCOUNTING STUDENTS HAVE REALISTIC EXPECTATIONS OF INFORMATION TECHNOLOGY USAGE IN NONPROFIT ORGANIZATIONS?

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ABSTRACT

Not-for-profit organizations employ 11% of all U.S. workers; these organizations are often the recipients of hand-me-down hardware and software. This study investigates accounting students' expectations of the information technology available to and used by not-for-profit organizations. In this descriptive study, based on two different surveys, students had much higher expectations of number of paid staff and amount of hardware than the reality of Louisiana nonprofit organizations. Clear discrepancies existed between student expectations of number of software applications in use and actual use reported by nonprofits. Accounting students ranked accounting software as the most important software for nonprofits, yet only 44% of nonprofits reported the use of this type of package. Students clearly think that not-for-profits in Louisiana are more technology-rich and technology-savvy than the not-for-profits report about themselves.

INTRODUCTION

This project investigates the expectations of upper-level accounting students regarding the availability of information technology (IT) in private nonprofit organizations in Louisiana.

Researchers, practitioners, and academicians have been calling for changes in the accounting curriculum for the past 15 years (American Accounting Association, 1986; Accounting Education Change Commission, 1996; Russell, et al, 2000). Comments from one university that formed a Curriculum Review Team (CRT) and surveyed all stakeholders of the accounting department included "concern among faculty about the (in)ability of the department's curriculum to prepare students adequately for the rapidly changing and complex accounting environment they would enter upon graduation." The CRT's research indicated that "both the stakeholders and commentators in the literature expressed the view that accountancy teaching is too divorced from 'real-world' situations . . ." (Porter, 1999).

Yet in the process of upgrading the curriculum to include more technology, to require accounting information system courses as well as a varying number of computer information systems or computer science courses, have we led the students to expect more technology than is actually available in the "real world"?

According to John Palmer Smith (2000), "there are now more than 1.5 million nonprofit organizations in the United States." Approximately seven percent of all paid employees in the United States work for nonprofit organizations. If the full-time equivalent of volunteer workers for nonprofits is included, the total accounts for about eleven percent of United States workers. Why should the researchers study a segment that's a relatively small part of the economy? Today's accountants, indeed all workers, are less likely to hold one job over their careers than in past decades. Job and career changes increase the likelihood of working in a not-for-profit organization over a worker's career. Also, accountants are often in contact with not-for-profit organizations away from their jobs—they are volunteers for churches or community organizations, for example.

Kleen and Foust (2001) found that Louisiana nonprofit organizations often had no organization-owned computers. Those nonprofits having computer hardware frequently used only a very few application software packages. Only 44 percent reported using any type of accounting software package such as Peachtree, Quick Books, etc.

Companies and organizations in the "for-profit" world regularly upgrade their computer hardware and software, resulting in personal computers having a useful business life of three or four years. Many firms give their outdated computers to nonprofits, schools, or employees ("New Uses for Old Computers," 2000). Microsoft has instituted a nationwide program to grant software to higher education, environmental, human service, and civic-related organizations that have nonprofit, tax-exempt status, and adequate hardware to operate the software (Briggs-Harty, 2000; Lundine, 2000). However, if hardware is older "hand-me-downs," many nonprofits may not be able to accept these software grants.

To provide software to nonprofit organizations, service companies have been developed recently. Software companies have been formed that provide online fundraising technology, as well as relationship (members, donors) management technology ("Program helps nonprofits," 2000). Nonprofits are using the Internet for fund raising—not just accepting on-line donations and gifts, but also conducting online auctions. More and more nonprofits are using application service providers (ASPs) to save them money and remove the need for software maintenance. The ASPs provide the software available online and are responsible for keeping it updated. The nonprofit's rental is based on number of users or some other use measure ("Nonprofits Discover," 2001).

An investigation of the literature found no studies directly focused on student expectations of information technology use in nonprofit organizations.

PURPOSE

Not all accounting graduates work for traditional corporations; some will have working relationships with not-for-profit organizations. Whether the IT used within not for profits is state of the art, backward, or in between is a relevant subject of study. More modern not-for-profit organizations may be better able to compete than less modern organizations. Student perception of that IT level in not-for-profits is also relevant. If student perceptions are inaccurate, their training time and job adjustments are often longer.

