AN ACTION EVALUATION OF UW-STOUT'S LAPTOP IMPLEMENTATION:

Global Student Expectations and Microsoft

Office Competencies the First Year

By:

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Abstract

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This research provides an evaluation and documentation of several aspects of the University of Wisconsin-Stout's laptop implementation. The research project adopted an action evaluation approach and focused on specific elements of the first wave of laptop implementation cohorts. Three online surveys were developed and used in this paper. The *Student Expectation Assessment* consists of three separate sections, which assesses the students' computer skills in three Microsoft Office programs: Word, PowerPoint and Excel. The *Student Questionnaire Survey I* was designed to better understand how students are using their laptops and to address any problems they may be experiencing. The *e-Scholar Training and Expectation Survey* was designed to gather the students' expectations of the e-Scholar concept and how they planned on using their laptops in their daily life as a student. The sample sizes of the three surveys ranged from 318 students to 1350 students. In Phase 1, the results of the *Student Expectation Assessment* were used to reorganize Microsoft training modules to more efficiently address student needs. In Phase 2, the relationship between student computer proficiency (*Student Expectation*

Assessment) and students' self-assessment dealing with computer functionality (*Student Questionnaire Survey I*) was examined. A Spearman correlation did reveal a significant ($p<.01$) but moderate relationship between students' Microsoft software competencies and their computer functionality scores ($r = .44$). In Phase 3, a descriptive analysis of the *e-Scholar Training and Expectation Survey* and the *Student Questionnaire Survey 1* was conducted. The results revealed how students expected to use their laptop before the semester started and how students actually were using their laptop two months into the semester. The majority of students both expected and reported using their laptops for educational purposes. Inconsistencies between expectations and actual computer use existed between email use, taking notes and using the laptop as a research tool. Students used their laptop for email, for taking notes and as a research tool much more than they originally expected. Implications of the studies major findings are also discussed.

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Chapter 1

Introduction

Purpose

The purpose of this research was to provide an evaluation and documentation of several aspects of the University of Wisconsin-Stout's laptop implementation. The laptop implementation is part of a larger overarching digital transition that has been titled, "e-Scholar." The e-Scholar concept has been broadly defined to include the laptop campus initiative, the campus portal system and the digitally based learning processes they support. The current research project adopted an action evaluation approach and focused on specific elements of the first wave of laptop implementation cohorts. The research consisted of a three-phase plan, that deals with evaluation aspects before freshmen orientation, after orientation, and two months into the Fall semester.

Action Evaluation

To help clarify this research project, the concept of action evaluation should be further explained. Rothman (1999) describes action evaluation as:

> A new method of evaluation, one that focuses on defining, monitoring, and assessing success. Rather than waiting until a project concludes, action evaluation supports project leaders, funders, and participants as they collaboratively define and redefine success until it is achieved.
>
> Action Evaluation differs from traditional evaluation because it:
>
> - Focuses on promoting successful outcomes
> - Integrates program development and implementation from the beginning

- Uses the development of internal goals and standards to define and assess success
- Integrates a new thinking process into an organization's culture, thus helping the organization to become more of a learning organization.
- Identifies views that may be in conflict and creates a safe place for their engagement

Action Evaluation has two key requirements: Participation and Reflexivity.

Participation: All stakeholders engage in the process from the beginning, articulating and negotiating their goals, their values, and their proposed action plans.

Reflexivity. All participants function as "reflective practitioners" together, reflecting and examining the interaction of goals, values and activities. These reflections are done systematically and continuously during the project. A web-based database and discussion forum, which is designed to sustain the reflective process, assists the process. However, regular ongoing and face-to-face dialogue and reflection is essential.

Background

On September 24, 2001 UW-Stout signed a $25 million, seven-year mobility initiative with Compaq Computer Corporation. Beginning in the fall of 2002, all freshmen were required to purchase the designated Compaq enterprise-class notebook computer. As part of this initiative students gained wireless access to the Internet and the UW-Stout computer network throughout the campus including classrooms, hallways, and even outdoors (University of Wisconsin-Stout, 2001b). The laptop initiative originated in the Fall of 2000 when the University conducted a pilot study. Freshmen students entering the technical communication and graphic communications management programs were required to purchase either an iBook or a PowerBook. These two

programs were selected for the pilot study because most of the related courses require heavy computer use. The programs selected these computers because most professionals in these fields use Apple computers (University of Wisconsin-Stout, 2001a). This pilot provided valuable information to guide many general aspects of the full-scale implementation to follow. Unfortunately, the use of Macintosh computers in the pilot assessment provided less information regarding software and hardware support needs among students using the dominant class of computers that would be used on campus. Therefore, a comprehensive "roll-out" training program was developed both by the university and its subcontractor.

Given the magnitude of this initiative, the University was interested in conducting evaluations across several aspects of the e-Scholar movement. Some of the specific process evaluations that had either been completed or planned included: baseline student expectations of laptop use, and assessments of the "launch/rollout" and all associated training. Some of the specific outcome evaluations that had either been completed or planned included: assessments of the "value-added" aspect of the laptop program that includes information on the effectiveness of the program, assessment of the impact the laptop as on the learning experience, and finally a longitudinal study which follows the students from freshmen year through graduation. Some other outcome evaluations that will be conducted include the laptops impact on student performance and changes in instructional practices. The targeted audiences thus far have been the first cohort of e-Scholars, faculty/staff teaching laptop courses, student laptop trainers (STAR and Mentors), and the laptop trainers/help resources. The sources of data thus far have been on-line surveys, already existing surveys, focus groups, observations, and data available in existing databases.

This research describes the process experienced by the first cohort of e-Scholars. *Phase One* of the evaluation examines the instrument used to measure students' Microsoft Office software competencies before freshmen orientation. *Phase Two* of the evaluation tests the linkages between the students' proficiency using Microsoft Office software and problems students have experienced two months into the laptop project. *Phase Three* of the evaluation examines information from two different databases. The first database consists of data pertaining to the students' expectations about the use of the laptop and personal definition of the e-Scholar concept. The second database consists of data that deals mainly with the students' knowledge of fundamental operations with their laptop, problems they had experienced and how they used their computer both within and outside of the classroom.

Laptop Goals

The University of Wisconsin-Stout's current laptop intervention has adopted four central goals, which help organize all evaluations that are conducted:

- Improve quality of teaching and learning at undergraduate and graduate levels
- Form egalitarian communities of excellence in teaching and learning across the university
- Utilize technology to create a student-centered environment, where active learning is the core approach to acquiring concepts, processes and attitudes
- Create life-long habits in students in methods of acquisition of concepts, processes and attitudes

Source. Teaching and Learning Center and College Associates Teaching and Learning Assessment Project (Project Team: Donna Albrecht, Jim Buergermeister, Jane Henderson, Clark Leeson, Lou Milanesi, Ross Olson and Meridith Wentz).

Literature Review

Many, if not most universities across the United States have adopted some form of digital enhancement to the learning experience of their students. Instructors have utilized a variety of approaches to bring technology into the classroom. Some classes use computers only for word processing, while other classes use computers to supplement lectures, for note taking and for in-class assignments, projects and quizzes. Other classes have adopted a completely online format where students read class lectures, research, complete projects, write papers and take exams on the computer. These classes not only offer a self-paced style, but also make distance education possible for many nontraditional and working students across the country. Regardless of the approach, universal access to computers for students is an increasingly important necessity for institutions of higher education. Mandating that students posses a computer is a means of achieving this goal that is becoming more popular across the nation.

The impact that technology has had on the learning experience has been very well documented. Goldberg, Russell, and Cook (2003) performed a meta-analysis of 26 studies conducted between 1992-2002, which focused on the effect of computers on student writing. The studies all focused on the comparison between K-12 students writing with computers versus paper-and-pencil. The results suggested that students who use computers when learning to write are more engaged and motivated in their writing. The students also produce work that is of greater length and higher quality. The authors also reported results from the studies collected for the meta-analysis which did not meet the statistical criteria. These articles indicated that the writing process is more collaborative, iterative, and social in computer classrooms as compared with paper-and-pencil classrooms (Goldberg, Russell and Cook, 2003). SRI International, a research institute in California, reported results from a three-year study dealing with the effects

of computers in the classroom. They reported that students using computers showed increased motivation, pride, and an improved ability to work independently. The results also indicated that using technology in the classroom resulted in more student-led learning, greater collaboration with classmates, and more challenging projects for students (Dwight, 1999).

