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An Evaluation of the Using Information Technology Program at East Tennessee State University.

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ABSTRACT

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This dissertation presents information gathered and analyzed during an evaluation of the Using Information Technology (UIT) program at East Tennessee State University. The UIT program, which all undergraduate students must complete before graduation, consists of satisfying a computer literacy foundation requirement and a two-course UIT-intensive requirement. The foundation requirement is satisfied by completing a two-credit hour course or a challenge exam. Students then take two courses that have been designated as UIT-intensive. One of these courses must be completed in the major.

The study, which used a responsive evaluation methodology, involved generating a list of evaluation questions based on discussions with key decision makers. Then, multiple data sources including surveys, interviews, document reviews, pretests, and focus groups were used to address these questions. The general conclusion of the study was that the UIT program was effective in helping students gain appropriate computer competencies. However, several recommendations have been made that should help improve the program.

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CHAPTER 1

INTRODUCTION

During the past 20 years, the use of personal computers and other information technologies has become widespread. The most recent Integrated Postsecondary Education Data System (IPEDS) data from 1997 indicated that 49.8% of all individuals in the work force use computers on a regular basis. The most popular uses included bookkeeping (66.4%), word processing (57%), and communications (47%) (National Center for Education Statistics, 2001). In an attempt to prepare students for this growing need, the faculty at East Tennessee State University (ETSU) instituted the Using Information Technology (UIT) program as part of a large-scale revision of the undergraduate General Education Curriculum for undergraduates. The research documented by this dissertation is an evaluation of that program.

Brief Description of the Program

East Tennessee State University implemented a new General Education Curriculum for all undergraduate majors in the fall of 1995. Along with a menu of choices in Areas of Familiarity: Science; Heritage; Arts and the Artistic Vision; Identity, Ethics and Social Responsibility; Institutions and Society; and Humanities, the university proposed a set of Proficiencies (see Appendix A). These proficiencies include writing, oral communication, reading, mathematics, and using information technology. Three of these proficiency areas, writing, oral communication, and using information technology, require completion of courses approved as "intensive" in that proficiency. This idea is an extension of the writing across the curriculum movement that has been implemented at many colleges during the past 20 years.

To satisfy its Using Information Technology proficiency requirement, ETSU, like many other universities, requires a computer literacy course as part of the university-wide general education curriculum. However, unlike many other schools, ETSU also requires students to complete two courses designated as "Using Information Technology (UIT)-intensive" beyond this one course computer literacy requirement. These UIT-intensive courses are selected by each student from a list of courses approved by the Using Information Technology Proficiency Committee. One of these courses must be within the student's degree program. The combination of the computer literacy course, titled Using Information Technology, and the requirement of two additional UIT-intensive courses constitutes the UIT program at ETSU.

Because ETSU requires students to graduate within six years of their "catalog year," as of May 2001 all students, except those with special waivers, graduate under these General Education Requirements. Now, therefore, would seem an appropriate time to conduct a formative evaluation to determine the effectiveness of the program and determine if there are areas requiring improvement. That inquiry is the focus of this dissertation.

Background of the Problem

Without adequate evaluation of the UIT program, ETSU is ill-equipped to make sound decisions about modifications to the program. Due to the departure from the traditional computer literacy course requirement as it was taught at ETSU under the previous General Education guidelines, it is important to determine the new method's value as a means of improving the technology skills of students. With all courses that use technology, there are questions about availability and adequacy of resources. Due to the nature of the program, there are also questions about demand for courses, course enrollments, instructor knowledge, adequate

support, and currency of the instruction. Stakeholders -- students, faculty, administrators, and prospective employers -- have their own perspectives concerning ETSU's approach to this proficiency, all of which are captured in this evaluation research study.

Purpose of the Study

The purpose of this study was to conduct an in-depth program evaluation to better understand the status of the UIT program in order to provide appropriate decision makers with information that may help improve the program. The overall focus is three-fold: 1) to gain a better understanding of the Using Information Technology program as implemented at East Tennessee State University, 2) to determine the extent to which the program is meeting its intended goals, and 3) to identify the areas of implementation that are most successful, and those that may be improved, modified, or eliminated.

Evaluation research serves many purposes. It is used to assess the "conceptualization, design, implementation and utility of programs" (Rossi & Freeman, 1993, p. 5). It can be for the purpose of improvement (formative) or for the purpose of judgment (summative) (Scriven, 1980). It is conducted formally and informally, by insiders and outsiders. It can have strong budgetary implications and therefore is subject to political pressure. It is often conducted based on prevailing scientific and business models. Boulmetis and Dutwin (2000) provided two definitions of evaluation:

> "Evaluation is the systematic process of collecting and analyzing data in order to determine whether and to what extent objectives have been and are being achieved." (p. 4)
>
> "Evaluation is the systematic process of collecting and analyzing data in order to make a decision."(p. 4)

The first of these definitions focuses on objectives, whereas the second focuses on decision-making. Both of these definitions provide conceptual guidance for this study.

Research Questions

When conducting evaluation research, it is important to allow the stakeholders to help generate the research questions. Cronbach (1982) suggested that question generation should be a two-phase process. The divergent phase is completed first, with the researcher allowing stakeholders to generate a set of evaluation criteria and questions of study. Then the convergent phase is entered, during which the researcher and appropriate stakeholders select the questions that, when answered, can provide the most useful data and that can be investigated with available resources.

A list of questions to address was solicited from Ms. Kellie Price, Director of Using Information Technology; Dr. Bill Kirkwood, Associate Dean of Special Programs; Dr. Linda Doran, Vice Provost for Academic Affairs; and Dr. Bert Bach, Provost and Vice President for Academic Affairs. Once these questions were obtained, duplicate items were eliminated and Dr. Doran and Dr. Bach provided feedback as to which questions would be most useful to address. The final questions, separated into three major categories, are as follows:

Questions regarding CSCI 1100

Course Competencies and Student Knowledge.

1) Are the objectives of the foundation course, CSCI 1100-Using Information Technology, being met?

2) What do students learn in CSCI 1100? Do they retain this knowledge? For how long?
3) Are the computing competencies that were assumed should to be necessary to address in 1995, the same competencies that would denote adequate computer literacy in 2001? Should the program have a calendar for addressing that question systematically over time?
4) What percentage of students opt to test out of CSCI 1100? Why?
5) The 1995 committee assumed that an increasing percentage of students, over time, would bring sufficient UIT proficiencies from high school and would "challenge" the course. That was based on the assumption that students were becoming more computer literate. Did that occur? If not, why not?
6) What percentage of students complete CSCI 1100 prior to completing 32 credit hours?

Transfer Issues.

1) Regarding the transferring of a "computer literacy" course, what kinds of problems exist for students who transfer to ETSU
2) Are there other two-credit-hour courses at TBR institutions that transfer as CSCI 1100?
3) Are most courses transferred in two- or three-credit-hour courses?
4) Do most three-credit-hour courses that are attempted by transfers include spreadsheets?

Staffing.

1) How has the staffing profile (including the use of graduate assistants) worked in CSCI 1100? Does the literature give any basis for addressing that in contrast to other delivery systems and in terms of student learning outcomes, cost, etc.?

Questions Regarding the Intensive Component

Intensive Courses.

1) To what extent is there unnecessary duplication in "technology" courses offered in various majors as intensive courses? That is, do their projected learning outcomes represent an "intensive" application of elementary principles as opposed to repeating instruction in the principles covered in the CSCI 1100 course?
2) Is the definition of competencies addressed in the CSCI 1100 course sufficiently clear for those who are considering intensive course proposals to satisfy themselves that there is no duplication?
3) Is the CSCI 1100 prerequisite being enforced for the UIT-intensive courses?
4) Are students completing two UIT-intensive courses prior to graduation?

Instructor Knowledge and Training.

1) To what extent are all instructors in intensive courses aware of the purposes of the General Education program and of the role they play in it? What implications does this have for training?
2) Is training for intensive instructors sufficient, and is it sustainable over time?

Questions Regarding the Entire Program

1) How does the UIT program coordinate opportunities for student learning with the staff of student labs and with the student help desk?
2) Are the current teaching labs sufficient for teaching CSCI 1100 as well as all other UIT Intensive courses?
3) As the UIT program expands, including CSCI-1100, are there other labs that can be used to teach these classes?
4) Are there resources for upgrading the labs to make them more accommodating or appropriate for the instruction of students? What kind of improvements would be suggested in the labs (from the last question) to be more accommodating to an instructor teaching a UIT Intensive class in the lab?
5) Accrediting agencies in professional programs have been very complimentary of the impact of the intensive program. Is there a larger sample of perception that extends beyond students in professional programs? Does the General Education Advisory Committee receive and review these formal and informal assessments (e.g., accreditation reports, employer testimonials, advisory group opinions, etc.)?

6) What protocols are in place to assess student satisfaction, over time, with computing proficiency they have on leaving ETSU? Are there bases for benchmarking this that would be credible?
7) How do resident and commuter students differ (if at all) with respect to the availability of support associated with the CSCI 1100 and intensive offerings?
8) How can the visibility of what has been achieved in the program be improved?

As is possible, and often likely, in responsive evaluation, additional questions and points of clarification arose during the process of the evaluation. One was clarifying the CSCI 1100 as a pre-requisite question. Some questions were asked that were not addressed due to the scope of this dissertation. One such question asked about web-only versions of the course envisioned as part of the change to a three credit hour course for the Fall 2002 semester. As the new version of the course had not been taught yet, it was impossible to provide any evaluation. Another question, generated by the Associate Dean of Special Programs, suggested the evaluation of learning outcomes for each of the UIT-intensive courses. That type of evaluation, although useful, is beyond the scope of this study. The only other feedback from the chosen decision-makers asked for a clarification of the form for the final evaluation report.

Significance of the Study

During the process of this investigation, several outcomes were attained. The evaluation should allow for a greater understanding of the program. The information reported should be useful for the stakeholders to help improve the UIT program. The evaluation provides a measure of the current status of the information technology program in meeting its intended goals. Areas

that might benefit the program by improvement, modification, or elimination were discovered. This study has further significance as, by documenting the procedure for carrying out this evaluation, it may provide a framework for other universities to be better able to evaluate their own programs of a similar nature. This is important as all colleges and universities undergo evaluation as a part of accreditation and similar types of evaluation efforts. These institutions may benefit from the methodological guidance given by this study.

Limitations

Due to the unstable nature of enrollments, budgets, and technology in higher education, the conclusions drawn by this evaluation pertain specifically to the current situation at ETSU. The recommendations are based on current trends. If future conditions greatly change any of these areas, recommendations from the study may need to be re-evaluated. Due to the vested interests of stakeholders and the pressures surrounding accreditation, it is possible that responders to surveys and other questions were unwilling to answer openly and honestly. Undetected attempts by responders to control the outcome of this evaluation would greatly limit the results of this research.

Overview of the Study

Chapter 2 is a literature review of evaluation methodologies, with emphasis on the responsive evaluation model used for this study. An historical perspective of the UIT program is contained in Chapter 3. Each of the next chapters focuses on one of the three areas that the questions address: the CSCI 1100 course, the intensive component, and the entire program. A

summary, final conclusions, and recommendations for further research are presented in Chapter 7.

CHAPTER 2

LITERATURE REVIEW - EVALUATION RESEARCH

The nature of this dissertation is more easily understood with some background knowledge about evaluation research. This chapter provides an overview of the general theories and models of evaluation. Responsive evaluation and case study methodologies are emphasized. The chapter also includes a description of standards that were developed to provide guidance to evaluators. Finally, several documented studies are presented that depict methodologies that have been used in actual evaluation research.

Evaluation Research

From Tyler's work in 1949 through recent trends of responsive evaluation and qualitative research, the field of evaluation research has undergone significant change. The earliest writer in the field, Tyler, supported use of objective-based evaluation. Other authors argued that the determination of objectives is, itself, subjective and thus they supported other types of measurement. The following sections describe some of the principal writings in evaluation research. After an introduction to the field, models for performing evaluation are presented, categorized by their general characteristics.

Theories and Models

The literature of evaluation research in education began with the work of Ralph W. Tyler. Firmly grounded in the scientific method, Tyler (1949) posited that programs should be evaluated solely based on their ability to meet their predetermined objectives. An objective is an

outcome that a program is attempting to achieve. Tyler's writing implied that evaluation should be conducted by outside experts, such as himself. Although objective-based evaluation is still regarded as a fundamental method for conducting evaluation research, opponents have contended that other methods may be better. These opponents, led by Eisner (1979), argued that objective-based evaluation is often subjective, because the selection of objectives is a value-laden determination. When goals are set, they are set based on the value system of the implementers. In other words, it is important to not only determine whether goals are being met, but whether, in fact, these goals have merit (Scriven, 1973). Other areas of Tyler's work have come under criticism, including the time that evaluation should take place, the danger of allowing objective-based evaluation to hide the determination of program merit, and the lack of stakeholder feedback. Many of these opponents developed contrasting "models" of evaluation. These models are described in the following sections of this literature review.

Tyler envisioned evaluation research as a means of determining if an implemented program is meeting a set of predetermined criteria. Cronbach (1963) contradicted these intentions, claiming that the focus should be on improving the development of new programs, rather than waiting until the program is in place. Evaluators should be asked to investigate a program midway through implementation, for it is at that point that an evaluator can be most helpful in improving the program. Cronbach also suggested that the determiners of the objectives, and those who decide whether these objectives were being met, should be the decision makers rather than outside experts. As a minimum, the expert should strongly consider the input from the multiple stakeholders.

Scriven (1967) articulated one of the differences between Tyler's and Cronbach's work in defining the difference between formative and summative evaluation. The basic premise of

formative evaluation is to determine ways of improving a program. Summative evaluation passes judgment on a program. Scriven further contended that formative and summative evaluation should be conducted differently. Evaluators conducting formative evaluation should be partisan, making every attempt to improve the program. During a summative evaluation, the evaluator should remain non-partisan while rendering this final judgment. Scriven also clarified that whether a program has acceptable goals and is meeting (or is likely to meet) those goals determines its "merit." This is often determined by comparing the results or anticipated results of a program against similar programs. The "worth" of a program is found by determining whether such a program fits into the local context of implementation.

The theories espoused by these leaders in evaluation research have led to the development of various other evaluation models. Popham (1975) categorized these models in four groups: goal-attainment models, judgmental models emphasizing intrinsic criteria, judgmental models emphasizing extrinsic criteria, and decision facilitation models.

Categories of Evaluation Models

Popham's categories provide a means for exploring the different types of evaluation research models. From the goal-attainment models similar to Tyler's objective-based vision of evaluation research, to judgmental models that ask the research to evaluate a program more subjectively, to models that were developed to assist the decision making process, this section attempts to place the described models into general categories. Although drawing general conclusions about each of the models allows them to be conveniently placed in one of the categories, some of the models might fit in more than one category. An effort has been made to draw attention to these problems in the following sections.

Goal-attainment evaluation. Models categorized as goal-attainment appear to be derived from Tyler's theories. These models are based on the determination of program objectives and then measuring whether these objectives have been met. Stake's (1967) original description of the countenance model extended Tyler's work in suggesting that objectives be generated not only for outcomes, but also for context and implementers. The process of working through the model consists of developing two matrices. The first matrix relates the intents and observations of the program for inputs, processes, and output. Stake referred to inputs, process, and output as antecedents, transactions, and outcomes. The evaluator completes this matrix by listing the intended inputs, processes and outputs of the program. Then the second column is completed by listing the observed inputs, processes, and outputs. The second matrix also deals with inputs, process and output, but is based on standards and judgments. So, an evaluator would list the standards associated with input, processes, and output. Finally, judgments for each of the three categories are generated based on the intents, observation, and standards for each category. The first of these matrices may be thought of as dealing with the program in the local context, whereas the second matrix involves comparing the program to external standards.

Two other models based on Tyler's work, those of Hammond and of Metfessel and Michael, suggest a sequence of steps that must be followed. As described by Popham (1975), Hammond's model includes an emphasis on deducing relevant factors related to the achievement of objectives. Hammond's model includes the following steps: 1) isolate the portion of the program to be evaluated, 2) determine relevant factors, 3) define the objective in measurable terms, 4) perform the assessment, and 5) analyze the results. Metfessel and Michael (1967)

delineated eight steps: 1) involve the community, 2) define the goals and objectives, 3) phrase objectives so that they can be communicated, 4) develop instrument(s), 5) conduct measurement, 6) analyze the data, 7) interpret the data and analysis and 8) make recommendations for change in the program or goals and objectives. Both the Hammond and the Metfessel and Michael models focus on the definition of objectives and then the measurement of those objectives.