What are accounting students' expectations of information technology (IT) available to and used by nonprofit organizations for which they may volunteer, be paid staff, audit accounting records, or have some other type of working relationship? The focus of this research is to determine what expectations accounting students in Louisiana public universities have regarding the information technology available to and used by Louisiana nonprofit organizations. How well do these expectations match the reality of IT usage in Louisiana nonprofit organizations? The findings of a survey of accounting students, conducted by the researchers, were compared to results of a recent study of actual Louisiana nonprofit organizations."

METHODOLOGY

The researchers constructed a survey instrument to determine accounting students' expectations of information technology availability and use by nonprofit organizations. The instrument paralleled an instrument used in an earlier study that focused on determining how nonprofits in Louisiana reported using information technology to support their activities and mission. The current instrument was designed for accounting students as the responding group. Students in selected junior and senior-level accounting classes at two Louisiana public universities participated. Classification variables for the student respondents were gender and age group. The researchers obtained approval for the current study through their university's Human Subjects Institutional

Review Board procedures. This data collection does not represent a random sample, but is rather a pilot study. Only limited attempts will be made to conduct hypothesis tests within student respondents, and none between student expectations and actual not-for-profit responses. Where hypothesis test results do appear in the analysis below, it is for two purposes: guiding survey redesign and validating researchers' *a priori* expectations.

Survey questions focused on the following expectations of information technology usage among nonprofit organizations:

- Hardware and software availability
- Productivity software packages in use
- Monitoring of finances/program results (accounting systems)

Analysis of the data was completed using SPSS software. In addition to descriptive statistics that illustrate which areas of IT support are most commonly expected, cross tabulation and correlation tools were used to show how (or whether) the extent of IT expectations varies with the organizations' classification data. Linear regression relates organization paid staff size to number of software applications used. The students' expectations were compared against the actual findings from the previous study of nonprofit organizations in Louisiana.

Investigative questions to be dealt with in the statistical analysis include:

- Student expectations for size of not-for-profit organizations' paid staff and volunteers
- Student expectations of computer availability and operating system currency
- Student expectations of number of software applications used by not-for-profits
- Student expectations regarding use of accounting software
- Student expectations of importance of software applications used
- Student expectations about other information technologies used by not-for-profits

FINDINGS

Fifty-seven accounting students in three accounting classes responded to the survey. Of these students, 77.2% were female. Four-fifths (80.7%) were under the age of 25.

Student Expectations of Not-for-Profit Organizational Staff

As shown in Table 1, although over 90% of students expected a minimum of three or more paid staff in a nonprofit organization, 58.3% of the nonprofit organizations surveyed reported no paid staff. Students also had higher expectations of number of volunteers active in the organization than reported in the survey of actual nonprofit organizations. As shown in Table 2, contrary to student expectations, more than 50% of nonprofits reported 10 or fewer active volunteers.

Student Expectations of Computer Availability and Operating System Currency

Although 98% of students expected the nonprofit organization to own at least one computer, over 50% of nonprofits surveyed reported no organization-owned computers. Over 70% of students expected at least three organization-owned computers; only 24.6% of organizations reported a minimum of three computers. (See Table 3.)

Over one-third (35.1%) of students surveyed expected the computers to be exclusively PCs. Another 61.4% expected mostly PCs. Only 1.8% expected mostly Macs. No students expected exclusive use of Macs by

TABLE 1
NUMBER OF PAID STAFF

Paid Staff	Student Expectations Percentage (n = 57)	Actual Nonprofit Findings Percentage (n = 163)
0	7.0	58.3
1-2	1.8	12.3
3-5	45.6	11.7
6 or more	45.6	17.2
No response	0.0	.6
Totals	100.0	100.0

TABLE 2
NUMBER OF ACTIVE VOLUNTEERS

Number of Volunteers	Student Expectations Percentage (n = 57)	Actual Nonprofit Findings Percentage (n = 163)
10 or fewer	21.1	50.9
11-20	29.8	11.7
21-30	29.8	9.2
Over 30	19.3	27.0
No response	0.0	1.2
Totals	100.0	100.0

TABLE 3
COMPUTERS OWNED BY NONPROFIT ORGANIZATIONS

Number of Computers	Student Expectations Percentage (n = 57)	Actual Nonprofit Findings Percentage (n = 163)
0	1.8	52.1
1-2	26.3	23.3
3-5	42.1	12.9
6 or more	29.8	11.7
No response	0.0	0.0
Totals	100.0	100.0

nonprofits. What operating system do students expect the nonprofits to be using on their computers? The results shown in Table 4 illustrate that students predominantly expected the more recent versions of Microsoft Windows to be in use. For the smaller number of students expecting Macintosh operating systems (not illustrated in Table 4), the respondents once again indicated they expected the more recent versions of the operating systems to be in use. (There were no comparable questions in the earlier survey of not-for-profits.)