Universities are not the only educational institutes implementing digitally enhanced learning techniques. Many K-12 schools around the country are utilizing technology in their curriculum with reported success. Pascopella (2001) mentions many of these K-12 schools in a past article titled, *Laptop or Textbook.* The Discovery Charter School in the Tracy Unified School District Learning Center in California opened in August of 2001 for 125 fifth and sixth graders. The school was one of the first in the nation to implement an "eEducation" as its primary tool for education. The school will reach an enrollment of 2,400 pre-school through 12th grade students by 2004. At the Walled Lake School District in Michigan, 400 of their fifth and sixth grade students will have access to Compaq laptops and wireless labs for the next five years. The district became Michigan's first K-12 public school district to be part of Microsoft's Anytime, Anywhere Learning program. William Hamilton, assistant superintendent for K-12 curriculum in the district stated, "we saw some good things happening with regards to relationships between students and students and teachers, and because of that environment, students seemed to be working at a higher level of thinking." At Stephen Hayt Elementary School in the Chicago community of Edgewater, administrators received a series of state technology grants, each worth $90,000, over the past three years to assist in their technology program. The children at Stephen Hayt started using computers in kindergarten; they use Macs through fourth grade and then use PCs in the technology lab from fifth to eighth grade (Pascopella, 2001).

Historically, access to digital technology has been limited to labs or to a limited number of administrative personnel. Not only has access been limited at schools, but also limited to certain students. Some families provide their children with computers, while other families are not able to do so for financial reasons. There has also been a gap between the very skilled computer users and the not so skilled computer users. In the past, technology has only benefited those with strong computer skills. This dilemma has been coined the "digital divide." The digital divide can be defined here as the gap between those able to benefit by digital technologies and those who are not (DigitalDivide.org, 2003). Kinnaman (2002) reports that many educational institutions are going about the digital divide in the wrong way by constraining those who have access rather than provide opportunity to those who don't. She reported that one teacher in her old school district had a policy prohibiting students from using their own computers for schoolwork. Kinnaman argues that restricting use is no way to address the digital divide; she recommends a few ideas for schools to bridge the gap:

- Make arrangements with computer and Internet providers on creative financing to increase access in school, especially during this time of low-cost capital.
- Push vendors to extend special financing to parents when your school district makes a major purchase.
- Expect teachers to use the Internet. Support them with technology and professional development resources.
- Greatly increase access to school computers, especially after school hours, for students, parents and siblings.

- Collaborate with local libraries, community centers, churches and other organizations to ensure broad access to computer and Internet resources (Kinnaman, 2002).

As a way of narrowing this digital divide and overcoming limited access of computers, many universities across the United States are requiring their students to own a laptop computer. In the Midwest, the University of Minnesota-Crookston became the first laptop university in 1993. Northern Michigan University and Winona State University have also adopted a laptop campus. Universities outside of the Midwest that are well known for their pioneer work in the laptop revolution include, Wake Forest University, Carnegie Mellon University, and Seton Hall University. Some positive impacts that the laptop requirement has had on these universities include: increased freshmen to sophomore retention of 89-94 percent (Wake Forest University); increased applications for admission (e.g., University of Minnesota-Crookston, Winona State University, and Northern Michigan University); favorable parent satisfaction levels (Northern Michigan University); and increased instructional effectiveness and fostered a responsive learning environment (Valley City State University) (University of Wisconsin-Stout, 2001c).

The University of Wisconsin-Stout has been progressing towards technology based learning for over a decade. And in the fall of 2002, UW-Stout became the first public university in the state of Wisconsin to require all incoming freshmen to have laptops. University-wide discussions regarding adopting laptops as the university standard began in 1998, and led to the pilot study in 2000 (University of Wisconsin-Stout, 2001c). The implementation of the "laptop campus" has been a pivotal step toward digitally enhanced learning. The meetings, discussions, site visits, and pilot study have all played a key role into the university implementation plan.

Much work went into initial planning, however, the design also integrated a system of interactive/reflective process monitoring and feedback.

Phase One

The first phase of the evaluation examines the instrument that was used before freshmen orientation. In the summer of 2002, all incoming freshmen came to UW-Stout for pre-orientation. As part of the orientation, students had to complete an assessment of their Microsoft Office software competencies. The on-line instrument used was the *Student Expectation Assessment.* The instrument consisted of three separate sections, which assessed the students' computer skills in three Microsoft Office programs: Word, PowerPoint and Excel. Bob Streff originally gained copyright approval from Microsoft and did the programming of the instrument for his Master's thesis. The instrument is based on Microsoft training objectives and was later used to help reorganize Microsoft training modules to more efficiently address student needs. The primary goal of this phase was to reorganize Microsoft training from the descriptive analyses of the *Student Expectation Assessment.* This reorganization of Microsoft training is an attempt to narrow the gap that exists between the skilled computer users and the novice users by providing the appropriate training to each student.

Initially, the data from this instrument was going to be compared to the faculty's expectations of student abilities. The instrument designed to assess the faculty's expectations of students' software skills was the *Microsoft Office Expectations Survey*. The instrument is a mirror image of the *Student Expectation Assessment,* however, the faculty responded to the questions by indicating: "Not Used," "Infrequent Use," "Some Use" and "Much Use." The students responded to the questions of the *Student Expectation Assessment* by indicating: "Can Do," "Can't Do" and "No Clue." The faculty survey (*Microsoft Office Expectations Survey*) was

designed to measure instructor expectations regarding Microsoft Office software in their freshman-level courses. The results were originally going to be used to profile expectations regarding software skills on a objective-by-course level to help define, organize and prioritize MS Office training courses. However, the initial faculty analyses did not discriminate well across objectives. The faculty tended to rate at the same level across all objectives, but discriminated across courses. For example, within a particular course instructors would give relatively the same rating (eg."Much Use") across all of the objectives. The variance was identified course-by-course and not objective-by-course. The analysis did reveal that the predominant skill requirement for freshmen was Microsoft Word, with additional needs for Excel skills in a few classes. The faculty survey was then used for training personnel to prioritize their training offerings so the emphasis was on Microsoft Word.

The secondary goal, which came after the main reorganization of Microsoft training, consisted of descriptive analyses of the questions across all three Microsoft programs. A content analysis of the most proficient skill based questions across the three programs was also conducted. This assessment process hoped to provide a secondary refinement of Microsoft training by extracting common skill-based questions that could be combined. It was believed that the clusters would provide insight into transfer of skills. In other words, which skills are common across the three programs? This information would further help reorganize the Microsoft training curriculum, and in turn make it more efficient and effective.

Phase Two

The second phase of the evaluation examines the relationship between student Microsoft Office software competencies and problems students experienced two months into the semester. All laptop freshmen received an online instrument two months into the semester, the *Student*

Questionnaire Survey 1. This survey was a collaborative effort by Lou Milanesi, Jane Henderson, Meridith Wentz, Ross Olson, Robert Sedlak and the author. Part of the survey dealt with the problems students faced with their computers. The question of interest in this phase specifically asked the students to rate their knowledge regarding the general functionality of their laptop (eg. Care of laptop, laptop features, virus protection, file management/back-up process utilizing the "my documents" folder, file management/back-up process utilizing server storage, security practices, how to use web e-mail, using the Desktop Help Wizard and using the e-Scholar portal). The students were further given the opportunity to explain their training needs as they related to that question. This phase attempted to answer the question of whether Microsoft Office software abilities are predictive of general computer proficiency. The relationship between student computer proficiency and students' self-assessment dealing with functionality could provide useful insight that could help reorganize orientation training. Providing students with the proper training will allow them to use their laptop more effectively and more positively impacting their learning experience.

Phase Three

The third phase of the evaluation examines information from two different databases. The first database consisted of data pertaining to the students' expectations about the e-Scholar concept. At the laptop orientation training, which took place in August of 2002, students completed an expectation survey. This survey was titled, *e-Scholar Training and Expectation Survey*. This survey was also a collaborative effort by Lou Milanesi, Jane Henderson, Meridith Wentz, Ross Olson, Robert Sedlak and the author. The first question in the survey asked students to briefly explain what being an e-Scholar meant to them. The second question asked students how they expected to use their laptops in their daily life as a new student. The second question of

the survey will be examined in this phase of the evaluation. The second database consisted of data that deals mainly with the students' knowledge of their laptop, problems they have experienced and how they have used their laptop. As mentioned previously, the *Student Questionnaire Survey 1* measures these areas. Questions six and seven of the survey, which asks students how they have used their laptop inside and outside of class was examined here.