Judgmental evaluation. Judgmental evaluation models are subdivided based on whether the judgment is focused on the intrinsic or extrinsic value of the programs. They are derived from the evaluator's own experience, and conclusions are often drawn based on how things appear to that evaluator. Intrinsic value is often determined in a "does it look right" manner. As an example, based on intrinsic value, a library with 1000 books would be declared better than a library with 100 books. If those same libraries were evaluated based on extrinsic value, the evaluator would be more concerned with the "product" of the library. The library with 1000 books must produce something of better value in order to be determined the better library.

One model that allows for a judgmental decision is Eisner's Connoissuership model (1979). This model relies on the expertise of the evaluator to determine the effectiveness of the decision. The expectation is that the evaluator will "know" if a program is effective based on his or her expertise and experience in that particular field. These studies are typically qualitative in nature, with the expert spending considerable time observing participants, interviewing stakeholders, and reading program documentation. The Connoissuership model might be used for determining intrinsic and/or extrinsic value of a program.

Goal-Free evaluation. Scriven (1973) opposed the evaluation of programs based on their intrinsic value and suggested that whether a program meets its objectives is irrelevant, unless those objectives have extrinsic merit. Scriven also suggested that it is more important that the effects of a program are meeting a need rather than an objective. Termed goal-free evaluation, Scriven's ideas can be categorized with other judgmental models, based on extrinsic value. Popham (1975) also categorized Stake's Countenance model as being based on extrinsic value. Stake's model properly fits in this category, as well as the Goal-attainment model category as previously mentioned. Stake's model is used to compare outcomes with standards based not on predetermined objectives but standards as determined by the evaluator. Since authoring the Countenance Model, Stake's thoughts about evaluation have moved from this type of evaluation to a method called responsive evaluation (Popham, 1975, p. 32). Responsive evaluation methods are described later in this chapter.

Decision-facilitation evaluation. Decision-facilitation models are designed to help decision makers make decisions about continuation and improvement of programs. Three well-known models that fit in this category are the Context, Input, Process, Product (CIPP) model, the Center for the Study of Evaluation (CSE) model, and the discrepancy model. The CIPP model, as proposed by Stufflebeam, et al. (1971), defined evaluation as "the process of delineating, obtaining, and providing useful information for judging decision alternatives" (p. 34). The CIPP model proposed four types of evaluation - Context, Input, Process, and Product. In using the CIPP model, it is the evaluator's responsibility to determine the decision-making needs of the administrators responsible for the program and then to conduct the evaluation so as to obtain the appropriate information. The information to obtain for the decision-making needs will require

one of the four types of evaluation. Context evaluation is conducted to determine the objectives for a program. Input evaluation attempts to determine the manner in which resources can best be used to meet the objectives. Once a program is implemented, process evaluation is used to determine if procedural changes are needed. Finally, the evaluator conducts product evaluation to see if the outcome meets the objectives of the program. In a similar vein, Boulmetis and Dutwin (2000) suggested that evaluation research is conducted at at least one of three levels: (1) efficiency – focused on costs and resource; (2) effectiveness – focused on meeting objectives; and (3) impact – whether the results are long term and sustained. These match fairly closely with the concepts of Input, Context, and Product.

Alkin (1969), at the UCLA Center for the Study of Evaluation (CSE), wrote about a model known as the CSE model that is similar to the CIPP model. He suggested that during process evaluation it is important to look beyond the procedures and perform evaluation on the product as it is formed.

Another goal-attainment model is Provus' Discrepancy model (1971). Although the model is designed to compare program performance against program objectives, thus likening it to other Goal-attainment models, it is categorized as a decision-facilitation model based on Provus' description of the final step in the model, "using discrepancy information either to change performance or to change program standards" (p. 183). The first step in the model involves documenting the planned objectives, resources, and processes related to the program. During the second stop, the evaluator attempts to determine how the program exists in practice. Then the evaluator compares the plan to the practice, or in Provus' terminology, the design to the installation. In a fourth step, the objectives determined in the first step are used to measure the end product, in order to determine if there are discrepancies between the outcome and the

objective. Provus recommended that, if possible, a fifth step should be taken to conduct a cost benefit analysis of the program under review with similar programs.

Responsive Evaluation

As pioneered by Stake (1973), and further identified with Guba and Lincoln (1981), responsive evaluation is not so much a different model for doing evaluation as a process for determining a model or models to use in evaluation. This type of design is termed emergent design. The idea of emergent design is to enter the evaluation without bias toward the types of models to use in the evaluation. The models to use will "emerge" based on the types of information that the evaluation is to generate. There is heavy emphasis on stakeholder participation in this model. Programs should be evaluated based on the effects relative to the needs of the stakeholders, not on whether the program is meeting objectives. Stake (1991) stated that the process begins by determining the issues or concerns of stakeholders. It is from these issues and available data relative to these issues that the evaluation design begins to form. Different models may be used for different issues and designs may change as the evaluation progresses. Stake and Hoke (1976) noted, "We who take the 'responsive evaluation' approach complete our studies without strong proof that the program was a success or failure and even without hard data for making good comparisons - but we often end up with people understanding their program better" (p. 5). Stake claimed, in an earlier speech to an audience at the Gothenburg Institute of Educational Research, that responsive evaluation "is an approach that sacrifices some precision in measurement, hopefully to increase the usefulness of findings to people in and around the program" (1973, pp. 4-5).

Guba and Lincoln (1981) suggested the following four phases to responsive evaluation: 1) organize the evaluation, 2) identify major issues and concerns, 3) conduct the research to gain relevant information, and 4) report results and recommendations. As mentioned, these steps leave quite a bit of leeway for a researcher to select from other evaluation models and research methods. Pulley (1994) described a systematic five step approach: "1) identify the decision makers, 2) identify the information needs of decision makers, 3) systematically collect both quantitative and qualitative data, 4) translate data into meaningful information, and 5) involve and inform decision makers on a continuous basis" (p. 10).

Evaluation Standards

The American Evaluation Association and the Joint Committee on Standards for Educational Evaluation have each developed documents that can help guide evaluation professionals. In 1981, the Joint Committee, composed of representation from 12 evaluation associations, published the "Program Evaluation Standards." These standards provide criteria for conducting and determining quality evaluation. Two of the associations, the Evaluation Network and the Evaluation Research Society, later joined to become the American Evaluation Association. This association later developed "Guiding Principles for Evaluators," which was approved by the organization's membership in 1994.

Program Evaluation Standards. The standards developed by the Joint Committee are grouped into four categories: utility, feasibility, propriety, and accuracy. The utility of an evaluation is indicated by its ability to be "informative, timely and useful to the affected persons" (Gall, Borg, & Gall, 1996, p. 692). Determining if the evaluation is practical, viable, and cost-

effective, addresses the area of feasibility. Whether the evaluation is conducted in a legal and ethical manner determines its propriety. Accuracy reflects the validity, reliability, and impartiality of the evaluation. A summary listing of each of these standards was produced by Ramlow (no date) and is provided as an appendix (Appendix B) to this dissertation.

Guiding Principles for Evaluators. The American Evaluation Association re-addressed the issue of professional standards for evaluators in the early 1990s. The end result was a set of principles to help guide evaluators (Newman, Scheier, Shadis, & Wye, no date). These principles suggested that: 1) evaluations must consist of systematic, data-based inquiry; 2) evaluators must be competent and provide competent performance for their stakeholders; 3) evaluators must conduct themselves with integrity and honesty; 4) evaluations must be conducted with the security, confidentiality, and dignity of stakeholders and other participants intact; and 5) evaluations must attempt to address the issues of public and general welfare. These five guiding principles address similar issues as the "Program Evaluation Standards." However, they seem to be focused on helping the evaluator conduct evaluation, whereas the other document seems focused on evaluating the quality of an already completed evaluation.

Evaluation in Practice

This section includes a description of evaluation studies related to computer literacy as presented in recent journals and other periodicals. An attempt has been made to investigate current evaluation strategies in studies to provide a sample of the types of methodologies followed by those performing recent program evaluations. Unfortunately, little in the way of evaluation in practice is published. Kezar (2001) indicated that this lack of reporting about

evaluation is one of the most notable trends in higher education program evaluation. The following cases describe evaluations using a pretest / posttest, experimental tests, response frequency analysis, and longitudinal studies.

Pretest / Posttest Case Studies

The library faculty of Indiana University of South Bend conducted an evaluation of their library instruction program. Prior to focusing on this program evaluation, the library conducted assessments of the library instruction via short satisfaction surveys. Colborn and Cordell (1998) described a retooling of the assessment by focusing on objectives. Once objectives were in place, a set of questions was developed for both a pre-session test and a post-session test. The authors went to describe the results of the tests and possible reasons for the results and modifications to the program. The methodology implemented by the researchers seems appropriate, as there were clearly defined objectives for the program and the program setting was conducive for pre and posttest evaluation. Although the pretest / posttest evaluation might indicate areas of weakness that could be improved, the authors found no significant differences between the two sets of tests and thus had difficulty drawing conclusions from the evaluation.

The pretest / posttest method of evaluation would be most useful in a situation where objectives, particularly measurable objectives, were clearly defined. It would also seem most useful where the intent of a program was to improve a "score" by a certain amount. In a situation where the purpose of a program is to validate that a student has a specific set of skills, the pretest score might be irrelevant. However, the score difference would certainly be one indication of the merit of a particular program.

Experimental Test Case Studies

Researchers in New Zealand chose an experimental test to determine the effectiveness of a program attempting to reduce costs associated with repeated falls and injuries in the elderly. Robertson, Devlin, Gardner, and Campbell (2001) reported a study with 119 participants placed in a control group and 121 placed in an experimental group. The experimental group participants were prescribed a home exercise regimen while the control group received the standard care. The researchers used standard statistical tests including t tests and binomial regression models to analyze the data.

In conducting the UIT program evaluation, it was not possible to conduct an experimental test as the program had already undergone implementation, and thus the time for establishing a control group has passed. Several sections of the UIT course used different instructional methodologies. In particular, during the most recent semesters some sections were taught completely via the Internet. Other sections were scheduled to allow for extra hands-on instruction. However, there was no attempt to control other variables, such as student aptitude or instructor, so they were not suitable to be evaluated using an experimental study.

Frequency Response Case Studies

Other researchers choose a non-experimental method of evaluation. At Central Washington University, Williams and Alawiye (2001) conducted a study to determine the effectiveness of a teacher preparation program. The researchers asked the students involved in the program to respond to a scale following 24 statements rating the adequacy of the program and 11 statements related to importance of quality for several aspects of the program.

Participants were also given room to provide feedback as to the strengths and weakness of the program. The researchers presented their data as a series of frequencies of response followed by a listing of categorized strengths and weaknesses.

Longitudinal Case Studies

Researchers at the Fred Hutchinson Cancer Research Center in Seattle, Washington, required the use of a longitudinal study to determine the effectiveness of a smoking cessation program. Splete (2001) reported that the researchers conducted a 15 year experimental study with over 4000 students in the test group and as many in the control group. Splete did not report on the types of test used to analyze the data, but reported that the program had no significant effect on current smoking or cumulative smoking measurements.

Summary

In this chapter, an attempt has been made to explore evaluation theories, models, and methodologies. In an attempt to distinguish among evaluation theories, I have followed in the footsteps of many other authors by selecting key points to highlight from each theory or model. This often does injustice to the developers of the model. In an interview with Nowakowski, Tyler addressed this issue when the interviewer suggested that in a presentation Tyler described a process of evaluation that included significantly more information than is typically attributed to his objective-based evaluation model. Tyler responded, "Oh surely you can't use just the objectives as the basis for comprehensive evaluation" (Nowakowski, 1981). With the knowledge gained from this literature review, an evaluation of UIT program at ETSU has been conducted. This evaluation used the five-step approach to responsive evaluation described by Pulley (1994).

The responsive evaluation methodology was chosen due to its focus on developing a better understanding of the program (one of this evaluations primary goals) and its focus on allowing decision makers and stakeholders to become actively involved in the evaluation. Pulley's method (1994) was chosen over Guba and Lincoln's (1981) because it provided a more systematic approach. The evaluation incorporated data gathered through surveying, testing, interview, historical review, and the use of focus groups.

To begin the study, a literature review was undertaken that explored computer usage and the historical context of computer literacy at ETSU. The results of this review, covered in the next chapter, provide background material supporting the need for computer literacy instruction in higher education. Also, the review draws attention to several important events at ETSU that eventually led to the development of the UIT program.

CHAPTER 3

COMPUTER LITERACY AND THE UIT PROGRAM AT ETSU

Since the term "computer literacy" was introduced in 1972, universities and other individuals and groups have struggled to define it. This struggle would not be surprising to Molnar, who is cited in the Free Online Dictionary of Computing as claiming:

> "We started computer literacy in '72 [...] It's sort of ironic. Nobody knows what computer literacy is. Nobody can define it. And the reason we selected [it] was because nobody could define it, and [...] it was a broad enough term that you could get all of these programs together under one roof." (Howe, 1993)

This chapter summarizes recent statistics on the use of computers, introduces the demand for computer literacy content in university programs, presents a historical perspective of computer literacy at ETSU, and provides a description of the current UIT program at ETSU.

Using Information Technology

With the introduction of the personal computer in 1984 and the expansion of the internet in the 1990s, the use of computers has grown exponentially. Individuals are using computers throughout their lives, from elementary school, throughout their work life, and into retirement. Educational software developers have written software packages that are appropriate for people as young as two years old.

Elementary and Secondary School

Computers are becoming pervasive at the K-12 level. Williams (2000) reported for the National Center for Education Statistics that the number of students per computer with internet access in the United States' elementary and secondary schools dropped from 12 to 9 in 1999.

Williams also reported that from 1994 to 1999, the number of schools with internet access in instructional rooms rose from 3% to 63%. Ninety-five percent of the schools in 1999 had internet access somewhere in the building.. Additional data from the National Center for Education Statistics (2000) indicated that 66% of K-12 instructors use computers for instruction during class time. Newburger (1999) reported that as of 1997, 74% of all children use a computer at home or school. These data indicate that a majority of students entering college have already used computers.

Career Work

On the opposite end of the college experience, as students transition into their chosen career fields, they are still expected to use information technology. The percentage of people who use computers at work grew from 45.8% to 49.8% between 1993 and 1997 (National Center for Education Statistics, 2001). However, the percentage of people who have attained a bachelor's degree and use computers at work rose to 73.9% in 1997. The applications that are most often used by these workers are word processing (67.6%), bookkeeping, invoicing and inventory (63.9%), communications (57.1%), and analysis/spreadsheets (52.7%). Other application categories with over 40% usage are calendar/scheduling and databases. There is little reason to believe that these numbers will not continue to increase.

These data indicate that computers are indeed widespread and that a significant number of individuals will be expected to use them in their chosen career fields. Nearly 3/4 of individuals who have earned a bachelor's degree are expected to use information technology on the job.

Computer Literacy Requirements in Higher Education

Beginning in the 1980s, and continuing through the early 1990s, universities began teaching courses about computers for non-computer majors. These courses carried titles like: "Introduction to Computers," "Computer Concepts," and "Computer as a Tool." These courses all claimed to teach "computer literacy." Since that time, new terms have been coined to attempt to describe this indeterminate area of knowledge, including "computer fluency," "computer proficiency," "media literacy," "information technology," and "information literacy." None of these phrases has been any better defined than computer literacy. McTaggart and Hay stated, "Computer proficiency means whatever the individual using the term means at that very moment." (2001).

In Being Fluent with Information Technology (1999), the National Research Council attempted to define the set of skills that encompasses computer literacy, while acknowledging that the subject area is very dynamic and changes quickly over time. Their list of skills included: 1) setting up a personal computer; 2) using basic operating system features; 3) using a word processor to create a text document; 4) using a graphics and/or artwork package to create illustrations, slides, or other image-based expressions of ideas; 5) connecting a computer to a network; 6) using the internet to find information and resources; 7) using a computer to communicate with others; 8) using a spreadsheet to model simple processes or financial tables; 9) using a database system to set up and access useful information; and 10) using instructional materials to learn how to use new applications or features. Other authors suggest similar sets of skills (Eisenberg & Johnson, 1996).