Do students expect laptop computers to be in use in nonprofit organizations? As shown in Table 5, almost two-thirds of respondents expected mostly desktop systems to be owned by the organizations; only 3.5% expected mostly laptop systems. Over two-thirds (71.9%) of students expected the computers to be in use in the organization's office. No students expected the organization's computers to be in use in organization workers' homes.

TABLE 4
STUDENT EXPECTATIONS OF OPERATING SYSTEMS IN USE ON PCS (MACS EXCLUDED)
(n = 55)

Operating System	Percentage*
Windows NT, XP, ME, or 2000	57.9
Windows 98	61.4
Windows 95	24.6
MS-DOS	12.3
Other	7.0

*Totals are more than 100% because of multiple answers selected.

TABLE 5
STUDENT EXPECTATIONS OF USE OF LAPTOP AND DESKTOP COMPUTERS
(N = 57)

Type of System	Percentage
Exclusively desktops	29.8
Mostly desktops	64.9
Mostly laptops	3.5
Exclusively laptops	0.0
No response	1.8
Totals	100.0

Students do expect nonprofit organization members/ volunteers to use their home computers for organization work, as shown in Table 6. Only one of the 54 respondents answering this question expected mostly Macs. All others expected either exclusively PCs or mostly PCs. Almost two thirds of respondents (64.9%) expected mostly desktop systems in use by volunteers.

TABLE 6
STUDENT EXPECTATIONS OF INDIVIDUALLY OWNED COMPUTERS USED IN THE ORGANIZATION
(N = 57)

Number of Computers	Percentage
0	8.8
1-2	26.3
3-5	29.8
6-8	14.0
More than 8	21.1
Totals	100.0

Student Expectations of Software Usage

What software applications do students expect the nonprofit organizations to be using? As illustrated in Table 7, student expectations of software used in nonprofit organizations was much higher than what is happening in reality. Only word processing, e-mail, and spreadsheet software were reported in use in more than 50% of nonprofits, although students expected those percentages to be in the 80 to 90 percent or more range. Figures 1a and 1b further illustrate the discrepancy between student expectations of number of software packages in use and the reality of nonprofit organization software usage. The mean number of applications expected by students was 5.11; the mean reported by actual not-for-profits was only 3.33.

What components of accounting packages do students expect nonprofit organizations to use? As illustrated in Table 8, 53 of 57 respondents (93%) expected the nonprofit organizations to use an accounting package and 91% the use of more than one component of the package. This again reflects much higher expectations of accounting package usage than reported in actual nonprofit organizations. The reality is that less than half use an accounting software package, and only 35% use more than one element of it. Figures 2a and 2b clearly illustrate this discrepancy between expectations and reality. The distribution of number of accounting package elements used are dramatically different.

Based on a cross-tabulation of "Number of individually owned computers used" versus "Use of an accounting package," students expected a positive relationship. The percentage of not-for-profits using accounting packages rises with the number of computers, exceeding 90% for the most number of computers category. The data revealed no relation between type of computer (PC versus Mac) or type of computer system (desktop versus laptop) and the likelihood of using an accounting package.

How do students rank the importance of the software applications used within nonprofit organizations? Table 9 below illustrates that while accounting students ranked accounting software first in importance, nonprofit organization respondents ranked it fourth in importance. While nonprofits ranked e-mail third in importance, higher than spreadsheet and accounting packages, students ranked it sixth in importance.