This phase consists of a descriptive analysis of the *e-Scholar Training and Expectation Survey* and the *Student Questionnaire Survey 1*. This is a report of the students' expectations and self-reported laptop use. The results also present how students expected to use their laptop (*e-Scholar Training and Expectation Survey*) and how students actually used their laptop (*Student Questionnaire Survey 1*). The congruence and incongruence of expectations and actual computer use has been examined. This information could provide several useful recommendations as to how to reorganize the orientation training and how to reorganize class structure to allow for more effective use of the laptop.

Chapter 2

Phase One

Methods

Participants

The sample consisted of all incoming "laptop freshmen" of the University of Wisconsin-Stout for the academic year of 2002-2003. The students involved consisted of PC and Mac users. The sample consisted of 100 percent of the freshmen that could be identified as "laptop students" at the time of orientation. Between 1250 and 1350 students completed each of the three subtests of the assessment.

Materials

The on-line instrument used in this phase of the study was the *Student Expectation Assessment* (See Appendix A). The instrument consists of three separate sections, which assesses the students' computer skills in three Microsoft Office programs: Word, PowerPoint and Excel. Students were required to enter their seven-digit student ID number before submitting each of the three surveys. Their id numbers were used to aggregate the data and link it to other archival resources. Students read through each question and described their ability to perform each task by selecting one of three response options: "Can Do," "Can't Do," and "No Clue." The students were also given an opportunity at the end of the survey to make any additional comments.

Procedure

All of the incoming "laptop students" completed the survey described above during pre-orientation in the summer of 2002. Students completed the assessment in groups of 10 to 30. All

students received the same instructions and were given approximately 15 minutes to complete the three assessments. Results were automatically stored in a data file that was later imported into SPSS for a statistical analysis. For the purposes of this research, the data was also transferred into Excel so the questions would be rank ordered according to proficiency percentage. In other words, the questions were ranked from least proficient (less than 10 percent "Can Do") to most proficient (90 percent or higher "Can Do"). In order to run the above statistical analysis and rank ordering, the variables were recoded into a dichotomous nominal scale of measurement. The original response options, "Can Do," "Can't Do," and "No Clue" were recoded as, "Can Do" and "Can't Do."

Results

Frequency values for the Excel, PowerPoint and Word assessment are listed in Tables 1, 2 and 3 respectively below. The data from the assessment was entered into SPSS and descriptive analyses were performed. The frequency and percentage of students that can perform each of the questions was reported. After this information was reported, the questions were sorted from least proficient to most proficient. As is evident from the tables below, students are generally most proficient in Microsoft Word. As a result, Word was used as a reference for further comparisons.

The primary purpose of the frequency data was to help reorganize Microsoft training modules to more efficiently address student needs. After this research, the attempt to extract a "core" set of overlapping items was a secondary attempt to further refine training. It was hypothesized that overlapping items would provide insight into transfer of skills. In other words, which skills are common across the three programs? A factor analysis, Spearman correlation, and a content comparison were performed across the three assessments to reach this goal.

Contrary to initial expectations, the results did not yield any extensive overlap across the three programs and only minimal overlap across any two.

Table 1

Student Proficiency Levels by Question in Sorted Order (Excel)

	Microsoft® Excel 2000	Can Do (freq)	Can Do (%)
q47	Use financial functions (FV and PMT)	191	15.2
q38	Link worksheets & consolidate data using 3D References	220	17.5
q48	Use logical functions (IF)	229	18.2
q42	Use references (absolute and relative)	363	28.9
q11	Create hyperlinks	381	30.4
q43	Use AutoSum	445	35.5
q13	Save a worksheet/workbook as a Web Page	437	34.8
q8	Use the Office Clipboard	467	37.2
q41	Revise formulas	470	37.5
q46	Use date functions (NOW and DATE)	505	40.2
q12	Use templates to create a new workbook	525	41.8
q40	Enter formulas in a cell and use the formula bar	553	44.1
q20	Merging cells	557	44.4
q39	Enter a range within a formula by dragging	573	45.7
q45	Use basic functions (AVERAGE, SUM, COUNT, MIN, and MAX)	585	46.6
q9	Use Find and Replace	656	52.3
q33	Move between worksheets in a workbook	702	55.9
q21	Rotate text and change indents	707	56.3

Table 1 (Cont'd)

	Microsoft® Excel 2000	Can Do (freq)	Can Do (%)
q22	Define, apply, and remove a style	700	55.8
q10	Clear cell formats	712	56.7
q51	Modify charts	718	57.2
q50	Use the Chart Wizard to create a chart	730	58.2
q44	Use Paste Function to insert a function	729	58.1
q53	Create and modify lines and objects	745	59.4
q19	Apply cell borders and shading	769	61.3
q27	Insert and remove a page break	814	64.9
q25	Change page orientation and scaling	815	64.9
q37	Move and copy worksheets	816	65
q36	Insert and Delete worksheets	825	65.7
q30	Set print titles and options (gridlines, print quality, row & column headings)	830	66.1
q28	Set print, and clear a print area	857	68.3
q18	Adjust the decimal place	893	71.2
q17	Modify alignment of cell content	908	72.4
q32	Change the zoom setting	925	73.7
q6	Insert and delete selected cells	964	76.8
q29	Set up headers and footers	966	77
q2	Clear cell content	981	78.2

Table 1 (Cont'd)

	Microsoft® Excel 2000	Can Do (freq)	Can Do (%)
q5	Go to a specific cell	976	77.8
q52	Insert, move, and delete an object (picture)	976	77.8
q4	Edit cell content	982	78.2
q31	Insert and delete rows and columns	998	79.5
q35	Rename a worksheet	1009	80.4
q49	Preview and print charts	1006	80.2
q7	Cut, copy, paste, paste special and move selected cells	1040	82.9
q16	Modify size of rows and columns	1064	84.8
q15	Apply number formats (currency, percent, dates, and commas)	1070	85.3
q26	Set page margins and centering	1086	86.5
q23	Preview and print worksheets and workbooks	1095	87.3
q1	Use Undo and Redo	1093	87.1
q3	Enter text, dates, and numbers	1134	90.4
q14	Apply font styles (typeface, size, color, and styles)	1168	93.1
q24	Print a selection	1180	94
q34	Check spelling	1184	94.3

Table 2

Student Proficiency Levels by Question in Sorted Order (PowerPoint)

	Microsoft® PowerPoint® 2000	Can Do (freq)	Can Do (%)
q17	Enter text in tri-pane view	350	28.3
q23	Promote and Demote text in slide and outline panes	397	32.1
q43	Use the pen during a presentation	447	36.1
q47	Insert hyperlink	435	35.2
q39	Print speaker notes in a specified format	472	38.2
q46	Use Office Assistant	492	39.8
q22	Use the Office Clipboard	496	40.1
q9	Create a presentation using the AutoContent Wizard	528	42.7
q42	Print a slide as an overhead transparency	530	42.8
q36	Preview presentation in black and white	559	45.2
q32	Add speaker notes	565	45.7
q38	Print audience handouts	606	49
q21	Use the Wrap text in TextBox feature	644	52.1
q37	Print slides in a variety of formats	647	52.3
q29	Create tables within PowerPoint	695	56.2
q13	Modify slide sequence in the outline pane	697	56.3
q6	Copy a slide from one presentation into another	710	57.4
q41	Use on screen navigation tools	719	58.1
q14	Apply a design template	727	58.8
q35	Animate text and objects	725	58.6

Table 2 (Cont'd)

	Microsoft® PowerPoint® 2000	Can Do (freq)	Can Do (%)
q33	Add graphical bullets	731	59.1
q5	Create a new presentation from existing slides	736	59.5
q26	Apply formatting	741	59.9
q40	Start a slide show on any slide	746	60.3
q4	Navigate among different views (slide, outline, sorter, tri-pane)	750	60.6
q34	Add slide transitions	769	62.2
q10	Change the order of slides using Slide Sorter view	779	63
q30	Rotate and fill an object	810	65.5
q31	Add AutoNumber bullets	810	65.5
q18	Import text from Microsoft® Word	812	65.6
q3	Create a presentation from a template and/or a wizard	831	67.2
q2	Create a specified type of slide	837	67.7
q12	Change the layout for one or more slides	834	67.4
q7	Insert headers and footers	848	68.6
q8	Create a Blank presentation	884	71.5
q11	Find and replace text	907	73.3
q27	Add text to a graphic object using a text box	908	73.4
q19	Change the text alignment	926	74.9
q1	Delete slides	929	75.1
q25	Add and group shapes using WordArt or the Drawing Toolbar	941	76.1

Table 2 (Cont'd)