Although numerous journals, such as Syllabus and THE Journal, print anecdotal evidence of higher education's use of information technology, little research has been published regarding

the types of information skills actually being taught in higher education. However, the Campus Computing Project conducts an annual campus computing survey to determine the state of information technology use in higher education. According to the 2000 survey, nearly 60% of all courses, nationwide, use email to support instruction and over 40% of all courses use web resources. At ETSU in a sample survey conducted in 2000, 76% of students reported that they own a personal computer, and over 50% of ETSU students were enrolled in a web-based or web-enhanced course.

Accreditation Requirements

Beginning in 1999, the regional agencies that accredit colleges and schools began to require that universities address the use of information technology. The Southern Association of Colleges and Schools (SACS), ETSU's accrediting agency, requires colleges seeking accreditation or re-accreditation to demonstrate that "the institution's use of technology enhances student learning, is appropriate for meeting the objectives of its programs, and ensures that students have access to and training in the use of technology" (2001, p. 12). The Middle States Commission on Higher Education (2002) eligibility requirements state that the general education program must teach students "technological capabilities appropriate to the discipline, and information literacy, which includes critical analysis and reasoning" (p. 38). Currently, the North Central Association requires institutions to document "proficiency in skills and competencies essential for all college-educated adults" (North Central Higher Learning Commission, 2002, no page number). The other agencies, New England Association of Schools and Colleges, Northwest Association of Schools, Colleges, and Universities, and Western Association of Schools and Colleges, provide similar requirements.

Historical Overview of Computer Literacy at ETSU

In 1980, the computer science department started teaching the first class at ETSU aimed at meeting the demand for computer competency for non-computer science majors. The ETSU Undergraduate Catalog (1980) described the course as "a survey of terminology, scope, use, and impact on our society of the digital computer" (p. 34) and using the "computer as a tool to solve problems in a variety of disciplines" (p. 34). The course included a variety of applications, word processing, spreadsheets, and database.

University Curriculum Committee minutes from the University Archives indicate that only one other course was developed in the early 1980s to meet computer literacy needs. The course, HDAL 2440 -- Computer Applications in Education, was debated and approved by the University Curriculum Committee in 1982. A major concern in the year-long debate, duplication of content from the CSCI 1010 course and a potential proliferation of computer literacy courses across campus, is a common concern even now.

In 1984, the Tennessee State Board of Regents (TSBR), ETSU's governing board, mandated that all students entering the colleges under its control would need to demonstrate "computer literacy" prior to graduation (Bailey & Tidwell, 1985). The TSBR defined that students would be deemed computer literate if they showed:

1) A communicable knowledge of the history of computers and of the social, ethical, and legal implications and limits of computer use;
2) A working knowledge of computer equipment and technology;
3) The ability to discriminate between problems that can and those that cannot be appropriately solved on a computer;
4) A modest capability in a programming language; and

5) The ability to use the computer effectively in educational and career tasks.

To address the requirement, ETSU established a Computer Literacy Review Panel consisting of faculty from each college, one member from the Office of Admissions, and one student representative. The panel was responsible for approving courses in which students could enroll to meet the literacy requirement and handling petitions from students for waivers based on previous work experience.

The course description in the 1984 catalog added: "designing and writing elementary programs in a widely used computer language will be a part of the course" (p. 43). During the 1984 -1985 academic year, the computer science department used faculty from outside the department to teach portions of the course. Bailey and Tidwell (1986) documented the failure of this approach due to scheduling and teaching load credit concerns.

In 1986, the Computer Literacy Requirement was first mentioned in the Undergraduate Catalog 1986-1988 (p. 34). The requirement stated that all students must complete a computer literacy course, selecting from CSCI 1010: Computer Concepts, CSCI 1250: Introduction to Computer Science, CSCI 2000: Computers as a Tool, or HDAL 2440: Computer Applications in Education. Students could also meet the requirement by passing a challenge exam. Students who wished to take the challenge exam would follow the same procedure for challenging any other course and would earn both the credit hours and the letter grade. Students were required to meet the requirement within their first 60 hours. The CSCI 1250 course was a programming course developed for computer science majors. Computers as a Tool was developed from a graduate course designed to teach faculty how to use a computer. This course was only taught for a few years and never to a large population of students.

In the 1988 catalog, the course description was modified to read: "A survey of terminology, scope, use, and impact on our society of the digital computer. Exposure to current software tools & the laboratory use of the computer will be part of the course" (p. 40). At this point, the course no longer included a programming component. Software coverage was devoted to word processing, spreadsheets and database applications.

In the late 1980s and early 1990s, the use of graduate teaching assistants to teach CSCI 1010 became more prevalent. This coincided with the maturation of the computer science department's graduate program that started in 1986. The course also migrated from a small classroom environment to using large lecture halls for a portion of the course and computer labs for the hands-on skills. From 1992 until 1995, the course was typically supervised by one full-time faculty member with the rest of the instruction being covered by adjunct faculty and graduate assistants. New General Education Requirements were created in 1995. These requirements established the current UIT program.

It should be noted that after this study a significant modification to CSCI 1100 was proposed and approved. The modification incorporated spreadsheets into the course and changed the course from two credit hours to three. That change is to be implemented in Fall 2002 and was not a focus of this evaluation study. The changes will require additional evaluation of the program in the future.

The Using Information Technology Program

A long history of failed attempts to modify the ETSU General Education requirements finally came to an end in Fall 1995. During the 1993-94 and 1994-95 academic years, significant effort was devoted to generating a new curriculum. There was much discussion about the

computer literacy component. Some faculty involved indicated that students were arriving at ETSU with enough computer skills. Others said that CSCI 1010 covered topics that were not needed by their majors (e.g. spreadsheets and databases). Another group indicated that the course should cover additional material, including programming. The end result was to develop a new "computer literacy" course that focused on topics and applications that would be appropriate for all majors. The enabling document for the new requirement specified electronic mail, online databases, and word processing competencies that were to be addressed by the course. Following the writing across the curriculum model, all students would also be required to complete two additional technology intensive courses. One of the intensive courses had to be taken within the student's major. The computer literacy course, CSCI 1100: Using Information Technology, and the two additional UIT-intensive courses constitute the UIT program in its current format. It is this program that is the focus of this evaluation study.

The program operates under the oversight of several administrators and the UIT committee. Although the Tennessee Board of Regents and ETSU's President have ultimate responsibility for the program, primary responsibility is delegated to the Provost and Vice President for Academic Affairs. In the office of Academic Affairs, the Associate Dean for Special Programs has the most direct oversight. The position of Director of the UIT program was established in 1995, as well as the positions of directors for the writing intensive and oral communication intensive programs that follow a similar model. The director chairs the UIT committee, which was charged by the General Education Committee to: 1) review and approve a competency exam, 2) review and approve courses submitted by departments to fulfill UIT-intensive course requirements, and 3) advise the General Education Advisory Council concerning effectiveness of the program.

Summary

This chapter has demonstrated the rationale for computer literacy courses on college campuses and has described the historical transition of the computer literacy courses at ETSU to the current form of the UIT program. The next three chapters describe the evaluation in three parts. Chapter 4 focuses on the CSCI 1100 course used as the baseline computer literacy course. Chapter 5 describes the evaluation of the intensive component of the program. Finally, the issues related to the program as a whole are explained in Chapter 6. Chapter 7 presents each evaluation question with relevant data from Chapter 5 through 6 in an attempt to answer each of the questions. Areas for program improvement, modification, or deletion or suggested in this final chapter.

CHAPTER 4

EVALUATION OF THE UIT COURSE

All students at ETSU must complete the CSCI 1100: Using Information Technology course or a challenge exam based on the course content in order to graduate. The general education program states that this requirement must be met prior to a student's accumulating 33 semester credits or during a student's first year of enrollment. This chapter presents the questions, research methods and results, and conclusions that pertain to the evaluation of this portion of the UIT program.

Research Questions

During the question-gathering phase of this evaluation, nine questions related to the UIT course and challenge exam were selected for evaluation. These questions focus on three major areas: 1) course competencies and student knowledge, 2) staffing, and 3) transfer issues. Each of these areas will be addressed separately.

Course Competencies and Student Knowledge

The concerns relative to course competencies and student knowledge were indicated by the following questions:

1) Are the objectives of the foundation course, CSCI 1100-Using Information Technology being met?
2) What do students learn in CSCI 1100? Do they retain this knowledge? For how long?

3) Are the computing competencies that were assumed to be necessary to address in 1995 the same competencies that would denote adequate computer literacy in 2001? Should the program have a calendar for addressing that question systematically over time?
4) What percentage of students opt to test out of CSCI 1100? Why?
5) The 1995 committee assumed that an increasing percentage of students, over time, would bring sufficient UIT proficiencies from high school and would "challenge" the course. That was based on the assumption that students were becoming more computer literate. Did that occur? If not, why not?
6) What percentage of students complete CSCI 1100 prior to completing 32 credit hours?

In an attempt to answer these questions, multiple research methods were employed. A pretest was given to students enrolled in the CSCI 1100 course. Surveys were given to students enrolled in the CSCI 1100 course at the end of the semester. Tests and test results were analyzed in conjunction with a review of the course objectives. Graduating seniors and students who were currently enrolled in UIT-intensive courses were surveyed. Numerous interviews were conducted with the Director of the UIT program and other involved staff. Finally, focus groups were conducted to answer unresolved questions.

Staffing Concerns

The CSCI 1100 course is primarily taught by graduate assistants, with a full-time faculty member responsible for course development and instructor supervision. This model is not used

to this extent in other ETSU courses. Consequently, the staffing of the course has raised the question:

1) How has the staffing profile (including the use of graduate assistants) worked in CSCI 1100? Does the literature give any basis for addressing that in contrast to other delivery systems and in terms of student learning outcomes, cost, etc.?

Data that address this question were obtained through a literature review and interviews with the course coordinator.

Transfer Issues

The transfer issue questions were primarily functional questions to determine the types of courses students were attempting to transfer in to ETSU and whether there were any problems experienced by transfer students. The questions were:

1) Regarding the transferring of a "computer literacy" course, what kinds of problems exist for students who transfer to ETSU?
2) Are there other two-credit-hour courses at TBR institutions that transfer as CSCI 1100?
3) Are most courses transferred in two- or three-credit-hour courses?
4) Do most three-credit-hour courses that are attempted by transfers include spreadsheets?

These questions were answered during interviews with the Director of the UIT program and the transcript analyst in the Office of Admissions and a review of course descriptions on institutional web sites.

Research and Results

This section of the chapter describes each of the research components used to answer questions about the CSCI 1100 course. Although most of the instruments were used to answer other questions as well, only the items related to this section are introduced here. The other items are described in one of the next two chapters, as appropriate.

CSCI 1100 Course Documents

According to the CSCI 1100 syllabus (Appendix C), the objectives for students in the course are to:

1) learn the necessary components of word processing that will enable you to write term papers, reports, resumes, and research papers;
2) learn how to use e-mail to communicate with others - locally, nationally, and globally;
3) learn how to manage files as applicable to the various software packages;
4) learn how to access electronic databases, and search for and retrieve information from those sources (including sites available via the internet and databases available through ETSU's library system; and
5) learn the social and ethical responsibilities that are inherent in the use of computers.

Another document generated by the UIT course coordinator lists a set of skills under the heading, "In order for a student to be considered 'UIT Proficient,' he/she must have mastered the following skills and knowledge components." The list includes the same information as the course objectives from the syllabi but adds a section on basic computer skills that includes: 1)

know the components of a computer, their function and their use, 2) boot up a computer system and access software applications, and 3) navigate in the Microsoft Windows operating system.

In preparation for the recent SACS accreditation visit, the coordinator of the UIT course developed a plan to measure student proficiency in the course. Under the plan, students would be considered proficient if they passed each of three tests covering the six competency areas with a 70% or higher and their overall semester average was 70% or higher. Although not formalized as a measure of proficiency prior to this plan, the course has always used 70% as the lowest score to pass the course with a letter grade of "D." All sections of CSCI 1100 in Fall 2000 and Spring 2001 were analyzed to see whether students were meeting this proficiency level. The results of this analysis are now published on ETSU's General Education Evidence of Student Success web page. These results read, "Of 1651 students who passed CSCI 1100 in fall 2000 and spring 2001, 99.7% scored at least 70% on 'Basic Computer Skills and File Management'; 99.1% scored at least 70% on 'Communication via E-mail, Access Electronic Databases, Social and Ethical Responsibilities'; and 98.4% scored at least 70% on 'Basic Word Processing Skills.'" These data only include students who attempted the test covering each competency. The course coordinator has documentation that associates each of the course objectives with the appropriate test.

CSCI 1100 Grades

An analysis of the overall grades earned in CSCI 1100 was conducted to help determine whether course objectives were being met and whether computer knowledge of students entering ETSU had changed during the past seven years. The Office of Institutional Effectiveness assisted this research by writing a software program. The program was written to report on the

overall grades earned by students in all sections of CSCI1100 for all terms since Fall 1996. Table 1 displays the results of that program.

Table 1

Percent of Students Scoring in Each Grade Category (Fall 1996 to Spring 2001)

Term/ Semester	A	A-	B+	B	B-	C+	C	C-	D+	D	F
953	37.6	14.3	8.3	11.3	5.8	3.7	3.7	2.4	1.3	2.2	9.4
961	35.3	14.0	10.5	8.4	6.7	4.7	4.3	1.8	1.3	3.8	9.3
962	45.4	13.4	8.3	8.3	3.1	2.1	5.2	0.0	2.1	2.1	10.3
963	39.0	17.9	11.2	9.6	6.3	3.6	2.1	1.3	0.8	0.8	7.4
971	36.0	16.4	13.3	10.2	5.7	2.3	2.9	1.3	1.0	1.2	9.6
972	57.0	13.3	2.2	10.4	2.2	10.4	2.2	0.7	1.5	0.7	11.9
973	48.2	13.7	9.0	7.4	4.2	2.7	3.1	0.7	0.9	1.1	9.0
981	46.8	11.0	7.7	9.0	4.9	1.7	1.7	1.9	0.3	2.1	13.0
982	60.9	9.1	7.3	4.5	0.9	0.0	0.9	1.8	0.0	1.8	12.7
983	23.5	9.4	7.3	8.5	7.8	6.1	7.2	5.8	3.4	3.4	17.8
991	27.3	10.6	8.1	6.9	8.1	7.3	6.2	4.1	2.7	1.8	16.7
992	52.4	14.7	5.6	7.0	3.5	3.5	3.5	0.7	0.7	0.0	8.4
993	22.9	10.0	7.6	7.5	7.1	6.5	6.1	5.6	3.7	2.6	20.5
001	48.3	11.5	8.5	5.2	3.9	4.7	2.6	0.9	1.3	1.4	11.6
002	73.5	10.3	2.2	2.9	0.0	5.9	2.2	0.0	0.0	0.0	2.9
003	50.9	16.1	9.4	3.8	3.0	1.7	1.6	0.6	0.5	0.6	11.7
011	52.5	15.4	7.7	4.0	1.8	2.3	1.5	0.5	0.2	0.5	13.6
012	76.6	8.1	4.5	0.9	0.9	2.7	0.0	0.9	0.0	0.0	5.4

Note 1: The first column of the table uses the ETSU term code, where the first two digits represent the year and the third digit represents spring (1), summer (2) or fall (3) semester.

Note 2: Changes in shading indicate changes in instructional methodology. See narrative below for more information.

A closer look at this table indicates some interesting trends. One point of interest is that students invariably received higher grades in the summer than they did in either the fall or spring. Discussions with the course coordinator and a review of the syllabi indicate that there is no difference in the course content or grading scheme from the regular terms to the summer

term. Other factors that may influence student grades during the summer are smaller class sizes and the demographics of the students taking summer classes.