TABLE 7
SOFTWARE APPLICATIONS USED WITHIN NONPROFIT ORGANIZATIONS

Software Package	Student Expectations Percentage (n = 57)	Actual Nonprofit Findings Percentage (n = 163)
Database management	53.0	45.0
Spreadsheet	82.0	51.0
Word processing	88.0	74.0
Contact management	35.0	Not asked
Newsletter/desktop publishing	68.0	42.0
Accounting package	82.0	44.0
E-mail	93.0	56.0
Web-site building package	44.0	17.0
Tax preparation	40.0	Not asked

FIGURE 1A
STUDENT EXPECTATIONS OF SOFTWARE APPLICATIONS IN USE IN NONPROFIT ORGANIZATIONS

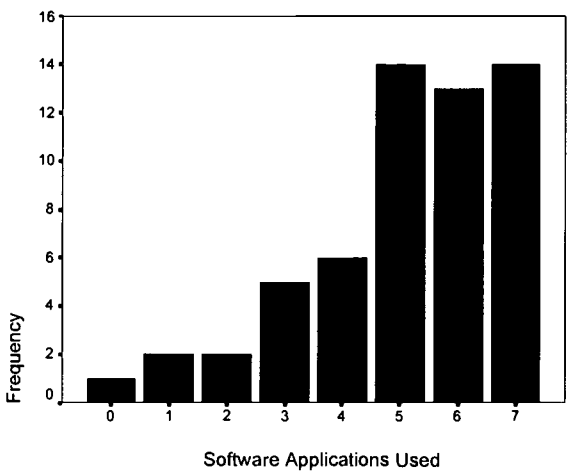

FIGURE 1B
ACTUAL SOFTWARE APPLICATIONS IN USE AS REPORTED BY NONPROFIT ORGANIZATIONS

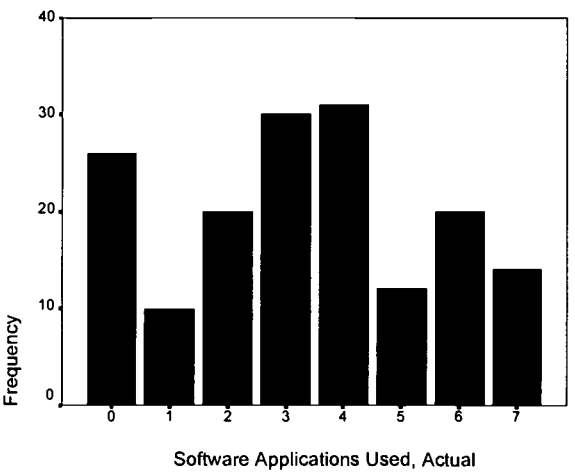

TABLE 8
USE OF ACCOUNTING SOFTWARE

Package	Student Expectations Percentage (n = 57)	Actual Nonprofit Findings Percentage (n = 163)
General ledger	86.0	40.5
Accounts payable	77.0	33.7
Check writing	84.0	Not asked
Payroll	81.0	22.1
Pledges/Membership receivable	75.0	22.1
More than 1 component	91.0	35.0
No accounting package	5.0	36.2
No response	2.0	17.8