	Microsoft® PowerPoint® 2000	Can Do (freq)	Can Do (%)
q20	Create a text box for entering text	968	78.3
q28	Scale and size an object including ClipArt	982	79.4
q45	Save as a new presentation	1027	83
q44	Save changes to a presentation	1039	84
q16	Change and replace text fonts (individual slide and entire presentation)	1054	85.2
q24	Add a picture from the ClipArt Gallery	1074	86.8
q15	Check spelling	1123	90.8

Table 3

Student Proficiency Levels by Question in Sorted Order (Word)

	Microsoft® Word 2000	Can Do (freq)	Can Do (%)
q43	Create Hyperlinks	510	41.3
q41	Save as Web Page	573	46.4
q44	Use the Office Assistant	657	53.2
q45	Send a Word document via e-mail	790	64
q34	Create sections with formatting that differs from other sections	802	64.9
q49	Modify table structure (merge cells, change height and width)	808	65.4
q21	Print a document	827	67
q35	Use Click & Type	832	67.4
q42	Use templates to create a new document	854	69.1
q32	Revise column structure	858	69.5
q26	Set margins	876	70.9
q40	Create a new document using a Wizard	878	71.1
q48	Revise tables (insert and delete rows and columns, change cell formats)	878	71.1
q47	Add borders and shading to tables	889	72
q46	Create and format tables	899	72.8
q31	Create and use newspaper columns	921	74.6
q30	Align text vertically	954	77.2
q20	Set tabs with leaders	969	78.5
q33	Apply styles	975	78.9

Table 3 (Cont'd)

	Microsoft® Word 2000	Can Do (freq)	Can Do (%)
q50	Use the drawing toolbar	979	79.3
q28	Create and modify page numbers	1008	81.6
q5	Insert page breaks	1009	81.7
q29	Create and modify headers and footers	1027	83.2
q11	Apply character effects (Superscript, Subscript, Strikethrough, Small Caps and Outline)	1033	83.6
q13	Insert symbols	1037	84
q12	Insert date and time	1080	87.4
q51	Insert graphics into a document (WordArt, ClipArt, Images)	1072	86.8
q24	Insert page numbers	1096	88.7
q17	Use indentation options (Left, Right, First Line and Hanging Indent)	1101	89.1
q18	Use Tabs command (Center, Decimal, Left and Right)	1109	89.8
q25	Set page orientation	1115	90.3
q16	Set character, line, and paragraph spacing options	1113	90.1
q10	Find and replace text	1113	90.1
q4	Use the Thesaurus feature	1130	91.5
q39	Create a folder	1133	91.7
q8	Cut, Copy, Paste, and Paste Special using the Office Clipboard	1133	91.7
q15	Add bullets and numbering	1147	92.9

Table 3 (Cont'd)

	Microsoft® Word 2000	Can Do (freq)	Can Do (%)
q27	Use GoTo to locate specific elements in a document	1147	92.9
q1	Use the Undo, Redo, and Repeat command	1165	94.3
q6	Highlight text in document	1190	96.4
q7	Insert and move text	1191	96.4
q14	Align text in paragraphs (Center, Left, Right and Justified)	1207	97.7
q38	Use Save As (different name, location or format)	1206	97.7
q37	Locate and open an existing document	1211	98.1
q36	Use save	1218	98.6
q23	Navigate through a document	1218	98.6
q3	Use the Spelling feature	1218	98.6
q22	Use print preview	1219	98.7
q2	Apply font formats (Bold, Italic and Underline)	1220	98.8
q9	Select and change font and font size	1221	98.9

Discussion

The primary purpose of this Phase was to use the data from the *Student Expectation Assessment* to help reorganize Microsoft training modules. The secondary purpose of this Phase was an attempt to further refine Microsoft training by extracting a "core" set of overlapping

items. It was believed that the overlap in questions would provide insight into the transfer of skills.

The descriptive analyses accomplished its primary goal by reorganizing Microsoft training modules to more efficiently address student needs. One of the most common criticisms of previous training efforts was that students had to sit through discussions of much of what they already knew to access the specific training they desired. This was primarily due to logical assumptions of the training staff, mainly that learning objectives fell into, "basic," "intermediate" and "advanced" categories and should be similarly organized within the training curriculum. Instead, these descriptive analyses provided *empirical evidence* of the *current training needs* of the incoming freshmen cohort. Therefore, the reorganized courses could increase the *overall utility* of the courses offered across a greater number of students. Weighing the course's "service utility" against reported "service need," in this case Microsoft Word and to a lesser degree Excel, allowed courses to be prioritized and then synchronized within the freshmen sequence of academic instruction. After the assessment, students were electronically provided with the schedules of training opportunities, locations and times. The data was further used to identify at-risk students who reported very low levels of software proficiency. These students were contacted by phone by a mentor who informed them about training opportunities, encouraged them and helped them enroll.

In order to accomplish the secondary goal of further refining training, a factor analysis, Spearman correlation, and a content comparison were performed across the three assessments. First, a factor analysis was conducted, but the results did not reveal any significant overlap in questions. Second, a Spearman correlation was conducted with Microsoft Word as the reference for comparison. Word was used as a reference because people were most proficient with this

program, and they most likely learned it before they learned Excel and PowerPoint. Unfortunately, this analysis also did not reveal any significant overlap. It was first believed that the null results were due to the dichotomous nature of the variables. Therefore, it was believed that a simple content analysis of then most proficient questions (80 percent or higher) would reveal significant findings. Even still surprising, little overlap across the three programs was found by conducting the content analysis. There was some overlap when comparing Word with one other program. However, these relationships were not believed to be worth reporting in this section.

The results from this Phase do provide useful insight regarding the current Microsoft training curriculum. This Phase was an attempt to reorganize the Microsoft Office training curriculum in order to make it more efficient. The descriptive analysis did accomplish this goal. The goal of further refining training through extracting a "core" set of overlapping items was not successful. It seems evident at this point that the original frequency analysis first performed was the best guide to structuring training; it was the primary intent and the foundation of change. Therefore, no further interventions are warranted at this time.

Chapter 3

Phase Two

Methods

Participants

The population sampled consisted of all "laptop freshmen" of the University of Wisconsin-Stout for the academic year of 2002-2003. Of the 1310 enrolled students in the Fall of 2002, 318 of them completed the survey, giving us a total response rate of 24 percent.

Materials

This phase of the study examines data from two separate on-line instruments. The first instrument is the *Student Expectation Assessment*, which measures the students' computer skills in three Microsoft Office programs: Word, PowerPoint and Excel.

The second instrument used in this phase of the study was the *Student Questionnaire Survey 1* (See Appendix C). Students were required to enter their seven-digit student ID number before submitting the survey. The first two questions of the survey asked students to report any problems they have experienced with the ASK5000 Help Desk. The ASK5000 Help Desk serves the UW-Stout community as a source for information related to computer-based technology. Questions three and four of the survey dealt with connectivity-related issues. Question five and six of the survey dealt with training issues. Question seven and eight of the survey dealt with how the students have been using their laptop computer both inside and outside of class. Question nine, which was the last question of the survey, was used to recruit students for focus groups to further discuss e-Scholar needs. Refer to Appendix C to view the specific questions of the survey.

Procedure

Two months into the Fall semester of 2002, the first cohort of e-Scholars received an email message with a link to this online questionnaire. The students were encouraged but not required to complete this questionnaire. The students were told that the survey was designed to better understand and address any problems they may be experiencing with their laptop. Also, by completing the survey, the laptop staff would be able to provide responsive and timely solutions to current e-Scholar needs. The data was imported into SPSS for descriptive analyses of the quantitative questions. For the purposes of this research, the relationship between student Microsoft Office software competencies (*Student Expectation Assessment*) and students' self-assessment dealing with computer functionality (*Student Questionnaire Survey 1*) was examined. Of the 318 students who completed the *Student Questionnaire Survey 1,* 282 of them fully completed the *Student Expectation Assessment.* The data from these 282 students was examined in this phase of the paper.

Results

A Spearman correlation was performed to assess the relationship between students' Microsoft Office software competencies and students' perceived level of computer functionality. The students' scores on each program (Word, PowerPoint, Excel) and there average score across all three program was correlated with their knowledge rating score on questions 5a through 5i and there total knowledge score of 5a through 5i. These correlations are reported in Table 4 below.

Table 4

Reported Correlations Between Microsoft Office Competencies and Computer Functionality

Questions	Word	PowerPoint	Excel	Average of All Three
5a Care of laptop	.38**	.25**	.23**	.29**
5b Laptop features	.51**	.39**	.38**	.44**
5c Virus protection	.44**	.30**	.31**	.35**
5d "My Documents" mgmt & back-up	.34**	.29**	.29**	.32**
5e Server storage mgmt & back-up	.38**	.31**	.30**	.34**
5f Security practices	.44**	.29**	.37**	.39**
5g How to use web e-mail	.19**	.07	.06	.09
5h How to use Desktop Help Wizard	.39**	.26**	.29**	.32**
5i How to use e-Scholar	.26**	.16**	.14**	.18**
Sum of knowledge items (5a-5i)	.53**	.38**	.39**	.44**

*Note.*** Correlation is significant at the .01 level (2-tailed).