Ignoring the summer terms, the other significant changes occurred in Fall 1998 and Spring 2000. In academic year 1998-1999, the number of A and A-s drop from the 52% to 62% of the previous two academic years to a 33% to 38% range. The ranges changed dramatically again in Spring 2000, where for the next three regular terms, the A to A- range increased to 59% to 68%. The number of Fs matches this pattern with exactly opposite trends, going from a range of 7.4% to 13% up to 16.7% to 20.5% and then back down to 11.6% to 13.6%.

Further inquiry into these time periods partially explains these shifts. From Fall 1995 through Summer 1998, the course was based on instructor-developed lessons, assignments, and tests. In Fall 1998, the course switched to using two pre-packaged computer based instruction and computer based testing applications. Only a small portion (less than 1/3) of class time was spent on instruction, with most of the time spent on testing. During this timeframe, students' final grades were based entirely on test performance. In Spring 2000, the course schedule was modified to allow more time for instruction and only one pre-packaged instruction and testing application was used. Also, at this point, projects were added, changing the grade calculation from being entirely test based. In Fall 2000, the course was modified again so that the computer-based testing was being used only for homework grades. The other portions of their grades were based on instructor developed projects and tests.

Ignoring the three semesters, Fall 1998, Spring 1998, and Fall 1999, on average over 82% of the students earned a grade of B- or higher. In each of these three semesters, still over 55% of the students received a B- or above.

Unfortunately, because of the changes to the methods for determining grades and the small number of years with consistent grading schemes, it is impossible to come to any conclusions about the increasing aptitude of incoming students. However, it is noted that in all semesters, over 79% of the students who completed the course passed the course. During all of these semesters, students were required to have a final grade of 70% or higher to pass the course.

The 32 Credit Hour Requirement

As indicated in ETSU's General Education Requirements, all students are required to complete the CSCI 1100 course or demonstrate proficiency by passing an exam prior to completing 32 credit hours. This policy is not systematically enforced. To determine the extent of violations to this policy, two approaches could be taken. Using student records, all students with over 32 credit hours could be evaluated to determine if they had completed CSCI 1100 or the challenge exam. A different approach was selected, because a significant number of students attending ETSU are not required to complete the general education requirements because they are seeking a second degree or are non-degree students. The chosen approach was to evaluate the records of all students enrolled in CSCI 1100 and determine the number of students who had already completed 32 hours. The records of these students could then be investigated to see if there were logical rationale for not strictly following the policy.

Of 1253 students enrolled in CSCI 1100 during Fall 2001, 144 (11.5%) had already earned over 32 credit hours. An analysis of 30 transcripts randomly selected from the 144 students allowed a conclusion that 14 of these students had indeed met the actual requirement or at least the intent of the requirement. Nine of these students were transfer students and were completing the requirement within the first 32 credit hours at ETSU (as allowed by policy).

Three students meeting the requirement were either working on a second degree at ETSU or had attended ETSU sporadically over the past several years and appeared to be attempting the course within the first 32 credit hours of their most recent admittance or effort. Two students had attempted CSCI 1100 within the 32 credit hour window but had failed the course and were now repeating it. In the group of students (16) whose records did not seem to indicate a rationale for not meeting the requirement, all but two had completed between 32 and 64 credit hours. The other two had completed 70 hours and 102 hours.

According to the Director of the UIT Program and the chair of the Computer and Information Science Department, the idea of "forcing" this requirement by putting registration holds on student accounts had been explored. In consultation with the Registrar's office, it was determined that this would be too problematic due to the large number of students who might be inadvertently affected. During several semesters, the Director of the UIT Program sent lists of students with over 32 credit hours who had not completed CSCI 1100 to departmental advisors, asking for their help in enforcing the policy. The effectiveness of these efforts was not tracked.

Analysis of UIT Challenge Exam

Since Fall 1995, students have been able to take a challenge exam to meet the UIT course requirement. From Fall 1995 through Summer 1998, this exam was an instructor-developed exam that was a modification of the CSCI 1100 final exam. Since Fall 1998, the challenge exam has consisted of completing the same pre-packaged computer based tests that students complete in the course. Students are able to practice these exams until they feel prepared and then they take the exam in a supervised setting. Because students are able to practice these exams until they know that they will pass them, all students who have taken the exam have passed it.

However, some students have signed up to take the exam and after practicing decided to take the course instead.

Prior to Fall 2001 students could either opt to pay 10 dollars and take the exam for credit or they could take the exam on a pass-fail basis for free. Because of transfer and reporting concerns, in Fall 2001 the free pass-fail option was removed. Also in Fall 2001, the cost rose from $5 per credit hour to $15 per credit hour.

Figure 1 depicts the number of students who completed the challenge exam during each calendar year since 1995. The number of students increased from 1995 until 1998, then dropped, and began to rise again from 1999 through 2001. The 1999 drop may be indicative of the change to the computer based testing, as was also seen in the course grades. Although it would be impossible to determine at this time, one may hypothesize that students practiced the exams and found them to be difficult, so they registered for the course instead.

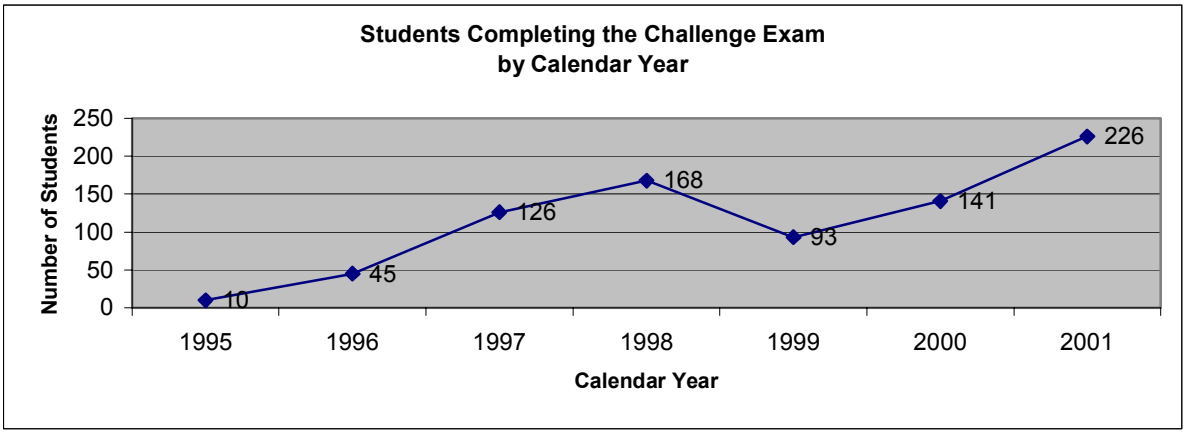

Figure 1. Students Completing the Challenge Exam by Calendar Year.

During the Spring 2002 semester 121 students took the challenge exam, with 2 students not completing it successfully. If an equal number of students complete the exam during the

2002 summer or fall semesters as did during the spring semester, the upward trend in number of test-takers will continue.

CSCI 1100 Concluding Survey

At the end of Fall semester 2001, surveys were completed by a cluster sample of students completing the CSCI 1100 course. The survey (Appendix D) was answered by 151 students in 9 different course sections. The survey was administered in the classrooms and had a response rate of 100%. The survey asked the students to indicate whether they had some basic computer skills prior to taking the course, whether they knew that a challenge exam was available, and the percent of material covered in CSCI 1100 they felt they knew prior to taking the course.

A significant majority of students indicated that they had performed basic computer tasks prior to taking CSCI 1100. Ninety-two percent indicated that they knew how to send email. Ninety-one percent indicated they knew how to use a word processor, and 89% knew how to use a web browser. Figure 2 indicates the number of students who felt they knew some percentage of the course material. The results of the survey show that 69% of the students said they knew more than 70% of the material covered in the class.

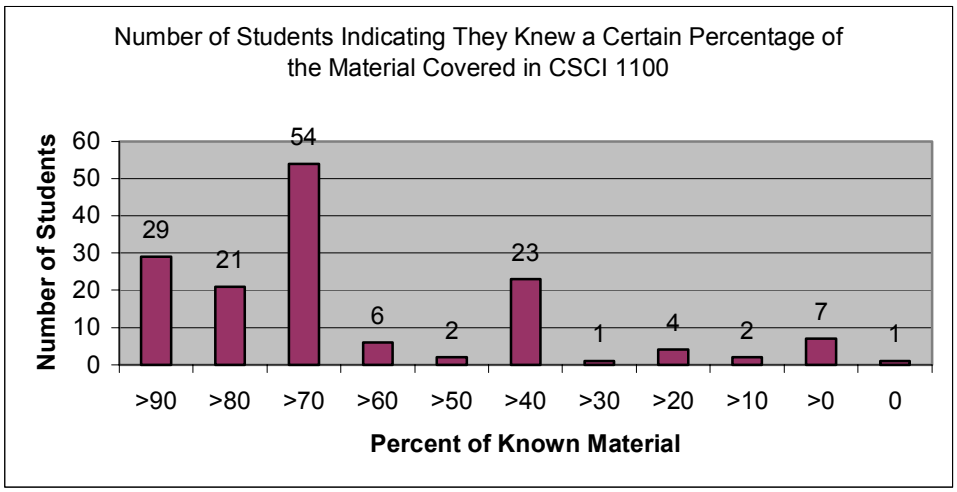

Figure 2. Number of Students Indicating They Knew a Certain Percentage of the Material Covered in CSCI 1100

Although the instructors of the course claim to have informed their students about the challenge exam, and the challenge exam information is listed in the CSCI 1100 course syllabus, only 68% of the students surveyed indicated that they were aware that a challenge exam existed. Seventy-one percent of the students said that they could have passed the challenge exam for the course. From the students who said they knew about the exam, but did not take it, the most common reasons were: 1) the additional cost of taking the exam, 2) wanting to be sure they knew the material or thought they would learn something new, and 3) wanting to earn an "A."

An analysis of these survey results indicate that: 1) the majority of students reported that they know a large percentage of the content of the course prior to enrolling in the course, and 2) a majority of students reported that they could pass the challenge exam prior to enrolling in the course. The disparity between the number of students who complete the challenge exam and the number who claim they could have passed it, if they had taken it, warranted further research. This concern was addressed on the CSCI 1100 Pretest and with each of the student focus groups.

CSCI 1100 Pretest

Based on the results of the Fall 2001 CSCI 1100 concluding survey, a pretest (Appendix E) was given in 4 sections of CSCI 1100 at the beginning of the Spring 2002 semester. The test was given to 79 students in 3 on-campus sections and 1 off-campus section. The test required students to use a web browser, word processor, and email application. The test was a modified version of the final exam administered the previous semester. Overall, 62% of the 79 students

were able to complete 70% or more of the test components. Each of the sections of the test and the student results are described below.

To determine how well students were able to access electronic documents on the web, students attempted to answer three questions that required the use of a search engine and one question that required the ability to use ETSU's online library catalog. Over 85% of the students were able to answer the search engine related questions. Sixty-six percent were able to use the ETSU online catalog. Sixty-five percent were able to download a file from the Internet.

Students were tested on their ability to perform standard word processing tasks, including changing the font size, centering, bolding, page numbering, using find and replace, spell-checking, justifying, and bulleting. Over 60% of the students were able to change the font size, center text, bold text, and use the spell checker. Over 55% of the students were able to perform bulleting. Less than 50% were able to full justify the document, use the find and replace feature, or perform page numbering. Twenty-six (33%) of the 79 students were unable to perform any of the word processing tasks. Included in this 26 are students who failed to turn in a disk or turned in a disk without a file saved. There is reason to believe that some set of these students could perform at least some of the tasks but were unable to submit a final document that could be evaluated.

The students were also tested on their ability to send an email from the ETSU labs. The numbers here may be misleading because students who may be able to send email from their home computers may not know how to access those systems or may not be able to access those systems from another environment. Forty-five percent of the students were able to send an email from the lab and, of those, 85% could send an email with an attachment.

Graduating Senior Survey

At the end of Spring semester 2001, surveys (Appendix F) were delivered to 637 graduating seniors. The survey asked the students to rate their abilities in several categories related to the use of information technology and to assess ETSU's ability to prepare them with the computer skills needed for their careers. The survey had a return rate of 10%, with 69 students responding. This low response rate makes the reliability of the results questionable. However, the findings are reported here to provide a picture of how these particular students perceived their technology abilities. An attempt was later made to gather similar data through focus groups and additional surveys.

Table 2 is a frequency distribution based on the students' responses to questions asking them to rate their ability to use a word processor, search for information in electronic format, and work with an electronic mail application. All but one student indicated that they were able to at least perform basic operations and complete standard tasks for each of the applications. A significant majority (over 80%) of the students indicated they were able to perform basic operations and use advanced features for all three applications.

Table 2

Graduating Seniors' Responses Related to UIT Course Competencies

Skill	Can perform basic operations and use advanced features	Can perform basic operations and complete standard tasks	Unsure how to perform basic operations and standard tasks
Ability to write a report using a word processor	88%	12%	0%
Ability to search for information	83%	16%	1%
Ability to send and	93%	7%	0%

receive email			

Students were also asked whether they agreed with the statement: "I feel confident that my computer knowledge will allow me to learn additional computer skills." Seventy-percent of students strongly agreed, 28% agreed, and 1% disagreed with this statement. One student indicated that he or she was uncertain.

The seniors were also given the opportunity to make recommendations that would help ETSU prepare students with appropriate computer skills. Of the 69 responders, 55 chose to answer the question. Nine students said that the CSCI 1100 course was too basic and primarily covered material they knew prior to enrolling in the course. Seven students said that the method in which the CSCI 1100 course was taught was inappropriate. In particular, the comments indicate that the computer based training and evaluation program that was used in the course was ineffective. Seven students indicated that additional skills should be taught in CSCI 1100 (or perhaps other courses). The inclusion of spreadsheet skills and presentation software skills were the only additional skills mentioned specifically.

An analysis of these survey results indicates that: 1) nearly all students reported that by the time they graduate, they are able to perform the standard tasks necessary to use the applications covered in CSCI 1100, and 2) most graduating seniors reported that they can use the advanced features of those applications. The comments of students who indicated that the CSCI 1100 course was confirmed by data gathered from the CSCI 1100 concluding survey and pretest.

UIT-Intensive Instructor Survey

At the end of Spring semester 2001, surveys (Appendix G) were delivered to all instructors teaching UIT-intensive courses. The survey asked the instructors to rate their students' abilities in several categories related to the use of information technology, to assess whether their students' prior computer knowledge helped them to learn additional computer skills, to indicate which skills they would prefer were better taught in CSCI 1100, and to provide additional comments that might help evaluate or improve the UIT program. The survey had a return rate of 45%, with 30 of 66 instructors responding.

Table 3 is a frequency distribution based on the instructors' responses asking them to rate their students' ability to use a word processor, search for information in electronic format, and work with an electronic mail application. The majority of instructors indicated that their students were at least able to perform basic operations and complete standard tasks for each of the applications.

Table 3

UIT-Intensive Course Instructors' Responses About Student Competencies

Skill	Can perform basic operations and use advanced features	Can perform basic operations and complete standard tasks	Unsure how to perform basic operations and standard tasks
Ability to write a report using a word processor	48%	38%	14%
Ability to search for information	77%	20%	3%
Ability to send and receive email	37%	57%	3%

The instructors were also asked to respond to the statement: "Their [students] prior computer knowledge helped them to learn additional skills." Thirty-four percent strongly agreed, 59% agreed, 3% disagreed and 3% strongly disagreed.

The instructors were then asked: "Which computer skills would you prefer that the CSCI 1100: Using Information Technology course would have done a better job teaching your students prior to enrolling in your course?" The majority of comments were suggestions for putting additional content into CSCI 1100, rather than improving a component that is already in the course, except perhaps for some of the file management skills. Instructors felt that additional skills such as spreadsheets, presentation software, and web design would benefit their students. Several instructors indicated that they were comfortable with the current content or that any additional skills should be covered in major courses.

Eight responders provided additional comments to help evaluate or improve the UIT program at ETSU. None of the responses were duplicated, so it is difficult to draw any general conclusions about the program based on these responses.

These survey results indicate that: 1) the majority of instructors teaching technology intensive courses feel that students can perform the basic tasks taught in CSCI 1100, and 2) many instructors feel that there are additional skills beyond those taught in CSCI1100 that students should learn. The fact that 14% of the instructors feel that their students are unable to perform basic word processing tasks should be of great concern to instructors of CSCI 1100 and decision makers that exercise some control over that course.