FIGURE 2A
STUDENT EXPECTATIONS OF ACCOUNTING SOFTWARE APPLICATIONS IN USE IN NONPROFIT ORGANIZATIONS

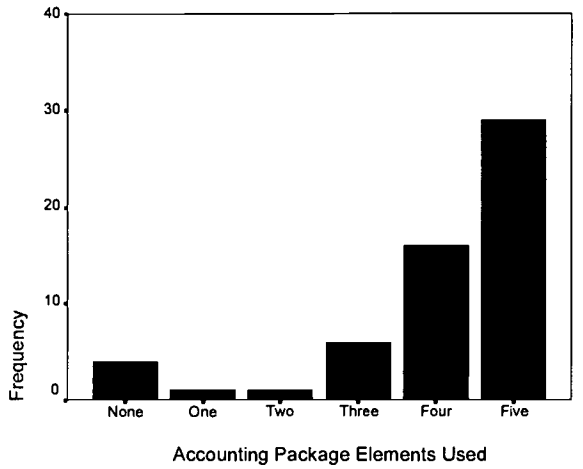

FIGURE 2B
ACTUAL ACCOUNTING SOFTWARE APPLICATIONS IN USE AS REPORTED BY NONPROFIT ORGANIZATIONS

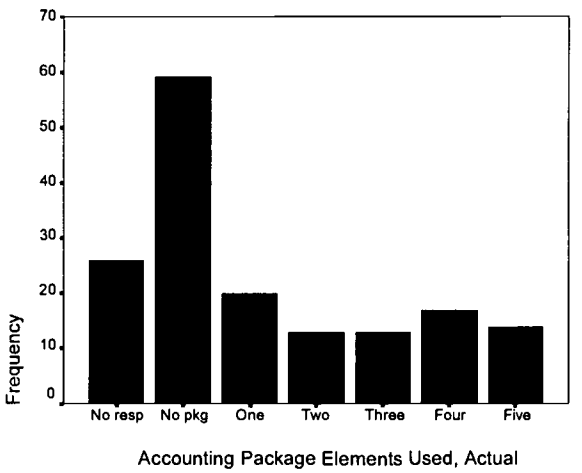

TABLE 9
RANKING OF IMPORTANCE OF SOFTWARE

Software Package	Student Expectations Ranking	Actual Nonprofit Findings Ranking
Database management	3	2
Spreadsheet	4	5
Word processing	2	1
Contact management	8	Not asked
Newsletter/desktop publishing	5	6
Accounting package	1	4
E-mail	6	3
Web-site building package	7	7
Tax preparation	9	Not asked

Student Expectations of Other Technology Usage

Students were also asked about their expectations concerning the use of such items as pagers, cell phones, fax machines, and personal digital assistants (PDAs) in nonprofit organizations. As illustrated in Table 10 below, almost 90% of students expected the use of fax machines, but a minimal 3.5% expected use of PDAs. (There were no comparable questions in the survey of not-for-profits.)

TABLE 10
STUDENT EXPECTATIONS OF USE OF PAGERS, CELL PHONES, FAX MACHINES, AND PDAS
(n = 57)

Device	Percentage
Pagers	40.4
Cell Phones	61.4
Fax Machines	89.5
Personal Digital Assistants	3.5

Correlations

When the student expectations survey results alone were analyzed, there were no significant correlations between expected size of organization and the rank of the software in use. As expected, the correlation between one application's rank and another application's rank were universally negative. Number of volunteers was positively correlated (r = .282) with use of pagers. Use of cell phones was positively correlated (r = .285) with use of pagers.

Number of paid staff was positively correlated with use of database management (r = .304), spreadsheet software (r = .282), and accounting software (r = .282). Not surprisingly, the use of one part of an accounting package is correlated with use of the other parts.

Regressions

The researchers conducted a linear regression with paid staff size category as the independent variable and number of software applications used as the dependent variable (even though both variables are ordinal and the sample is not random). Student data revealed an apparent relationship between the number of applications used by a nonprofit organization and its number of paid staff. Findings revealed students expected organizations with more paid staff to use more applications. With each change in staff size, applications rise by almost one. This positive relationship matches researcher expectations.

CONCLUSIONS AND RECOMMENDATIONS

Study findings revealed that accounting students' expectations of the information technology available to and used by not-for-profit organizations do not match reality. Students clearly expected more hardware available than what was reported by Louisiana nonprofit organizations. Clear discrepancies existed between student expectations of number of software applications in use and actual use reported by nonprofit organizations. Likewise, students had much higher expectations of accounting package usage than reported in actual nonprofit organizations. While accounting students ranked an accounting package as the most important software application for nonprofit organizations, only 44 percent of nonprofits reported using any type of accounting software; the nonprofit organizations ranked accounting software fourth in importance, behind word processing, database management, and e-mail. The student data revealed an apparent relationship between the number of applications used by a nonprofit organization and its number of paid staff; students expected organizations with more paid staff to use more applications.

The researchers plan further research related to not-for-profit organizations and student expectations The not-for-profit survey instrument needs revision to add hardware questions as were used in the student survey. Future research should include random samples of accounting students in parallel with surveys of not-for-profit organizations. Perhaps a separate survey for CPAs could be conducted as the reality check.

IMPLICATIONS FOR EDUCATORS

Louisiana accounting students clearly think that not-for-profits in Louisiana are more technology-rich and technology-savvy than the not-for-profits report about themselves. The immediate lesson from this is to prepare students for this low-tech reality. This may take only a segment of a lecture, or a short exercise. Students in accounting systems classes can have an opportunity to experience the low-tech reality through real-world not-for-profit organization projects. Internship opportunities in not-for-profit organizations may also provide this reality check the classroom alone does not provide. Service learning may provide students with a much more realistic view of what technology is available to and utilized by nonprofit organizations. The findings of this study also have implications for various other disciplines.

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