With an alpha level of .01, there were significant correlations between all of the items except for "How to use web e-mail" and the PowerPoint assessment, the Excel assessment and the Average across all three programs scores. The rest of the items were significantly positively related, with correlation coefficients ranging from .14 and .53. The correlation with the highest coefficient (.53) existed between sum of knowledge items score and the Word score. There was also a significant correlation between the sum of knowledge items score and the average across all three programs score (.44). The analysis revealed that the students' average software competencies across all three programs and their level of computer functionality score of all items shared 19 percent of the variance.

Discussion

The purpose of this phase was to reveal whether a relationship existed between students' Microsoft Office software competencies (*Student Expectation Assessment*) and students' self-assessment dealing with computer functionality (*Student Questionnaire Survey 1*). In other words, are Microsoft Office software abilities predictive of general computer proficiency? The Spearman correlation did reveal a significant ($p<.01$) but moderate relationship between students' Microsoft software competencies and their computer functionality scores. The strongest relationship existed between the students' total knowledge scores and the Word assessment scores, with a correlation coefficient of .53. To summarize this relationship one should examine the relationship between the students' total knowledge scores and their competencies across all three Microsoft Office programs. These pairs of scores have 19 percent of their variance in common. This interpretation suggests that there is indeed a moderate relationship between students' software knowledge and their overall knowledge of computer functionality. However, there were items with very low and/or insignificant correlations. The analysis revealed that knowledge of web email and the e-Scholar portal are not related to pre-existing skills. It appears that the knowledge areas that are more specific to UW-Stout are not predictive of Microsoft Office software abilities. Therefore, staff should spend more time training in these specific areas.

The results from this Phase provide useful insights which should be kept in mind when organizing future orientation training sessions. The results also reconfirm the practice of measuring students' competencies of Microsoft Office software before Freshmen orientation. Having a general idea of each students software proficiency level will give the training team an idea of their level of computer functionality. In turn, this information would give the trainers an

opportunity to tailor orientation training around student needs. It might be possible to organize orientation training in such a way that students would receive different schedules of instruction depending on their software knowledge level. If reorganizing the training in this manner is not possible, the simple fact of knowing students' software competencies prior to orientation training is still beneficial. The ultimate goal is to provide the students with the proper training, which will allow them to use their laptop in the most effective way.

Chapter 4

Phase Three

Methods

Participants

The sample consisted of all incoming "laptop freshmen" of the University of Wisconsin-Stout for the academic year of 2002-2003. The sample consisted of 100 percent of the freshmen that could be identified as "laptop students" at the time of orientation. Of the 1310 enrolled students, 1269 of them completed this survey. Of the 1269 students that completed the survey, 1092 of them submitted a complete survey.

Materials

This phase of the study examines data from two separate on-line instruments. The first instrument is the *e-Scholar Training and Expectation Survey* (See Appendix B). The demographic questions included in this survey were: student name, student ID number, orientation group number, declared major and "Did you attend the library/blackboard training session?" The first question asked the students to briefly explain what being an e-Scholar means to them. The second question asked students how they expect to use their laptops in their daily life as a new student. The second on-line instrument, which is also used in phase two, is the *Student Questionnaire Survey 1.* As mentioned previously, the survey consists of questions that deal mainly with the students' knowledge of their laptop, problems they have experienced and how they have used their laptops inside and outside of class.

Procedure

All of the incoming "laptop students" completed this on-line survey (*e-Scholar Training and Expectation Survey*) when they came in for the laptop training part of orientation in August of 2002. All of the students received the same instructions and were given the same amount of time to complete the three assessments. The Laptop Training Team explained that the survey was designed for them to gain a better understanding of how the students planned on using their laptop in their daily life as a new student. The data was imported into Excel, where a content analysis of the major themes was performed. For the purposes of this research, this data was compared to the *Student Questionnaire Survey 1*. Again, the relationship between how students expect to use their laptop and how students are actually using their laptop was examined.

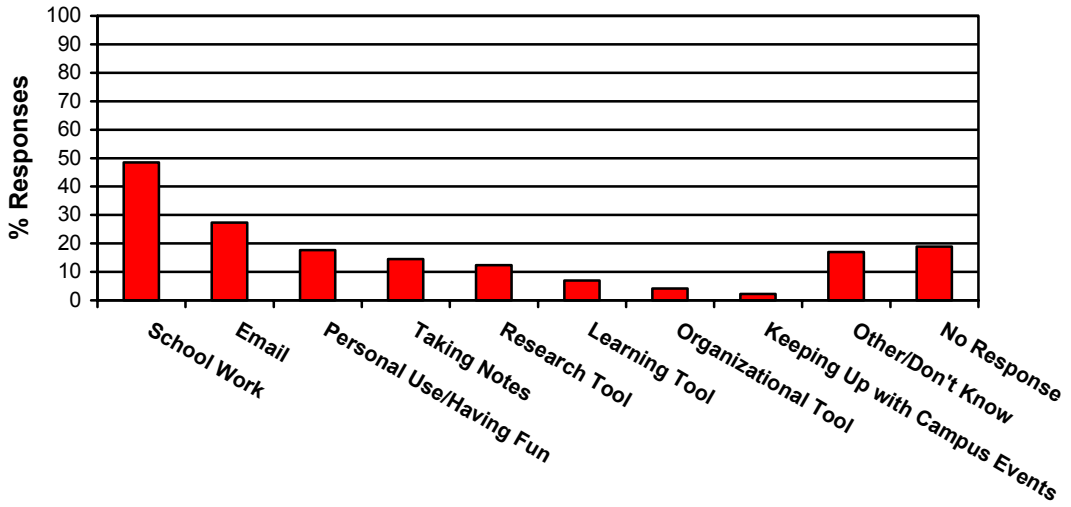
Results

Data from the *e-Scholar Training and Expectation Survey* and the *Student Questionnaire Survey 1* was imported into Excel where a content analysis of specific responses was conducted. The author and three undergraduate students coded the data dealing with the students' expectations and self-reported laptop use. Percentages of student responses of these questions are reported in Figures 1, 2, 3 and 4 respectively below.

How do you expect to use your laptop in your daily life as a new student?

Figure 1

Students' Expectations Regarding the Use of Their laptop (N = 1092)



The last question of the *e-Scholar Training and Expectation Survey* read: "How do you expect to use your laptop in your daily life as a new student?" This question was coded using predefined categories listed in Figure 1 above.

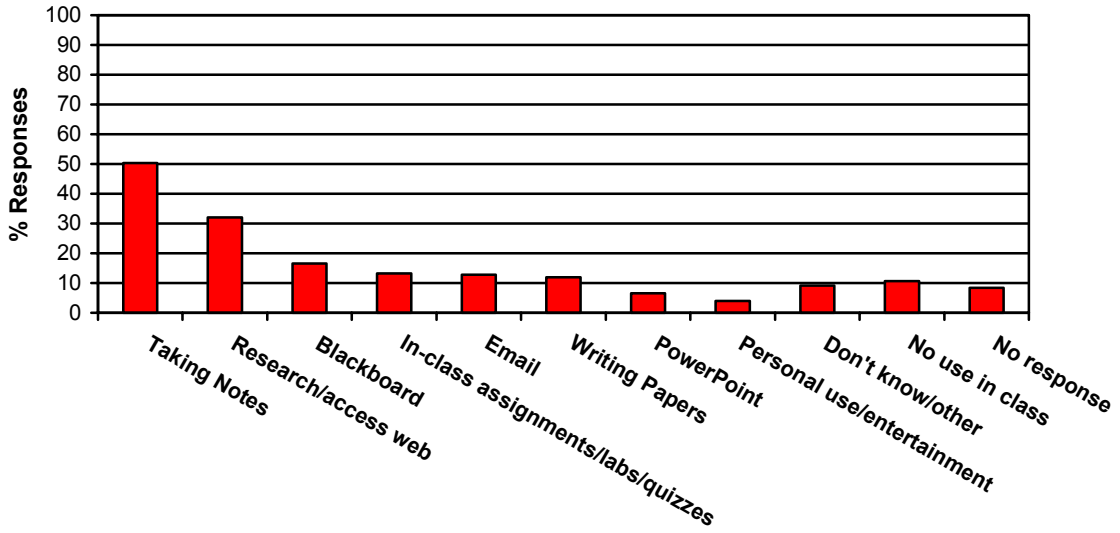
The responses of this question, given in percentages, are also reported in Figure 1 above. Forty-eight percent of the students indicated they expected to use their laptop for schoolwork. Twenty-seven percent of the students indicated they expected to use their laptop for email. Seventeen percent of the students indicated they expected to use their laptop for personal use. Eighteen percent of the students indicated they expected to use their laptop for taking notes. Twelve percent of the students indicated they expected to use their laptop as a research tool. Seven percent of the students indicated they expected to use their laptop as a learning tool. Four percent of the students indicated they expected to use their laptop as an organizational tool. Two percent of the students indicated they expected to use their laptop for keeping up with campus events. Seventeen percent of the students indicated that they don't know how they will use their

laptop or they listed some other expectation. Nineteen percent of the students did not respond to this question

Provide some examples of how you have used your laptop during class time.