ETSU Class Technology Skills Survey

As well as developing criteria for designating proficiency for the SACS accreditation visit (see Course Documents above), a class technology skills survey was created by the Director of the UIT Proficiency. The intent of the survey was to determine how well students retain the technology skills learned in CSCI 1100. The survey contained two documents, one completed by the instructor of a class (Appendix H) that asks them to assess their students' skill levels and one completed by the students in the class (Appendix I). The survey was sent to the instructors of all technology intensive courses in the Fall 2001 semester. This totaled 60 sections, with returns of the student responses from 26 sections and 19 instructor responses (return rates of 43% and 26%, respectively).

The instructor survey asks for instructors to indicate the percentage of students in their section that they felt "exceeded expectations," "met expectations," or "did not meet expectations" in 5 of the 6 course competency areas. The Social and Ethical Responsibility competency was not included as it was felt that instructors would not have knowledge of their students' competency in this area. For each of the five areas, instructors were also asked to select or suggest areas of improvement for each of the competencies. For each of the competencies, a summation of the instructors' responses indicated that the instructors felt that over 87% of their students met their expectations. Table 4 displays the results of the instructor survey. Note that some rows do not add up to 100% because the numbers did not add up to 100% on individual instructor responses.

Table 4

Instructor Responses to Class Technology Skills Survey

Skills	Exceeded expectations	Met expectations	Did not meet expectations

Basic Computer Skills	44.5%	43.7%	8.1%
File Management	39.7%	48.5%	11.8%
Using Electronic Mail	54.3%	42.7%	6.6%
Using Electronic Databases	45.0%	42.3%	11.0%
Basic Word Processing Skills	42.4%	51.5%	6.2%

These data are possibly skewed because although there were 19 responses, it is impossible to determine whether those 19 responses came from 19 different individuals or whether multiple responses were filled out by a single instructor who taught multiple sections. Instructors were asked to indicate department and course level, but not specific course or section. Two instances in particular would indicate this may be the case. Two responses from an instructor in the Computer and Information Science department had the same responses with all responses indicating that 100% of students exceeded expectations. Also, two responses from a Curriculum and Instruction department instructor were also identical, with these responses rating the students the lowest of all responses in the performance categories.

The most frequently selected areas for improvement were "Using a disk to transfer files," "Using 'My Computer' or Windows Explorer to create folders to organize files," "Downloading files," "Using ETSU's online catalog (Voyager)," "Using ETSU's other online databases," "Applying special formatting to a document," and "Using the cut, copy and paste features of a word processor." One instructor added an additional area, "Evaluation of web sources."

The corresponding student survey that was administered in UIT-intensive sections asked students to rate their confidence level as "unsure," "probably can," and "confident" in performing specific basic computer skills, file management tasks, and basic word processing skills. Students

were also asked to indicate how recently they had completed specific electronic mail and electronic database tasks. Valid responses were: "Not since taking CSCI 1100," "In the last year," and "In the last month." As indicated above, this survey had a section response rate of 43%, with a total of 384 student responses.

For all confidence questions, over 80% of the students indicated they were confident that they could complete the tasks. Students indicated the least amount of confidence for being able to create folders to organize files. For all questions, less then 5% of the students indicated that they were unsure if they could complete the task. Less than 2% of the students were unsure if they could complete a specific word processing task. Table 5 shows the confidence questions and results.

Table 5

Student Confidence Concerning the Ability to Perform Tasks

Skill	Unsure	Probably Can	Confident
Boot up a computer system	2.34%	4.95%	92.71%
Access various software applications	2.35%	8.88%	88.77%
Navigate in the Microsoft Windows Operating System	1.30%	7.03%	91.67%
Use a printer	1.04%	2.08%	96.88%
Use a disk to transfer files between computers	3.39%	6.25%	90.36%
Use "My Computer" or Windows Explorer to create folders to organize files	4.95%	11.72%	83.33%
Save a file to a folder	2.09%	5.74%	92.17%
Open a previously created file from a folder	1.56%	5.21%	93.23%
Create word-processed document using either Microsoft Word or WordPerfect	1.05%	1.31%	97.64%
Use a word processor's spelling and grammar check functions	1.05%	1.05%	97.90%
Apply special formatting to a	1.05%	2.10%	96.85%

document (font style, font size, text alignment, margins, page numbers)			
Use the cut, copy, and paste features in a word processor	1.57%	3.41%	95.01%

In the set of questions regarding how recently a student had completed a given task, approximately 10% of the students indicated that they had not used ETSU's online library catalog or other online library databases since they completed CSCI 1100. Another 30% indicated that they had not used these databases in the last month, but had used them in the last year. Also, 25% of students indicated that they had not used e-mail to communicate with an instructor during the past month. For all other tasks, over 80% of the students indicated that they had completed the task within the last month. The results for all of these questions are contained in Table 6.

Table 6

Student Responses to How Recently They Had Completed a Given Task

Task	Not since taking CSCI 1100	In the last year	In the last month
Sent an e-mail message	2.62%	2.89%	94.49%
Sent an e-mail message with an attachment	8.22%	11.41%	80.37%
Viewed an attachment sent in an e-mail message	2.65%	9.26%	88.10%
Used e-mail to communicate with an instructor	7.67%	17.99%	74.34%
Used the internet to do research	1.32%	1.32%	97.37%
Downloaded a file from the internet	3.45%	6.10%	90.45%
Used ETSU's online library catalog (Voyager)	9.04%	30.32%	60.64%
Used ETSU's other online databases provided by the library (InfoTrac, etc.)	10.43%	31.55%	58.02%

Corresponding results of the instructor ratings, instructor-selected areas needing improvement, and student responses indicate that the areas that might best benefit from improvement are the use of ETSU's online databases (Voyager and others), and using the Microsoft Windows file management tools to create folders to organize files. One instructor indicated on the form that perhaps this is not a functional problem, but rather a conceptual one. Students likely can perform the task but are not sure how to use it properly.

One fault with this survey is that it assumes that all students in UIT-intensive courses have completed CSCI 1100, as is stated in the UIT policies. Seventy-four (19%) of the students indicated that they had not completed CSCI 1100. Of those 74, 42 (57%) indicated that they had not taken the proficiency or challenge exam. In a report generated by ETSU's Office of Institutional Effectiveness and Planning, further described in Chapter 5, nearly 30% of students enrolled in UIT intensive courses had not completed CSCI 1100 or either version of the exam.

Senior Level Course Instructor Survey

At the end of Spring semester 2001, surveys (Appendix J) were delivered to all instructors teaching senior level courses. The survey asked the instructors to rate their students' abilities in several categories related to the use of information technology, to assess whether their students' prior computer knowledge helped them to learn additional computer skills, to indicate which skills they would prefer were better taught in CSCI 1100, and to provide additional comments that might help evaluate or improve the UIT program. The survey had a return rate of 33%, with 99 of 304 instructors responding. This response rate from faculty was lower than expected. An attempt was made to gather similar data through the student and instructor skills

assessment survey described above. One possible reason for the low response rate, based on several discussions with individual faculty members, is that the survey was sent to every person listed as the instructor of record of a senior level course. Numerous senior level courses on campus are actually internship, independent studies, or cooperative education courses. The instructors of record for those types of courses would not likely have ample opportunity to ascertain the students' skill set.

Table 7 is a frequency distribution based on the instructors' responses asking them to rate their students' ability to use a word processor, search for information in electronic format, and work with an electronic mail application. Nearly all of instructors indicated that their students were at least able to perform basic operations and complete standard tasks for each of the applications.

Table 7

Senior Level Course Instructors' Responses About Student Competencies

Competency	Can perform basic operations and use advanced features	Can perform basic operations and complete standard tasks	Unsure how to perform basic operations and standard tasks
Ability to write a report using a word processor	88%	12%	0%
Ability to search for information	68%	30%	2%
Ability to send and receive email	89%	11%	0%

These data support the data from the surveys conducted with graduating seniors and instructors of UIT Intensive courses.

Interviews

Numerous questions related to this evaluation were answered through regular meetings with the Director of the UIT program, and numerous e-mails, phone calls and face-to-face meetings with the provost, vice-provost, associate dean of special programs, and the transcript analyst in the Office of Admissions. Most of that information is spread throughout this dissertation; however, the meeting with the transcript analyst was particularly important to answering the transfer questions. The results of a meeting on March 13, 2002, and several follow-up discussions, as well as a review of course descriptions via institutional web sites, are described in the first section below.

When a student transfers to ETSU, the transcript analyst in the admissions office evaluates his or her transcript to determine whether any courses taken elsewhere have ETSU equivalents. For schools that ETSU has already generated a transfer equivalency sheet, this step is processed automatically by software in the university's Student Information System application. These schools are middle and eastern Tennessee Board of Regents technical institutes and community colleges (Chattanooga State Technical Community College, Cleveland State Community College, Jackson State Community College, Nashville State Technical Institute, Northeast State Technical Community College, Pellissippi State Technical Community College, Roane State Community College, Volunteer State Community College, and Walters State Community College), all Virginia community colleges, and Hiwassee College. Nine of the 10 Tennessee schools and all Virginia community colleges have a single course that transfers in as CSCI 1100 and CSCI 1101: Introduction to Spreadsheets. This indicates that the course is at least three credit hours and includes coverage of a spreadsheet application. Nashville State Technical College does not have a course that automatically transfers in as CSCI 1100 (or CSCI

1101). According to the Assistant Director of Admissions, during a typical year, 30% of transfers come from Northeast State Technical Community College and Walters State Community College.

If the student transferred from a different college or from one of these colleges with a different computer literacy course, the transcript analyst takes a first pass at the course description and the number of credit hours to determine if the student should receive credit or be denied credit for either course. If there is any question, the analyst asks the Director of the UIT Program to make a decision. These decisions are handled on a case-by-case basis and are not formalized. However, the decision does become part of "institutional knowledge" and the director's decision is taken into account for future instances where that particular course is being transferred. Students who are denied credit, but feel that they have gained the knowledge covered in CSCI 1100, are advised to take the challenge exam. A student does have the right to make an appeal to the chair of the department, at which point, if approved, the chair writes a letter indicating transfer approval to the transcript analyst.

According to the Assistant Director of Admissions, typically over 60% of the students who transfer to ETSU attended either a school with which ETSU has a transfer equivalency agreement or from another TBR institution. The Tennessee Board of Regents universities, Austin Peay State University, Middle Tennessee State University, Tennessee State University, Tennessee Technological University, and The University of Memphis, all offer a course of at least three credit hours that includes spreadsheet applications.

Several other interesting points were obtained during the interview. ETSU does not grant transfer credit for challenge exams, proficiency exams, Advanced Placement Program tests, or CLEP tests. There are no Advanced Placement Program or CLEP tests that are applicable for

CSCI 1100 credit. Students who passed challenge or proficiency exams at other institutions are asked to take the CSCI 1100 challenge exam at ETSU. Although ETSU does not grant "intensive" credit for course taken at other institutions, a policy has been implemented by the associate dean for special programs to reduce the number of required UIT-intensive courses by one for any student who is granted transfer credit for CSCI 1101. For more information on the evaluation of the intensive courses, see Chapter 5.

The analyst currently does not see any problems with the transfer process or with students transferring in CSCI 1100. There is ample opportunity for review and an accessible appeals process for transfer students. When the course was first introduced in 1995, there were significant issues to resolve because no other institutions taught a two-credit-hour course. The problem worked itself out, as Northeast State Community College and Walters State Community College began offering a two-credit-hour course, and as the policy formalized granting credit for both CSCI 1100 and CSCI 1101 to students completing a three-credit-hour course that included spreadsheets.

Literature Review and Staffing Issues

The UIT course at ETSU is taught primarily by graduate teaching assistants. This staffing model is not used to this extent in other courses at ETSU, so it became a point of inquiry during the question generation phase of this study. The most important question of this area is whether the graduate assistants provide the same level of instructional quality as the full-time instructor. As mentioned below in the section titled "Student Assessment of Instruction," the graduate assistants are not evaluated using the standard instrument used in other course. Nor are

they evaluated via any other instrument. Implementation of course/instructor evaluation for all sections of CSCI 1100 is one of the recommendations of this dissertation.

In order to determine if research exists that might provide data to help address this question, searches were conducted on the internet, in ERIC archives, in numerous online databases and in dissertation abstracts. In particular, an attempt was made to determine if literature exists that addresses the quality of instruction given by graduate assistants as compared to the instruction quality of full-time employees. Unfortunately no literature was found. One can only guess that one reason for this lack of literature is the confidential and private nature of course and instructor evaluations. It is also an area of research that could have significant public relations effects for those universities that use graduate teaching assistants, particularly if the reports portrayed teaching assistant quality in a negative light.

Student Assessment of Instruction

The Student Assessment of Instruction (SAI) is the primary form of course evaluation at ETSU. An instructor is required to select two courses that will be evaluated in this manner each semester. Students completing the survey respond to 21 questions by selecting from "Strongly Agree," "Agree," "Disagree," "Strongly Disagree." The instrument is confidential and anonymous. Instructors receive a summary report once the semester has been completed. The summary report calculates means and standard deviations on five subscales generated from the items. Those subscales are attitude, method, content, interest, and instructor. A mean and standard deviation for the total of the items is also calculated.

Unfortunately, the SAI has not been a systematic component of the CSCI 1100 course. The SAI has been given in only 4 sections of the course. All of those evaluations took place in

2000 and 2001 and were only conducted in the lead instructor's section, none in sections taught by graduate assistants. Table 8 shows the means of the subscales and total for each of the sections.

Table 8

Student Assessment of Instruction Subscale Means

Year/Term & Section	Attitude	Method	Content	Interest	Instructor	Total
001 sec. 010	13.43	12.14	12.00	12.43	17.29	67.29
001 sec. 016	13.28	12.80	12.60	11.04	16.28	66.24
011 sec. 060	15.67	14.50	13.50	13.50	18.00	79.00
013 sec. 003	13.37	12.65	13.30	11.10	16.75	67.32
Summary	13.94	13.02	12.85	12.02	17.08	69.96

A document sent out by the Office of Institutional Effectiveness and Planning indicates that means in the range of 12 - 13.99 for the Attitude, Method, Content, and Interest categories are considered good, while means above 14 are considered very good. Means from 10-11.99 are considered average. In the instructor category, scores in the 15-17.49 range are considered good. Scores above 17.49 are classified as very good. On the Total scale, scores above 73.5 are very good and scores in the 63-73.49 range are classified as good. As can be seen from the table, the majority of the SAI mean data scores for these sections fell within the good range. A few scores were classified as very good. Only two scores fell in the average range, and no scores were in the poor or very poor categories.

Student Focus Groups

During the spring and summer 2002 semesters, five focus groups were conducted with enrolled students. The courses used for the focus groups were selected because they were either

senior level or UIT-intensive courses. An attempt was made to have one focus group from each of the six ETSU colleges impacted by they general education curriculum. Due to scheduling conflicts, a representative course from the College of Nursing was not included. The specific courses were selected based on convenience factors for the researcher and the instructor of the course. Focus groups were conducted in one section of MGMT 3220-Management Information Systems, BISC 4300-Biology Seminar, CSCI 1101-Introduction to Spreadsheets, PUBH 4457-Computers for Health Professionals, and CUAI 4707-Classroom Management. Students in these sections were asked to address the evaluation questions that were appropriate for student feedback. Because the focus groups addressed issues beyond those related to this chapter, only those questions and responses specific to the UIT course will be presented here. The other issues are addressed in Chapters 5 and 6.

The responses to the CSCI 1100 related questions and further discussion confirmed data that had already been gathered elsewhere. Students indicated that the UIT course does meet its stated objectives. The reasons students completed the course, even though they might pass the challenge exam, included a desire to earn an "easy A," the fact that they were already enrolled in the class, and that some wanted to make sure that they knew the material. Some students said that spreadsheet applications should be incorporated into CSCI 1100. Other students mentioned the possible addition of presentation software, advanced email application skills, and scanning.

Due to the lack of data about the effectiveness of using graduate assistants in the course, these students were specifically asked to compare the quality of instruction they received in the CSCI 1100 class with that of other courses. The students indicated that the quality of instruction was of the same quality as they had experienced in other courses at ETSU. They also said that it was appropriate to have graduate assistants teaching that type of course. However, it was also

pointed out by numerous students that the amount of instruction that occurred in CSCI 1100 was significantly less than that which occurred in other courses due to a heavy reliance on computer based instruction.

When asked to provide any additional data that would help in the evaluation of the UIT program, several students indicated a desire to "get rid of NetG." NetG is the computer based instruction and testing software. Several students then reported faults with the software, including that it was not always functioning, that it did not always record correct responses, and that it allowed the memorization of answers. There appeared to be general consensus in both groups that NetG was an inadequate program for use in the course.

Summary

Through the use of surveys, literature and historical reviews, focus groups, and interviews, much has been learned about the CSCI 1100 course. Generally speaking, the course meets its objectives and students retain the basic skills covered in the course throughout their college career. There appear to some problems with implementation of the requirement that students complete the exam within the first 32 hours. It would also appear that there is a significant difference between the number of students who could complete the challenge exam and those who actually take it. Each of these areas and all of the other evaluation questions are systematically addressed in Chapter 7. The next chapter focuses on the intensive course requirement of the UIT program.

CHAPTER 5

EVALUATION OF THE UIT-INTENSIVE COMPONENT

According to the ETSU General Education Requirements (2001), "Students must complete a minimum of two using information technology-intensive courses. At least one of these courses must be in the major field of study" (p.52). The ETSU Curriculum Process Manual (2002) states, "The spirit of the UIT-intensive requirement is that the use of current information technology will be a significant and integral part of the course content." This document further lists the criteria for approving a course as UIT-intensive: 1) the course has a 1 to 4 credit hour value, 2) the course requires every student to use information technology, 3) the course requires students to use current information technology throughout the semester to complete out-of-class assignments, 4) at all applicable times, each student should be expected to use information technology that he or she has learned in the CSCI 1100 course, 5) the students must be involved in learning new information technology skills, and 6) at least one credit hour's worth of each student's final grade should be based on his or her knowledge of these new skills (e.g. 33% of final grade in a three credit hour course). This chapter presents the questions, research methods and results, and conclusions that pertain to the evaluation of the intensive component of the UIT program.

Research Questions

The question generation phase of this evaluation brought forth two types of questions relative to the UIT-intensive component: 1) questions about the UIT-intensive courses that have

been approved, and 2) questions about instructor knowledge and training. These questions are described below.

Intensive Courses

1) To what extent is there unnecessary duplication in "technology" courses offered in various majors as intensive courses? That is, do their projected learning outcomes represent an "intensive" application of elementary principles as opposed to repeating instruction in the principles covered in the CSCI 1100 course?
2) Is the definition of competencies addressed in the CSCI 1100 course sufficiently clear for those who are considering intensive course proposals to satisfy themselves that there is no duplication?
3) Is the CSCI 1100 prerequisite being enforced for the UIT-intensive courses?
4) Are students completing two UIT-intensive courses prior to graduation?

To answer these questions, several studies were conducted. A review of UIT-intensive course syllabi was required. A program that reported student records was helpful. It was also necessary to conduct a focus group with instructors who recently submitted courses for approval. Finally, interviews with the Director of the UIT Program, the Associate Dean of Special Programs, and the Assistant Registrar responsible for enforcing graduation requirements resolved the remaining questions.

Instructor Knowledge and Training

The other relevant questions about the UIT-intensive component asked:

7) To what extent are instructors of intensive courses aware of the purposes of the General Education program and of the role they play in it? What implications does this have for training?
8) Is training for intensive instructors sufficient, and is it sustainable over time?

In an attempt to answer these questions, surveys were given, policies and syllabi were reviewed, student records were investigated, and interviews were conducted.

Research and Results

Using the same format as the previous chapter, the following sections will describe each of the individual research component methods and results. Many of the instruments and procedures describe in Chapter 4 are covered here as well, with a focus on the intensive component rather than on the CSCI 1100 course.

UIT-Intensive Course Proposal, Approval, and Review Process

Proposal Process. The process for proposing a course for a UIT-intensive designation is described in the ETSU Curriculum Process Manual. The process involves completing a cover sheet (Appendix K) that asks for course number, title, credit hours, department, college, and contact person and includes signature lines for department chair, and college dean. Once the cover sheet is completed, the questions on the UIT-Intensive Information Sheet (Appendix L) must be answered. These questions are:

1) What new tools and/or skills (those not covered by the proficiency exam or UIT course) related to information technology will be taught in this course?
2) How do the instructors of this course plan to ensure that every student will be using these new tools throughout this course?
3) Will the instructor(s) of this course demonstrate how the new skills (those not covered by the proficiency exam or UIT course) can be incorporated with the skills that the student has demonstrated through the UIT proficiency test or course? Please explain how this will be accomplished, or why it will not be demonstrated.
4) How will it be determined that the students have in fact acquired the skills to use the information technology taught in this course (examinations, projects, etc.)? Please include samples of these methods (sample assignments, exams, projects, etc.).

The Miscellaneous Administrative Information Sheet (Appendix M) must also be completed. The information contained on this form is not used to evaluate the course for approval but is kept as a record of the types of courses that are being proposed. The form is used to indicate whether the course is required in the minor or major, or whether it is in the general education core. Those submitting the proposals also indicate whether the course is an existing, new, or experimental course, how often the department plans to offer the course, and the names instructors will likely teach the course. One important point to note is that, according to policy, experimental courses cannot be approved as intensive courses. This point is noted on the Intensive Course Routing Sheet (Appendix N), which is the final form to be completed with the proposal. This sheet is used as the official documentation for intensive course approval. The sheet includes fields for indicating course number, title, credits, status (whether in SIS course inventory), intensive designation (writing, oral communication, or UIT), and effective term.

Also included are signature lines for department chair, intensive committee chair, and Associate Dean of Special Programs. Although most courses are approved for all sections, there is a policy allowing for section specific approval. A portion of the routing sheet is used for this type of approval.

All of these documents, the cover sheet, information sheet, miscellaneous information sheet, and routing sheet, are submitted to the UIT-intensive committee via the committee chair. One of the duties of the Director of the UIT Program is to be the chair of this committee. New proposals are typically reviewed once each semester. Proposals must be submitted according to the deadlines published on the ETSU General Education Program website (2002). Currently the deadlines for submission are September 15, October 14, and January 15 in order to be designated as intensive for the Spring, Summer, and Fall terms, respectively.

Approval Process. The UIT-intensive proposals are evaluated by the committee using the UIT-intensive Designation Rating Form (Appendix O). This form, and the course proposal, are sent by the committee chair to the committee members prior to a semi-annual committee meeting. Usually, two members of the committee are asked to review each proposal. The rating form allows the reviewer to determine, based on the proposal forms, whether a course meets the UIT-intensive requirements. Reviewers select from "Exceptional," "Acceptable", "Inadequate," or "Cannot Determine" for each of the requirements. A course must have at least an acceptable rating in all categories to be approved as UIT-intensive. The members report their findings to the committee at the meeting. If the committee determines that the course does not meet the requirements, either a committee member or the chair calls the individual listed as the contact person on the proposal cover sheet and explains the reason for the course not being approved.

Most often the reason for non-approval is due to missing information from the proposal information sheet or the course syllabi. The proposing department is given the opportunity to submit the requested additional data and the course is reviewed again. Using this process, all proposed courses have eventually been approved as UIT-intensive.

Once the committee approves a course, the committee chair signs the course routing sheet and forwards the sheet to the Associate Dean of Special Programs. The Associate Dean validates the data on the course routing sheet, signs the sheet, and forwards a copy to the Registrar so the appropriate field in the course inventory file of the student information system can be updated.

A department can request that the intensive designation be removed from a course. The department must submit a memo and course routing sheet to the committee chair. The chair signs the routing sheet and forwards it to the Associate Dean for another signature. Again the sheet is sent to the Registrar and appropriate actions are taken. Course removal requests must adhere to the same deadlines as course proposals. The intent of the deadlines is to ensure accurate publication of intensive courses in the schedule of classes each semester.

Review Process. As documented on the General Education Program website, each intensive course is reviewed every 3 years. Each fall and spring, departments responsible for a UIT-intensive course that is up for review receive a letter from the UIT committee chair. The letter describes the review process and asks for the department to submit a syllabus from each section of the intensive course. These syllabi are then reviewed by the UIT-intensive committee, using the same criteria as proposed courses. The syllabi do not have to match the content and objectives of the original proposals, but must still meet each of the requirements for a UIT-

intensive course. Any committee concerns about a course are relayed to the department via the committee chair. A dialogue continues between the committee and the department until there is documentation that the requirements have been met. During this process it is possible that a department would be asked to submit a request for removing the UIT-intensive designation for the course, but this is not the intent of the process. All courses that have been reviewed have been approved. Several courses (CSCI 4157, AHSC 4230, GEOG 3210, PMNU 3120, THEA 4527) did not undergo review because they were not taught during the review period.

Review of UIT-Intensive Course Syllabi

Since Fall 1995, 86 courses have been approved as UIT-intensive. Only one course was not approved and after departmental review, the proposal was retracted. During that time, 20 additional courses were approved on a section specific basis. No courses have had their UIT-intensive designation removed. However, a few courses are no longer being taught, and several have had course number or prefix changes (e.g. BISC became BIOL.) Table 9 lists all of the courses that have been approved, the course title, the term they were approved, the term in which they were reviewed, and the primary technology skill used in the course.

Table 9

UIT-intensive courses

Course Number	Title	Approval Year/Term	Review Year/Term	Primary skill
ACCT 4310	Accounting Information Systems	973	003	Accountancy software
ADVR 2070	Typography & Printing	973	011	Publishing
AHSC 3120	Computers & Technology in Early Childhood	973	003	Advanced UIT and web design
AHSC 4230	Merchandise Buying	983		Spreadsheets
AHSC 4417	Food Systems Operations	001		Spreadsheets
AHSC 4610	Health Care Studio IV	013		Computer aided drafting

Table 9 continued.

AHSC 4611	Hospitality: Studio V	013		Computer aided drafting
ALHE 4060	Research in Allied Health	011		Presentation software and spreadsheets
ALNU 4030	Nursing Process and Research in Adult Care	983	013	Database and presentation software
ARTA 2401	Commercial Art	983	013	Imaging and publishing
BGSD 2200	Using Information Technology in General Studies	993		Advanced UIT
BIOL 1131	Biology for Science Majors Lab III	993		Population genetics software
BIOL 1301	Introduction to Biology Lab III	961	001	Population genetics software
BIOL 4367	System Ecology	001		Simulation
BIOL 4597	Recombinant DNA Laboratory	981	011	Population genetics software
BIOL 4747	Population Genetics	973	001	Statistical Computing
CHEM 2221	Quantitative Analysis Laboratory	963	001	Statistical Computing
CJCR 3444	Microcomputers as a Research Tool	973	993	Statistical Computing
CSCI 1101	Introduction to Spreadsheets	953	013	Spreadsheets
CSCI 1102	Introduction to Database Applications	971	001	Database
CSCI 1250	Introduction to Computer Science I	963	993	Programming
CSCI 2100	Introduction to "C"	963	993	Programming
CSCI 3220	Introduction to Database Systems	971	993	Programming
CSCI 3400	Network Design and Management	S00		System Administration
CSCI 4157	Interactive Graphics	971		Programming
CUAI 2440	Computer Applications in Education	973	003	Database and spreadsheets
ECON 2080	Quantitative Methods of Business II	963	993	Statistical computing
ENGL 3134	Computers, Writing, Literature	963	993	Publishing

Table 9 continued.

ENGL 4100	Writing in the Profession	003		Publishing
ENGL 4410	Literature in Hypertext	963	001	Publishing
ENGL 4420	Writing with Computers	963	001	Publishing
ENTC 2160	Architectural CADD	963	993	Computer aided drafting
ENTC 2170	CADD (Computer Aided Design Drafting)	963	993	Computer aided drafting
ENTC 3170	CADD Systems	981	003	Computer aided drafting
ENTC 3260	Computer Integrated Manufacturing	963	993	Computer aided drafting, manufacturing
ENTC 3360	Electronic Fabrication	963	001	Computer aided drafting
ENTC 3410	Construction Estimating and Planning	001		Spreadsheets
ENTC 3420	Advanced Construction Estimating and Planning	001		Spreadsheets
ENTC 3690	Desktop Publishing	991	013	Publishing
ENTC 3710	Manual Numerical Control Programming	963	993	Programming
ENTC 4147	Photo-realistic Imaging and Animation	991		Imaging
ENTC 4337	Electronic-Microprocessors I	963	993	Programming
ENTC 4650	Digital Imaging	991	013	Imaging
ENTC 4717	Computer Assisted Numerical Control Programming	963	001	Programming
ENVH 1800	Human Ecology and Environmental Education	013		Presentation software
ENVH 3080	Principles of Epidemiology	991		Statistical computing
FREN 3110	French Conversation and Composition	981	011	Advanced UIT
GEOG 3210	Cartography	963		GIS applications
GEOG 4217	Geographic Information Systems	963	993	GIS applications
GERM 3141	German Conversation and Composition	981	011	Advanced UIT
HDAL 4950	Research in Learning and Development	973	003	Advanced UIT
HIST 3410	Introduction to Historical Methods	961	993	Advanced UIT
HSCI 1210	Anatomy and Physiology	001		Publishing

Table 9 continued.

JOUR 3130	In-Depth Reporting	001		Publishing
JOUR 3160	Newspaper Design	973	011	Publishing
JOUR 3301	Photojournalism	013		Imaging
MATH 4257	Numerical Analysis	973	003	Programming
MATH 4267	Numerical Linear Algebra	973	011	Programming
MEDA 3570	Educational Technology	973	003	Spreadsheets and presentation software
MGMT 3220	Management Information Systems	973	003	Spreadsheets, database, and statistical computing
MUSC 4600	Orchestration and Arranging	011		Specialized document processing
PEXS 3410	Implementing Technology	023		Spreadsheets and presentation software
PEXS 3610	Exercise Physiology I	993		Spreadsheets and statistical computing
PEXS 3850	Scientific Basis of Human Performance	991		Spreadsheets and presentation software
PHIL 3030	History of Modern Philosophy	973	001	Advanced UIT
PHIL 4017	Ethical Theory	973	003	Advanced UIT
PHYS 3010	Mechanics	973		Programming
PMNU 2020	Introduction to Professional Nursing	971	993	Statistical Computing, Advanced UIT
PMNU 3120	Professional Community-Based Nursing	981		Advanced UIT
PMNU 4017	Health Care Informatics	981	011	Advanced UIT
PMNU 4050	Professional Roles in Mental Health Nursing	963		Advanced UIT
PSYC 3444	Computer Methods in Psychology	981	003	Statistical Computing
PUBH 3000	Introduction to Biostatistics	013		Statistical Computing
PUBH 3080	Principles of Epidemiology	991		Statistical computing

Table 9 continued.

PUBH 3120	Principles and Practices of Public Health Education I	973	003	Advanced UIT
PUBH 3130	Principles and Methods of Health Education	973	003	Advanced UIT
PUBR 3770	Public Relations Publications	973	003	Publishing
RTVF 3602	Video-Film Techniques	991	013	Imaging
RTVF 4661	Advanced TV Productions	991		Imaging
SOAA 3444	Microcomputers as a Research Tool	963	993	Statistical Computing
SOWK 4210	Social Work Research	971	993	Statistical Computing
SPAN 3113	Spanish Conversation and Composition	981	011	Advanced UIT
SPCH 3330	Quantitative Communication Research Methods	973	011	Statistical computing
SPED 3500	Technology for Special Education	953	993	Assistive Technology
SURV 4550	Automated Surveying and Mapping	991	013	GIS applications
THEA 4527	Advanced Scenographic Design	963		Computer aided drafting and database

Analysis of the syllabi for these courses indicates that a primary goal of the majority of these courses is to teach a new application of information technology not already covered in the CSCI 1100 course. A few, instead, cover advanced word processing or internet skills beyond the basic UIT skills. This seems appropriate, as in some careers (e.g. computer science, engineering technology, and some of the traditional sciences) employees are expected to work with specialized computing resources on a daily basis. Employees in other fields, such as psychology and philosophy, are more likely to use advanced features of "standard" applications. The UIT committee has determined that both approaches meet the UIT-intensive guidelines and allows departments to decide which approach is more appropriate for their area. Several courses included topics that were covered in the CSCI 1100 course, but included enough additional technology topics to warrant approval. The committee does feel that it is appropriate to review

some material in CSCI 1100 as the speed of change in information technology often means relearning skills due to version and application upgrades.