Figure 2

Students' Use of Their Laptop During Class Time (N = 318)



Question seven of the *Student Questionnaire Survey 1* read: "Provide some examples of how you have used your laptop during class time." This question was coded using predefined categories listed in Figure 2 above.

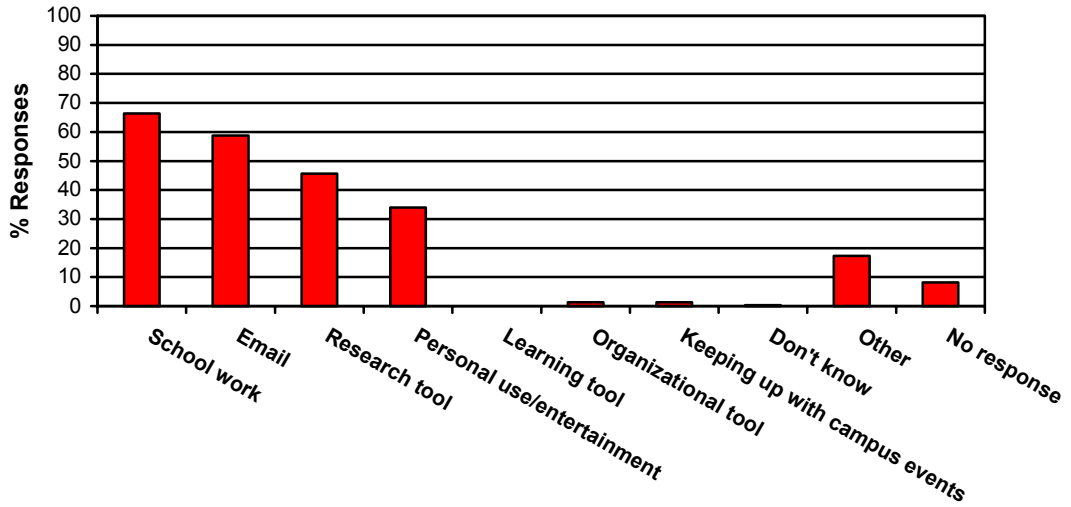
The responses of this question, given in percentages, are also reported in Figure 2 above. Fifty percent of the students indicated they used their laptop for taking notes during class time. Thirty-two percent of the students indicated they used their laptop for research during class time. Seventeen percent of the students indicated they used their laptop for Blackboard during class time. Thirteen percent of the students indicated they used their laptop for in-class assignments, labs, quizzes, and etc. during class time. Thirteen percent of the students indicated they used their laptop for email during class time. Twelve percent of the students indicated they used their laptop for writing papers during class time. Seven percent of the students indicated they used their laptop for PowerPoint during class time. Four percent of the students indicated they used

their laptop for personal use during class time. Nine percent of the students indicated that they didn't know or provided some other use of their laptop during class time. Eleven percent of the students indicated they didn't use their laptops during class time. Eight percent of the students did not respond to this question.

Provide some examples of how you have used your laptop outside of class time.

Figure 3

Students' Use of Their Laptop Outside Class Time (N = 318)



Question eight of the *Student Questionnaire Survey 1* read: "Provide some examples of how you have used your laptop during class time." This question was coded using predefined categories listed in Figure 3 above.

The responses of this question, given in percentages, are also reported in Figure 3 above. Sixty-six percent of the students indicated they used their laptop for schoolwork outside of class time. Sixty percent of the students indicated they used their laptop for email outside of class time. Forty-six percent of the students indicated they used their laptop as a research tool outside of class time. Thirty-four percent of the students indicated they used their laptop for personal use or entertainment outside of class time. Nobody indicated they used their laptop as a learning tool outside of class time, but this can be implied considering 66 percent of the students use their laptop for schoolwork. One percent of the students indicated they used their laptop as an organizational tool outside of class time. One percent of the students indicated they used their laptop to keep up with campus events outside of class time. Less than one percent of the students

indicated they didn't know how they used their laptop outside of class time. Seventeen percent of the students indicated some other use of their laptop outside of class time. Eight percent of the students did not respond to this question.

Figure 4

Students' Entry Expectations Versus Reported Use of Their Laptops

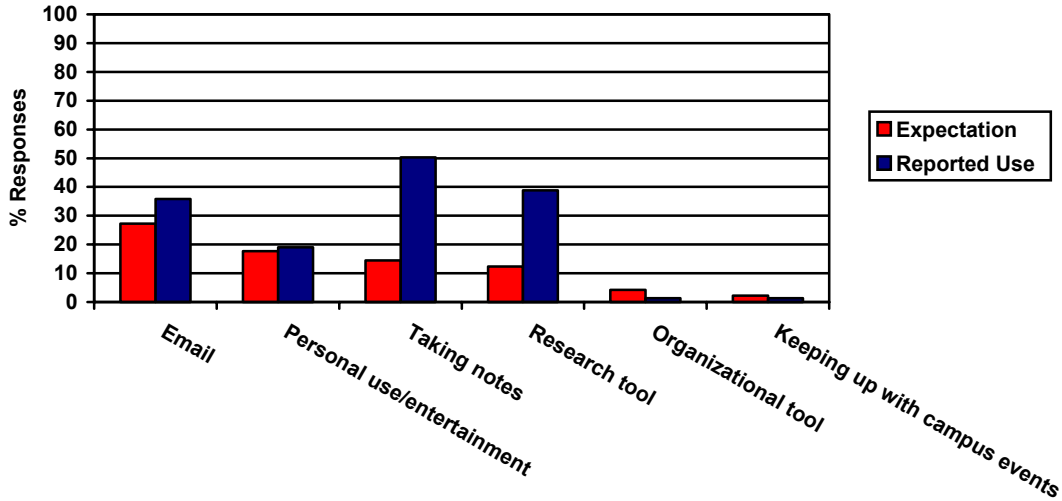


Figure 4 above displays a comparison of students' expectations versus self-reported laptop use both inside and outside of class time. Twenty-seven percent of the students expected to use their laptop for email, while 36 percent of the students actually reported using their laptop for email. Eighteen percent of the students expected to use their laptop for personal use and entertainment, while 19 percent of the students actually reported using their laptop for personal use and entertainment. Fifteen percent of the students expected to use their laptop for taking notes, while 50 percent of the students actually reported using their laptop for taking notes. Twelve percent of the students expected to use their laptop as a research tool, while 39 percent of students actually reported using their laptop as a research tool. Four percent of the students expected to use their laptop as an organizational tool, while only one percent of the students actually reported using their laptop as an organizational tool. Two percent of the students expected to use their laptop to keep up with campus events, while only one percent of the students actually reported using their laptop to keep up with campus events.

Discussion

The purpose of this Phase was to conduct a descriptive analysis of the *e-Scholar Training and Expectation Survey* and the *Student Questionnaire Survey I*, and to report the students' expectations and self-reported laptop use. The results from the two assessments are presented both individually and together to graphically show how students expected to use their laptop and how students actually used their laptop.

The descriptive analysis of the *e-Scholar Training and Expectation Survey* provided useful insight into how the students' expected to use their laptop before the beginning of the school year. The four most common expectations included: school work, email, personal use and taking notes. The students were rather vague with their responses but for the most part indicated that they planned on using their laptop for educational purposes.

The descriptive analysis of the *Student Questionnaire Survey I* also provided some useful insight into how the students' were actually using their laptop two months into the school year. During class time, the most common reported uses of the laptops included: taking notes, research, Blackboard and in-class assignments, labs and quizzes. Outside of class time, the most common reported uses of the laptops included: school work, email, research and personal use. It appears that students are using their laptops as an aid in the learning experience.