Reports from Student Records

A program was written to generate a report from the Student Information System that attempts to determine whether the UIT course is indeed being enforced as a pre-requisite to the intensive courses. During Fall 2001, there were 113 sections of UIT-intensive courses taught. The enrollment for those classes totaled 2,244 students. Surprisingly, the report indicated that 29.6% of the students enrolled in UIT-intensive courses had not completed CSCI 1100. Although no policy specifically indicates that CSCI 1100 must be a prerequisite of a UIT-intensive course, the UIT-intensive course requirements indicate that: 1) at all applicable times, each student should be expected to use information technology that he/she has learned in the CSCI 1100 course, and 2) the students must be involved in learning new information technology skills. There are several courses that may be using CSCI 1100 as a co-requisite rather than pre-requisite due to the timing of the technology topics. Two courses that are known to use CSCI 1100 as a co-requisite are CSCI 1101 and several sections of ENGL 1010. These two courses account for 170 of the 661 (26%) students enrolled in UIT-intensive classes without having completed CSCI 1100. Of those 661 students, 157 (24%) were currently enrolled in CSCI 1100.

There may be several reasons why this percentage is so high. Students may be in the process of completing the UIT challenge exam, and, having indicated this to an instructor, the student may have been allowed to stay in the course. Students may have completed the UIT proficiency exam. The software application used to generate the report was unable to determine whether a student completed the proficiency exam. Unlike the challenge exam, the proficiency

exam is not stored as a part of the student transcript. Also, some courses may treat CSCI 1100 as a co-requisite because they do not cover technology components until late in the semester. Furthermore, some students in these courses may be non-degree seeking students.

In an attempt to discover if these reasons, or others, are accurate, the records of a sample of the students in these classes were explored. The transcripts for a 5% sample of the 661 students indicate that many of those students had valid reasons for being enrolled in the course. Four were second-degree students, 5 had completed the UIT proficiency exam, 7 had transferred in a course credited similar to CSCI 1100, and 3 were students who regularly withdrew from all of their courses. The remaining students had no evidence of taking CSCI 1100, the exam, or a similar course at a different institution.

Graduating Senior Survey

On the graduating senior survey mentioned in Chapter 4, two questions were asked that pertain to the UIT-intensive courses. Students were asked whether they felt the UIT-intensive courses provided valuable skills. Students selected from five options on a Likert scale. Twenty-eight percent of the responders strongly agreed, 57% agreed, 9% disagreed, 4% strongly disagreed, and 1% were uncertain that these courses provided them with valuable computer skills. Another question asked students to respond to the statement: "ETSU prepared me with the computer skills I will need for my career." The responses indicate that 20% of the students strongly agreed, 57% agreed, 16% disagreed, and 6% strongly disagree. One student was uncertain.

With 13% of the responders indicating that they did not feel that UIT-intensive courses provided them with valuable skills, and 22% responding that they did not feel that ETSU

prepared them with the computer skills they will need for their career, it is important to try to determine where the problems in intensive courses might lie. Because at least one of the UIT-intensive courses has to be completed in the major, it would be interesting to know whether these concerns were major-specific. Unfortunately, because only 69 questionnaires were evaluated (10.83% response rate) and there were only a few responders in each major, it is impossible to draw any statistically significant conclusions about whether a student's chosen major is related to their satisfaction with the intensive courses. For future reference, the students that disagreed with these statements came from biology (2), finance (2), accounting (1), criminal justice (1), elementary education (1), microbiology (1), operations management (1), and psychology (1). This concern was further addressed in the focus groups described in a later section.

Senior Level Course Instructor Survey

The survey asking for responses from instructors of senior level classes (see Chapter 4) included two questions related to the intent of the intensive courses. The first item was similar to that asked of graduating seniors. The instructors were asked to respond to the following statement: "ETSU prepares students with the computer skills they will need for their careers." Twenty-four percent strongly agreed, 57% agreed, 9% disagreed and 1% strongly disagreed. Eight percent were unsure. Although these percentages are slightly more positive than those of the graduating seniors, the fact that 10% disagreed with the statement and 8% were unsure indicates that some improvements could be made in this area.

A follow-up question asked, "What recommendations do you have that would help ETSU prepare students with the computer skills they will need for their careers?" Categories of comments with multiple responses included: 1) a need for additional resources in the form of

software, hardware, and people; 2) lists of specific skills that students should learn, in particular, spreadsheets, presentation software, and web design; 3) a need to improve skills related to writing papers: typing, source evaluation, proofreading, writing, and 4) comments related to improving the skill sets of the faculty. These and other comments provide useful information for guiding improvements to the program.

Interviews

To answer most of the questions related to the UIT-intensive courses, interviews with the Director of the UIT program and others were necessary. Conversations that were of particular importance to answering whether students were graduating without meeting the requirement included e-mail and face-to-face discussions with the Associate Dean of Special Programs, the Vice Provost for Academic Affairs, and the Assistant Registrar responsible for enforcing graduation requirements.

The Office of the Registrar is responsible for validating that students have met graduation requirements. Currently, this duty is assigned to one of the Assistant Registrars. Each student anticipating graduation must complete an "Intent to Graduate" form and submit a "Major Check Sheet" to the registrar. Usually, this document is completed the semester before a student is planning on graduating. The Assistant Registrar then ensures that all graduation requirements, including completion of two UIT-intensive courses, are met. After reviewing the forms and transcript, the Registrar notifies each student in writing as to their graduation status. This document indicates any unmet requirements. Any "human" errors, such as missing a transfer course or incorrectly applying a major requirement, are appealed directly to the Registrar by the

student or an advisor. Requests for a waiver of a general education requirement are directed to the Office of Academic Affairs.

Since Fall of 1995, the Office of Academic Affairs has seen numerous requests to waive the UIT-intensive requirement for various reasons. According to the Associate Dean of Special Programs, the person responsible for granting waivers, the number of requests has stabilized during the past three years as the program has reached full implementation. The Associate Dean does not have records indicating which requirement (UIT, Writing, or Oral Communication) was waived, but the records indicate that 93 waivers were granted in the 1999-2000 academic year, 100 in 2000-2001, and 70 in 2001-2002. These waivers are primarily granted under two circumstances: 1) an advisor admits to incorrectly informing a student about status of intensive courses, or 2) the student completed a course prior to its being approved as UIT intensive and the instructor validates that the course content had not changed significantly. Waivers are only granted after a student has filed an intent to graduate and the graduation analyst has provided the student with a list of required courses to be completed. Waivers must be submitted from an advisor. They may not come directly from a student.

Faculty Interviews

In order to ascertain whether faculty of intensive courses felt that adequate training was available, phone interviews were conducted. Seven faculty who were currently teaching a recently approved UIT-intensive course were contacted. Two of the faculty had previously proposed courses for approval as UIT-intensive. The faculty were asked four specific questions followed by additional clarifying questions and discussion. The four specific questions were: 1) is CSCI 1100 a prerequisite for your course? 2) When completing your proposal for the intensive

status, were you aware of the course objectives of the CSCI 1100 course? 3) Are you comfortable with your knowledge of the general education program and the role of the intensive courses in the program? and 4) Are you provided with sufficient training relative to the teaching of your intensive course? Finally, the instructors were asked whether they had any additional feedback that would be helpful in the evaluation of the program.

During the interview process, seven instructors were contacted. Each of the instructors had taught a course during the 2000-2002 academic years that had been approved as UIT intensive within that time frame. Four of the instructors were full-time faculty members. The other three were adjunct instructors. The instructors represented four senior level courses, three junior level, and one freshmen level. Each interviewee was guaranteed confidentiality. Therefore, the responses are grouped below by question.

Each of the individuals indicated that CSCI 1100 was not an official pre-requisite for the course. However, each of the junior level and senior level instructors indicated that the students enrolled in the course should have had the CSCI 1100 course by the time they reached the course level. One instructor indicated that CSCI 1101 was a pre-requisite for the course; therefore, in effect, CSCI 1100 was as well. A few remarked that students could not have succeeded in their course without prior computer experience. Two others mentioned that the technology content of their courses did not rely on the skills taught in CSCI 1100. Three of the instructors submitted the original proposal to have their course designated as UIT intensive. They were not completely clear about the objectives of the UIT intensive course but had made assumptions about the topics that "must" be covered in a basic computer literacy course. None expressed concerns or questions when the objectives were described to them. One individual said that the university

could do a better job improving communication among faculty, students, and administration on this issue.

The adjunct faculty expressed less confidence in their knowledge of the general education program and the intensive courses than did the full-time faculty. One full-time faculty member, who had been involved in the revision to the general education program, was concerned that adjunct and new faculty may not be aware of the goals of the program. This, again, was related to a lack of communication among students, faculty, and staff. A full-time faculty member who had been at ETSU for three years was completely unaware of the general education requirements. Two of the adjunct faculty had no idea about the makeup of the general education program or specifics about the UIT program.

All of the interviewees indicated that adequate technology training was available. One mentioned that perhaps it had become less available in the last couple of years, but could not be certain of that. One instructor was "pleasantly surprised" by the availability of training, while indicating that perhaps additional training on the Macintosh platform would be appropriate. Another instructor praised the Faculty Technology Leadership program that helps improve faculty technology skills. This program is run as a cohort program with approximately 20 faculty involved each year. The adjunct faculty were not aware of the available training, but received their training on-the-job, so were not concerned.

The instructors responded with different comments when asked to provide any other information that could help evaluate the program. The responses included: "advise other faculty to enforce technology pre-requisites," "improve communication between faculty, students, and staff," "make new faculty aware of requirements of intensive courses," and "provide additional information about the CSCI 1100 course." One instructor who had proposed the course as

technology intensive was unaware of the status of the submission, even though it had been approved during the previous semester. This faculty member thought that perhaps the submission and approval process could be improved with more timely feedback to the submitters of proposals. None of the interviewees viewed their concerns about the program as "major" concerns. One of the adjuncts indicated that any information about the program that the university could supply would be greatly appreciated.

Student Focus Groups

In the student focus groups, three questions were asked specific to the intensive courses: 1) was there any duplication from the CSCI 1100 course in your technology intensive courses? 2) Was there any duplication in your technology intensive courses? and 3) Do you feel that the technology intensive courses adequately prepare you for your career? Students in all sections except CUAI 4707 indicated that there was no duplication of content in either the CSCI 1100 course or other intensive courses. Students were still expected to use the skills covered in CSCI 1100, but the instructors did not spend time teaching the students to perform those skills. One student in a focus group indicated that faculty of UIT-intensive courses should become more aware of the content covered in previous classes. In particular, they should know the content covered in prerequisite courses. The concern was not that an instructor duplicated content from a previous course, rather, it was that the instructor assumed knowledge that was not taught in any prior course. All students who responded to the question about career preparation indicated they felt that they were prepared for the technology aspects of their chosen career.

Students in the CUAI 4707 focus group indicated that there was significant overlap between CSCI 1100 and the two technology intensive courses they were required to take.

Students enrolled in the Interdisciplinary Studies in Education undergraduate program are required to take CUAI 2440-Computer Applications in Education and MEDA 3570-Educational Technology. The students in this focus group said that both of these UIT-intensive courses provided content that was also taught in CSCI 1100 and also duplicated the content from the other course. CUAI 2440 currently lists CSCI 1100 or the completion of the challenge exam as a prerequisite. During previous semesters students often enrolled in CUAI 2440 prior to CSCI 1100 and then took the challenge exam, but this practice has stopped. All of the students in the focus group indicated that they had completed CSCI 1100 prior to taking CUAI 2440. The current syllabus for CUAI 2440 does show word processing, internet, and world wide web assignments that may be duplicative of CSCI 1100, but also indicates significant coverage of spreadsheets, databases, design graphics, multimedia applications, and presentation software. MEDA 3570 also covers these topics and adds hypermedia. The MEDA 3570 syllabus suggests that students can enroll in the course after completing CSCI 1100 or CUAI 2440.

Summary

This chapter focused on the intensive component of the UIT program. By using focus groups, surveys, interviews and document reviews, much was learned about the program. In particular, the issues of unnecessary course content duplication, adequate training, and requirement enforcement were all investigated. Chapter 7 addresses each of the research questions for this area in the Evaluation Report section. The next chapter will investigate questions that did not specifically apply to the CSCI 1100 course or the intensive courses, but rather applied to both areas or to the program in general.

CHAPTER 6

OTHER EVALUATION QUESTIONS

In addition to questions specifically addressing the CSCI 1100 course and the intensive courses, questions were also asked regarding other aspects of the program. The following questions concern resources, student satisfaction, accreditation feedback, and program visibility:

1) How does the UIT program coordinate opportunities for student learning with the staff of student labs and with the student help desk?
2) Are the current teaching labs sufficient for teaching CSCI 1100 as well as all other UIT Intensive courses?
3) As the UIT program expands, including CSCI-1100, are there other labs that can be used to teach these classes?
4) Are there resources for upgrading the labs to make them more accommodating or appropriate for the instruction of students? What kind of improvements would be suggested in the labs (from the last question) to be more accommodating to an instructor teaching a UIT Intensive class in the lab?
5) Accrediting agencies in professional programs have been very complimentary of the impact of the intensive program. Is there a larger sample of perception that extends beyond students in professional programs? Does the General Education Advisory Committee receive and review these formal and informal assessments (e.g., accreditation reports, employer testimonials, advisory group opinions, etc.)?

6) What protocols are in place to assess student satisfaction, over time, with the computing proficiency they have on leaving ETSU? Are there bases for benchmarking this that would be credible?
7) How do resident and commuter students differ (if at all) with respect to the availability of support associated with the CSCI 1100 and intensive offerings?
8) How can the visibility of what has been achieved in the program be improved?

Research and Results

The majority of these questions were answered via discussions with appropriate ETSU personnel. Other data were gathered via focus groups with students and faculty, a review of existing institutional surveys, and a review of accreditation documentation. Question 8 is a recommendation item rather than an evaluation item; however, members of the focus groups were asked whether they were aware of the intensive program prior to enrolling at ETSU, and if so, did that knowledge affect their decision to attend ETSU?

SACS Accreditation Statement

The SACS Principles of Accreditation require each institution seeking SACS accreditation to address statement IV-13: "The institution's use of technology enhances student learning, is appropriate for meeting the objectives of its programs, and ensures that students have access to and training in the use of technology" (2001). ETSU's response to the statement was "Yes, East Tennessee State University is able to provide a portfolio of evidence supporting compliance" (ETSU SACS Compliance Audit Report, 2001). Within that portfolio, the university included the maintenance of the ETSU Information Technology Strategic Plan, the use

of Technology Access Fee dollars to replace all student lab computers on a three-year cycle, the implementation of the UIT program as a part of the general education requirements, and student access to web space and email accounts. The university also pointed towards the implementation of a student help desk, the Academic Technology lab for faculty support, and the Faculty Technology Leadership Program for improving the technology skills of faculty.

Alumni Survey

An alumni survey was administered by ETSU's Office of Outcomes Assessment in 1994, 1996, 1998, and 2000. The 1994 data were not collated into report format, but relevant data from the 1994 study are listed with the 1996 data. In 1996, the survey was sent to all 1357 1993-1994 academic year graduates. The survey had a response rate of 42%. The only survey item specifically addressing the use of computers asks responders to indicate the frequency with which they used computers while attending ETSU. The survey report indicated that "the greatest improvements since 1994 were in computer use (+9%)." The 1996 data found that 3% of students "never" used a computer, 15% "seldom" used a computer, 26% "occasionally" used one, and 56% "often" used one. This compares to the 1994 data of 3%, 19%, 31%, and 47% respectively.