Some interesting findings were also found when comparing the results of the two assessments. The biggest inconsistency between expectations and actual computer use existed between email use, taking notes and using the laptop as a research tool. The biggest discrepancy was for note taking; students are using their laptop for taking notes much more than they expected. The second biggest discrepancy was for the research tool; students are using their laptop as a research tool much more than they expected. The third biggest discrepancy was for

email; students are using their laptop for email more than they expected. One explanation of the large discrepancies between expectations and actual use is that students had only vague ideas of how they would use their laptop before the start of the semester. Two months into the semester, students were still mostly using their laptop as an educational tool, but reported more specific uses.

This phase successfully reported how students expected to use their laptop and how students were actually using their laptop two months into the school year. The congruence and incongruence of expectations and actual computer use was reported, and these results provide some encouraging news regarding the current laptop implementation. The results suggest that the majority of students are using their laptops to supplement their education at UW-Stout. The results can further be used as an aid in reorganizing future orientation training sessions and reorganizing class structure to allow for more effective use of the laptop. In the future, orientation training should be organized and tailored in a way that places emphasis on how current students are using their laptops inside and outside of class. Finally, the results should be used by instructors teaching laptop courses. Instructors should take these results and organize their class in such a way that allows students to use their laptops in the most effective way. Instructors who are not currently implementing the laptop into their class curriculum may do so by modeling the successful methods used in current laptop courses.

Chapter 5

General Discussion

The University of Wisconsin-Stout took its biggest step toward digitally enhanced learning with the implementation of the "laptop campus." Given the magnitude of this initiative, the University has been very interested in conducting evaluations across several aspects of the e-Scholar movement. This research project was an attempt to do just that; to provide the University of Wisconsin-Stout with an action evaluation and documentation of several aspects of the current laptop implementation. The research focused directly on the first wave of laptop implementation cohorts. The results of the study revealed many positive and interesting findings. The *Student Expectation Assessment* provided a successful means of reorganizing the current Microsoft Office training curriculum. A correlation analysis revealed a significantly positive relationship between students' Microsoft Office software competencies (*Student Expectation Assessment*) and students' self-assessment dealing with computer functionality (*Student Questionnaire Survey I*). A descriptive analysis of the *e-Scholar Training and Expectation Survey* and the *Student Questionnaire Survey 1* revealed how students expected to use their laptop before the semester started and how students actually were using their laptop two months into the semester.

As mentioned previously, this evaluation was organized around the following four goals which were adopted by the University's current laptop intervention:

- Improve quality of teaching and learning at undergraduate and graduate levels
- Form egalitarian communities of excellence in teaching and learning across the university
- Utilize technology to create a student-centered environment, where active learning is the core approach to acquiring concepts, processes and attitudes

- Create life-long habits in students in methods of acquisition of concepts, processes and attitudes

The laptop intervention formed egalitarian communities of learning across the university by narrowing the digital divide between students. This goal was achieved by providing each and every freshmen student with a laptop computer. This goal was further achieved by providing the students with appropriate skills training. One of the main reasons for implementing a "laptop campus" was the hope of improving the quality of teaching and learning at undergraduate and graduate levels. This is one of the most basic and fundamental goals of the laptop intervention. By introducing the laptop to the classroom, it was also believed that a student-centered environment would naturally evolve. This in turn would create an environment where active learning is the core approach to acquiring concepts, process and attitudes. The goal of creating student-centered environments of learning is one of the most important goals. And last, but certainly not least, it was also the belief that the laptop would create life-long habits in students in methods of acquisition of concepts, processes and attitudes.

The evaluation plan used in Phase 1 will be a good model to repeat in four years when the students and faculty are well practiced and the laptops are fully integrated. It is a futuristic plan that will be best realized at the point of full implementation, and after various levels of stakeholder groups have passed into the transition of a laptop campus. Faculty will also be able to provide more detail in regards to the specific needs in each of their courses. However, the scaled down plan that was used did work very well for the first generations' needs. The evaluation plan used in Phase 2 validated the utility of pre-testing students. The plan helped to recognize the need of addressing computer competencies as an important criterion of the digital divide, and to establish structures to narrow the gap between the knowledge aspects of the

divide. The evaluation plan of Phase 3 should help us appreciate the nature of the transition to the laptop campus. Many questions are yet to be answered for many stakeholder groups. Students came to orientation with many vague expectations of how the laptop would be used, but with a rather resilient belief that the laptop would provide some type of advantage to their education. Within the student group, some confusion still exists in regard to how their laptops should be used. Both the training staff and faculty have communicated that it is their decision how they will incorporate the laptop into their education. Students will not be told how to use their laptop. At the beginning, the freshmen were not comfortable with how to personally integrate the laptop into their in class and out of class activities. Furthermore, this pioneer cohort did not have the advantage of having role models; this will change over time. All efforts to narrow the digital divide of technology and skills will not address any gaps of the motivations of students. These issues will likely have to be dealt with over time through selective recruitment.

References

DigitalDivide.org, (2003). Overview. *DigitalDivide.org: Policy Solutions for the Digital Divide.* Retrieved March 27, 2003, from http://www.digitaldivide.org/

Dwight, V. (1999). Smarter students through computing. *Family PC, 6(5),* 116-117.

Goldberg, A., Russell, M., & Cook, A. (2003). The effect of computers on student writing: A meta-analysis of studies from 1992-2002. *Journal of Technology, Learning, and Assessment, 2(1).* Available from http://www.jtla.org.

Kinnaman, D.E. (2002). The digital bridge. *District Administration, 38(10),* p88.

Lelouche, R. (1998). The successive contributions of computers to education: A survey. *European Journal of Engineering Education, 23(3),* 297-309.

Milanesi, L., Wentz, M., & Henderson, J. (2003, January). *Assessing the First Laptop Generation Through an Action Evaluation Approach*. Paper presented at the annual UW-Stout Professional Development Day, Menomonie, WI.

Pascopella, A. (2001). Laptop or textbook? *District Administration, 37(11), 54-56.*

Rothman, J. (1999). Overview. *The Action Evaluation Research Institute.* Retrieved February 17, 2003, from http://www.aepro.org/

University of Wisconsin-Stout, (2001a). University news. *Stout Outlook, Spring 2001 Issue.* Retrieved December 4, 2002, from http://www.uwstout.edu/ur/so/spring01/unws.pdf

University of Wisconsin-Stout, (2001b). University news. *Stout Outlook, Fall 2001 Issue.* Retrieved December 4. 2002, from http://www.uwstout.edu/ur/so/fall01/unws.pdf

University of Wisconsin-Stout, (2001c). *Laptop Learning Initiative, Overview and History.* Retrieved December 4, 2002, from http://www.uwstout.edu/laptop/overview.html

Appendices

Appendix A

Student Expectation Assessment

Dear Student,

Congratulations on your acceptance and welcome to the University of Wisconsin-Stout. As you may already know, UW-Stout will become the first public university in the state to require all incoming freshmen to have laptops beginning in the fall of 2002. Your class is the first group of students that will be going through this transformation. As a result, we have designed this assessment to better understand your skills regarding Microsoft Office software. The results of the survey will give us a better understanding of your computer abilities. Training personnel will then be able to schedule the most needed training for you early in the semester and at times that least conflict with your class schedule. We understand that filling out this survey will be an investment of your time, and we hope you understand the potential benefits. The completion of this survey is in your best interest. Therefore, we hope that you fill out this survey both completely and honestly.

Thank you for your help,

Lou Milanesi, Ph.D.
Professor of Psychology

Questions or concerns about the research study should be addressed to Dr. Lou Milanesi (milanesil@uwstout.edu x2659), the researcher, or Jane Henderson (hendersonj@uwstout.edu x5005), the co-investigator.

Survey Instructions:

Sample Survey Question:

Working with Text

Use the Undo, Redo, and Repeat command Can Do__ Can't Do__ No Clue__

Each time you click a radio button in the table below, you will be taken to a page that will ask you questions about your skills and abilities related to that Microsoft® product. You will be requested at that time to supply your student ID number. After completing the assessment and clicking on the submit button, you will be presented with a window that verifies your submission was successful. Please close that window and return to this main menu.

There is a separate survey for each Microsoft® Product application

Please be sure to complete each of the following application assessments.

Excel __Go to Excel

PowerPoint __Go to PowerPoint

Word __Go to Word

Student Expectation Assessment
Microsoft ® Excel

Please click on the Radio Button that best describes your skill or ability to perform the following tasks:

Can Do__ Can't Do__ No Clue__

Working with Cells

1.Use Undo and Redo
2.Clear cell content
3.Enter text, dates, and numbers
4.Edit cell content
5.Go to a specific cell
6.Insert and delete selected cells
7.Cut, copy, paste, paste special and move selected cells
8.Use the Office Clipboard
9.Use Find and Replace
10.Clear cell formats
11.Create hyperlinks

Working with Files

12.Use templates to create a new workbook
13.Save a worksheet/workbook as a Web Page

Formatting Worksheets

14.Apply font styles (typeface, size, color, and styles)
15.Apply number formats (currency, percent, dates, and commas)
16.Modify size of rows and columns
17.Modify alignment of cell content
18.Adjust the decimal place
19.Apply cell borders and shading
20.Merging cells
21.Rotate text and change indents
22.Define, apply, and remove a style

Page Setup and Printing

23.Preview and print worksheets and workbooks
24.Print a selection
25.Change page orientation and scaling
26.Set page margins and centering
27.Insert and remove a page break
28.Set print, and clear a print area
29.Set up headers and footers
30.Set print titles and options (gridlines, print quality, row & column headings)

Working with Worksheets and Workbooks

31.Insert and delete rows and columns
32.Change the zoom setting
33.Move between worksheets in a workbook
34.Check spelling
35.Rename a worksheet
36.Insert and Delete worksheets
37.Move and copy worksheets
38.Link worksheets & consolidate data using 3D References

Working with Formulas and Functions

39.Enter a range within a formula by dragging
40.Enter formulas in a cell and use the formula bar
41.Revise formulas
42.Use references (absolute and relative)
43.Use AutoSum
44.Use Paste Function to insert a function
45.Use basic functions (AVERAGE, SUM, COUNT, MIN, and MAX)
46.Use date functions (NOW and DATE)
47.Use financial functions (FV and PMT)
48.Use logical functions (IF)

Using Charts and Objects

49.Preview and print charts
50.Use the Chart Wizard to create a chart
51.Modify charts
52.Insert, move, and delete an object (picture)
53.Create and modify lines and objects

Additional Comments: Please enter any additional comments in the box below:

Student Expectation Assessment
Microsoft ® PowerPoint

Please click on the Radio Button that best describes your skill or ability to perform the following tasks:

Can Do__ Can't Do__ No Clue__

Creating a Presentation

1.Delete slides
2.Create a specified type of slide
3.Create a presentation from a template and/or a wizard
4.Navigate among different views (slide, outline, sorter, tri-pane)
5.Create a new presentation from existing slides
6.Copy a slide from one presentation into another
7.Insert headers and footers
8.Create a Blank presentation
9.Create a presentation using the AutoContent Wizard

Modifying a Presentation

10.Change the order of slides using Slide Sorter view
11.Find and replace text
12.Change the layout for one or more slides
13.Modify slide sequence in the outline pane
14.Apply a design template

Working with Text

15.Check spelling
16.Change and replace text fonts (individual slide and entire presentation)
17.Enter text in tri-pane view
18.Import text from Microsoft® Word
19.Change the text alignment
20.Create a text box for entering text
21.Use the Wrap text in TextBox feature
22.Use the Office Clipboard
23.Promote and Demote text in slide and outline panes

Working with Visual Elements

24.Add a picture from the ClipArt Gallery
25.Add and group shapes using WordArt or the Drawing Toolbar
26.Apply formatting
27.Add text to a graphic object using a text box
28.Scale and size an object including ClipArt
29.Create tables within PowerPoint

30.Rotate and fill an object

Customizing a Presentation

31.Add AutoNumber bullets
32.Add speaker notes
33.Add graphical bullets
34.Add slide transitions
35.Animate text and objects

Creating Output

36.Preview presentation in black and white
37.Print slides in a variety of formats
38.Print audience handouts
39.Print speaker notes in a specified format

Delivering a Presentation

40.Start a slide show on any slide
41.Use on screen navigation tools
42.Print a slide as an overhead transparency
43.Use the pen during a presentation

Managing Files

44.Save changes to a presentation
45.Save as a new presentation
46.Use Office Assistant
47.Insert hyperlink

Additional Comments: Please enter any additional comments in the box below:

Student Expectation Assessment
Microsoft ® Word

Please click on the Radio Button that best describes your skill or ability to perform the following tasks:

Can Do__ Can't Do__ No Clue__

Working with Text

1.Use the Undo, Redo, and Repeat command
2.Apply font formats (Bold, Italic and Underline)
3.Use the Spelling feature
4.Use the Thesaurus feature
5.Insert page breaks
6.Highlight text in document
7.Insert and move text
8.Cut, Copy, Paste, and Paste Special using the Office Clipboard
9.Select and change font and font size
10.Find and replace text
11.Apply character effects (Superscript, Subscript, Strikethrough, Small Caps and Outline)
12.Insert date and time
13.Insert symbols

Working with Paragraphs

14.Align text in paragraphs (Center, Left, Right and Justified)
15.Add bullets and numbering
16.Set character, line, and paragraph spacing options
17.Use indentation options (Left, Right, First Line and Hanging Indent)
18.Use Tabs command (Center, Decimal, Left and Right)
19.Create an outline style numbered list
20.Set tabs with leaders

Working with Documents

21.Print a document
22.Use print preview
23.Navigate through a document
24.Insert page numbers
25.Set page orientation
26.Set margins
27.Use GoTo to locate specific elements in a document
28.Create and modify page numbers
29.Create and modify headers and footers
30.Align text vertically
31.Create and use newspaper columns
32.Revise column structure

33.Apply styles
34.Create sections with formatting that differs from other sections
35.Use Click & Type

Managing Files

36.Use save
37.Locate and open an existing document
38.Use Save As (different name, location or format)
39.Create a folder
40.Create a new document using a Wizard
41.Save as Web Page
42.Use templates to create a new document
43.Create Hyperlinks
50.Use the Office Assistant
45.Send a Word document via e-mail

Using Tables

46.Create and format tables
47.Add borders and shading to tables
48.Revise tables (insert and delete rows and columns, change cell formats)
49.Modify table structure (merge cells, change height and width)

Working with Pictures and Charts

50.Use the drawing toolbar
51.Insert graphics into a document (WordArt, ClipArt, Images)

Additional Comments: Please enter any additional comments in the box below:

Appendix B

e-Scholar Training and Expectation Survey

Student Name: *First_____ Last_____

Student Number: * _____ (seven-digit)

Orientation Group Number: * _____

Declared Major: _____

Did you attend the Library/Blackboard Training session: * ____Yes ___No * = required fields

In your own words, briefly explain what being an "e-scholar" means to you. (Limit of 20 words)

How do you expect to use your laptop in your daily life as a new student? (Limit of 20 words)

Submit Reset

Thank you! Have a great year!

Appendix C

Student Questionnaire Survey 1

Student ID: _____

Service And Support

1. Have you contacted ASK5000 with a question or problem at least once in the past two months?

____Yes *(go on to next question)* ____No *(skip to #3)*

2. Did you experience any problems with the following aspects of ASK5000?

(0) No problems…(3) Many problems

Ability to provide a solution to the problem or question you had

Timeliness of service

Quality of service

Connectivity

3. In the past two months, have you experienced problems in any of the following areas?

(0) No problems….(3) Many problems

Accessing your e-mail

Printing to networked printers (ex: in Library Learning Center)

Speed of the network

Wireless connectivity

4. If you selected a 2 or 3 for any of the statements in the questions above, please briefly explain the problems that you've experienced:

Training

5. How would you rate your knowledge in the following areas?

(0) Not at all knowledgeable….(3) Very knowledgeable

Care of your laptop *(ex: change battery, power tips, environmental damages)*

Laptop features *(ex: power the system, accessories, computer ports)*

Virus protection

File management/back-up process *utilizing the "my documents" folder*

File management/back-up process utilizing server storage

Security practices *(ex: anti-theft, password security)*

How to use your web e-mail

(ex: how to attach a file, how to send a message, how to open/delete/ save e-mails, how to open/save an attachment)

Using the Desktop Help Wizard *(ex: using the "help" files)*

Using E-Scholar portal *(ex: log on to E-Scholar, navigating within E-Scholar)*

6. If you selected a 0 or 1 for any of the statements in question 5 above AND/OR you have additional training needs not addressed in question 5, please briefly explain your training needs:

7. Provide some examples of how you have used your laptop during class time.

8. Provide some examples of how you have used your laptop outside of class time.

9. To provide responsive and timely solutions to current e-Scholar needs, we will be collecting more detailed information using peer-level focus groups. Would you be willing to participate in a focus group of about a dozen similar students if selected?

____Yes ____No

Submit Reset