An alumni survey was again administered in 1998; 1221 surveys were mailed to graduates of the 1995-1996 academic year. The survey had a response rate of 21.21%. Unfortunately for comparison purposes, the 1998 survey contained different questions than the 1994 and 1996 surveys. However, the 1998 survey results were compared to a set of national results from 118 other colleges and universities. On the 1998 survey, alumni were asked to indicate their satisfaction with "orientation to and instruction in use of campus computer

systems." Of the responders, 44.8% indicated that they were either satisfied or very satisfied, 21.6% were neutral, 25.9% were dissatisfied or very dissatisfied, and 7.8% either had no opinion or did not respond to the question. The number of ETSU alumni indicating they were "satisfied" or "very satisfied" compared favorably to the national norm that reported only 41% of responses in the "satisfied" or "very satisfied" categories.

On the 2000 survey, alumni were asked to indicate whether they had used the ETSU computer facilities and, if so, to indicate a level of satisfaction with those facilities. Of the responders, 93% had used ETSU's computer facilities. Of those, 6% reported a satisfaction level of "poor." The other 94% indicated "fair," "good," or "excellent" levels of satisfaction. Alumni were also asked to specify the degree to which ETSU added to their ability to use information technology. From the alumni, 42% indicated that their education at ETSU had added "very much" to their ability to use information technology. Another 47% indicated that it had added "somewhat" to their ability.

Enrolled Student Survey

Enrolled student surveys were conducted in 1993, 1995, 1997, 1999, and 2001 by the Office of Outcomes Assessment. The 1993 data were not available in report format, but appropriate data from that survey were included in the 1995 report. The survey is given to a stratified sample of classes at the 1000, 2000, 3000, and 4000 course levels. The survey is administered in classes, so it has a 100% return rate other than absent students.

In 1995, the survey was given to 2,407 students. Only 1,668 returns were analyzed, based on funding requirements that force the responses of students with less than 24 earned hours to be ignored. Students were asked to indicate the frequency with which they used

computers. Valid responses were "Never," "Seldom," "Occasionally," and "Often." The 1995 report indicated the following responses in the respective categories: 2%, 14%, 31%, and 53%. This was an improvement over the 1993 data, which reported 4%, 19%, 33%, and 44% in the same categories.

The 1997 survey was administered to 2,171 students. Of those surveys, 1,601 were analyzed for the same reasons as given in 1995. The report indicated improvement in the frequency of computer use from the 1995 survey. Only 1% of the responders indicated they "never" used a computer. Another 8% reported computer usage of "seldom," 26% "occasional," and 66% "often." By the 1997 survey, 92% of responders were indicating that they at least "occasionally" used computers, compared to 77% in the 1993 survey and 84% in the 1995 survey. Note that there is a rounding error in this data as the percent responses add to over 100%.

In the 1999 survey, still 92% reported at least occasional use of computers, but the number of responders who indicated that they used a computer often increased by 4%. This survey report was based on the analysis of 1,245 surveys of the 2,573 given. The report for the 1999 survey also displayed the responses of students based on college. All of the college averages were roughly equivalent, with 7% to 9% of the students "never" or "seldom" using computers and 91% to 93% of students "occasionally" or "often" using computers. The College of Education responses indicated the most usage of computers, with no students reporting that they "never" used a computer and 97% used a computer at least "occasionally". The College of Public and Allied Health reported the lowest use of computers, with 5% indicating that they "never" used a computer and 85% reporting that they at least "occasionally" used one.

The 2001 survey was analyzed for 1,250 responders. Of the responders, 60% indicated they often used the internet in classroom assignments. Another 28% reported that they used it occasionally. Only 2% indicated that they never used it. As with the 1997 and 1999 survey, 92% of the responders used ETSU's computer facilities. Of those who used the facilities, 17% indicated that the facilities were excellent. Another 56% indicated that the facilities were good. Only 5% indicated that the computer facilities were poor. The students were also asked to indicate the degree to which their education at ETSU had improved their ability to use information technology. Of the responders, 46% reported that their education had improved their ability "very much." Another 42% indicated that their ability had improved "somewhat."

College Student Experiences Questionnaire

The Office of Student Affairs administered a College Student Experiences Questionnaire in 1994, 1998, and 2002. All three surveys asked students to estimate the gain they had achieved at ETSU with using computers and other information technology. Participants selected one of 4 choices: Very little, some, quite a bit, and very much. Table 10 depicts the results from each of the three surveys for this question.

Table 10

Percentage Estimate of Gains with Using Computers

	Very little	Some	Quite a bit	Very much
1994	17%	36%	32%	14%
1998	9%	31.8%	36.3%	22.1%
2002	5%	24%	40%	31%

Through each of the three years in which the survey was conducted, the data show an increase in the number of students who estimated gains in the "Quite a bit" and "Very much" categories. Assuming students are entering ETSU with at least the same familiarity with computers each year, these data are a very positive indicator of the experiences students are having at ETSU relative to using computers.

Interview with Computer Lab Manager

An interview was conducted with the Computer Lab Manager responsible for all OIT-managed computer labs. Two issues were addressed during the interview -- the adequacy and availability of computers and the adequacy and availability of student help in the labs. The manager stated that all student computer labs on campus were on a three-year replacement cycle. Every three years new computers were purchased for the labs, as well as any necessary hardware, such as printers, networking hardware, and scanners. Since the labs were placed on this three-year cycle, OIT has experienced a significant reduction in the number of hardware problems occurring in the labs and the number of complaints about the adequacy of the computers. The manager also indicated that CSCI 1100 and CSCI 1101 were the only undergraduate courses that regularly used the lab. Courses that in previous years were taught in the OIT labs were now being taught in departmental labs.

The manager indicated that the majority of student workers employed by OIT were under Federal Work Study guidelines, meaning that they did not need to have any prior skills before working for OIT. There was currently no training plan for the student workers or a list of required skills. OIT had implemented a pay scale that rewarded workers who had worked for

several years. Only workers who had previous work experience with OIT were used in the two instructional labs. Novice workers were placed in the Culp Center, where they were supervised by a lab manager. Student workers who staffed the Student Help Desk did attend weekly training programs, but these programs focused more on technical support issues than on software support.

Aside from Gilbreath 105 and Sam Wilson 124, other labs were available on campus to teach CSCI 1100 and UIT-intensive courses. Rogers-Stout 320 was available as an OIT managed lab. Instructors could request a reservation for any number of class periods, including reserving the lab an entire semester. Twenty departmental labs were possibly available for instructional purposes. Most of these labs were designed to serve a particular department or departments. However, the Computer Lab Manager was aware that several of these labs allowed other departments to request reservations based on need.

Program Reviews and Accreditation Feedback

All undergraduate programs at ETSU undergo some form of program review. For most programs this is in the form of accreditation documentation and visitation. Programs that are not under the guidance of a national accrediting body use a form of institutional program review defined by the Office of the Academic Affairs and supervised by the Office of Outcomes Assessment. The period between program reviews is either that established by the accrediting body or the five-year period established for institutional program reviews.

Since 1995, undergraduate programs in Criminal Justice, History, Mathematics, Political Science, Sociology, and Biology have undergone institutional program reviews. The summary recommendation reports from these reviews are available on the ETSU Office of Outcomes

Assessment web site. Only one of these reviews made recommendations to specifically address the UIT requirement. In the History Program Review Summary Document (1998), there is a recommendation to "establish more oral intensive courses and technology intensive courses options in the major." The department response to this recommendation was to offer more sections of the technology intensive course and to add technology components to other courses. Each of the other program reviews made recommendations suggesting improving adequacy and availability of hardware and software to students and faculty. The request for improved student access to computers was completed via requests for Technology Access Fee funding and a National Science Foundation grant proposal. Requests for improved faculty access were handled via special appropriations from the Office of Academic Affairs and by pursuing a computer lease agreement funded out of departmental budgets.

Similar information was found in a review of accreditation documents and interviews with key accreditation participants. Recent accreditation visits included ETSU teacher education programs through the National Council for Accreditation of Teacher Education (NCATE), the surveying and mapping program through the Accreditation Board for Engineering and Technology (ABET), the computer science program through the Computer Science Accreditation Board (CSAB), the business programs through the Association for the Advancement of Collegiate Schools of Business - International (AACSB), and the mass communication programs through the Accrediting Council on Education in Journalism and Mass Communication. None of the accreditation documents or interviewees indicated that the UIT program was specifically mentioned through the accreditation process. Several comments, like those found above for program reviews, pointed out the adequacy and availability of computer equipment for faculty and students. Most student computer equipment concerns were addressed

through the Technology Access Fee program. The primary faculty equipment concern was that computer equipment is typically funded out of the departmental operating budget, and thus efforts to maintain the adequacy of the equipment forced cutbacks in other areas.

Student Focus Groups

During the focus groups with students in UIT-intensive courses and senior-level courses, students were asked to provide feedback about the adequacy of the computer labs in which they had received instruction. Numerous students complained about the labs used for CSCI 1100. They indicated that it was often difficult to hear the instructor. They also mentioned that they could not see the blackboard. They did not have concerns about the adequacy of departmental labs in which they had UIT-intensive courses (other than CSCI 1101-Introduction to Spreadsheets which used the same labs as CSCI 1100).

The students also indicated that the helpfulness of student lab workers depended on the worker. Apparently some workers were much more helpful than others. Most workers could help with simple questions but had more difficulty with advanced features of software or more technical questions.

Of all the students who were asked whether they were aware of the intensive program prior to enrolling at ETSU, only one student indicated that she had known about the program. That knowledge had no affect on her decision to attend ETSU. Other students indicated that they were more concerned about their major and what ETSU had to offer them, rather than any specific course requirements. Those responding indicated that they doubted that prior knowledge of the UIT program would have made a difference in their decision. Several

indicated that they were impressed by the number of accessible computers, particularly with the large lab in the Culp Center.

Meeting with CSCI 1100 Instructors

At the end of the Spring 2002 semester, a meeting was held in which the instructors of the CSCI 1100 course were asked for feedback relative to this program. About half of these instructors also taught sections of CSCI 1101-Introduction to Spreadsheets, a UIT-intensive course. The meeting was held without the course coordinator, so that the participants would feel free to voice their opinions.

To answer questions addressed in this chapter, the instructors were asked about the lab facilities. The major concern expressed by the instructors was the poor quality of the room layout of the main campus labs. The course was taught in Sam Wilson 124 and Gilbreath 105. The length of both labs made it difficult for students in the back of the classroom to hear the instructors. Also, the Sam Wilson lab had one area that was not visible from other portions of the room. This made it difficult for the instructors to see students who had questions. One suggested remedy for these problems was to purchase a microphone and sound system for both labs so that all students could hear. One instructor also suggested installing a projector and whiteboard in order to demonstrate skills, but later agreed with others that at least half of the students would have difficulty seeing the board based on the layout of the room. Another suggestion was to purchase hardware or software that would allow the instructor to control the monitors of each of the individual student computers. Several of the instructors had experienced this type of setup in Computer Science department labs and reported that it led to a much more positive learning environment.

Although the instructors said that the hardware in the labs was adequate, several indicated that it seemed to take longer than it should to fix some of the hardware problems. One instructor claimed that the floppy drive in one of the machines in the Sam Wilson lab was not functional for nearly two full semesters. There appears to be some question as to who is responsible for reporting hardware problems. Apparently, the student lab worker was supposed to report any problems to his or her manager, but the instructors were not convinced that this was always done.

The instructors were also asked about the coordination of help between CSCI 1100 and the student workers in the general Office of Information Technology (OIT) labs. No one was aware of any coordination and all indicated that the quality of help provided in the OIT labs was inadequate. In particular, they complained about the support for solving technical difficulties that students had when trying to initially set up their account or other account related problems (e.g. changing passwords, user profile problems, etc.). Most of the instructors said that they could provide better support if they had the technical means to solve these problems. They did not have concerns about the support for software use problems.

The CSCI 1100 course coordinator indicated in a separate conversation that during the 1999-2000 and 2000-2001 academic years, there was more coordination between the CSCI 1100 instructors and the OIT staff. The OIT staff member responsible for supervising the student workers required each of the student workers to demonstrate that he or she knew the material covered in the CSCI 1100 course. During one of the semesters, that same individual taught a section of CSCI 1100 for student workers. The coordinator of student workers since Fall 2001 indicated that there was not a need for a similar effort. The current communications between the CSCI 1100 instructors and the staff of OIT is focused on keeping the equipment running and solving technical problems.

Summary

The concerns addressed in this chapter focused on the availability and adequacy of resources, student satisfaction, accreditation feedback, and program visibility. Surveys of students and alumni administered approximately every two years provided trend data about student usage of computers. Additional data gathered from students, program reviews, faculty and staff provided answers to other questions. The data indicate that the number of students who at least occasionally used computers increased from 1993 to 1999. The percentage of alumni who reported that they were "satisfied" or "very satisfied" with ETSU's computer services and facilities was higher than the national norm. The data also indicated that 89% of 1998 graduates felt that their education at ETSU had increased their ability to use technology. The Technology Access Fee program has improved the availability and adequacy of student computer facilities. However, students and faculty report that the computer labs used for teaching could be improved to facilitate instruction. Chapter 7, the final chapter of this dissertation, provides an evaluation report based on the research presented in Chapters 4, 5, and 6. Each of the questions covering the UIT course, the intensive component, and the program as a whole are addressed in the evaluation report.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

This chapter presents and addresses each of the questions posed for this evaluation study. Each question is answered separately using the data presented in Chapters 4, 5, and 6. The first section of this chapter takes the form of an evaluation report. Each evaluation question is listed separately, followed by the responses to that particular question. Following the questions and responses section are recommendations derived from the evaluation for improving the UIT program.. The final portion of the evaluation report is the conclusion, which summarizes the major issues discovered during the evaluation. The last three sections of the chapter address recommendations for evaluation practitioners, recommendations for further research at ETSU, and a summary of the entire study.

Evaluation Report of ETSU's UIT Program

This evaluation report consists of three sections. The first section addresses each of the evaluation questions. Each question is presented, followed by a concise answer and, where appropriate, a clarification. The second section describes recommendations for improvement. The final section provides a conclusion to the evaluation. The conclusion presents the major issues discovered via the evaluation process. The responses to the questions were generated through analysis of data gathered via surveys, focus groups, interviews, tests, computer reports and document reviews.

Evaluation Questions and Responses

CSCI 1100: Course Competencies and Student Knowledge

1) Are the objectives of the foundation course, CSCI 1100-Using Information Technology, being met?

Yes.

Clarification. The objectives of CSCI 1100 are clearly identified in several documents: the course syllabus, the ETSU General Education Requirements document, and documents distributed by the Director of the UIT Program. Based on an analysis of student test scores, final grades, a graduating senior survey, three instructor surveys, a student technology skills survey, and student focus groups, the objectives are being met. The most obvious indicator of this is found on ETSU's General Education Evidence of Student Success web page - "Of 1651 students who passed CSCI 1100 in fall 2000 and spring 2001, 99.7% scored at least 70% on 'Basic Computer Skills and File Management'; 99.1% scored at least 70% on 'Communication via E-mail, Access Electronic Databases, Social and Ethical Responsibilities'; and 98.4% scored at least 70% on 'Basic Word Processing Skills.'" None of the surveys or focus groups generated data that contradicted these results.

2) What do students learn in CSCI 1100? Do they retain this knowledge? For how long?

As recorded on the CSCI 1100 syllabus, the objectives for students in the course are to:

1. learn the necessary components of word processing to write term papers, reports, resumes, and research papers;

2. learn how to use e-mail to communicate with others - locally, nationally, and globally;
3. learn how to manage files as applicable to the various software packages;
4. learn how to access electronic databases, and search for and retrieve information from those sources (including sites available via the internet and databases available through ETSU's library system; and
5. learn the social and ethical responsibilities that are inherent in the use of computers.

The majority of students retain this knowledge, at least until their semester of graduation. The areas that instructors and students report as the least retained are managing files and accessing electronic databases, searching for, and retrieving information from those sources. Even in these two areas, instructors reported that nearly 90% of their students met their expectations.

Clarification. All graduating seniors who returned the graduating senior survey reported they could perform the basic word processing operations and tasks. They all could also perform basic email operations and tasks. All but 1% of the responders reported a basic ability to search for information. These data were confirmed in a survey sent to all instructors of senior level courses. The only difference on the instructor survey results was that, on average, instructors estimated that 2% of their students could not perform the basic tasks associated with searching for information.

On a class technology skills survey, instructors reported that 11.8% of their students did not meet their expectations related to file management. They also reported that 11% of their students did not meet expectations related to using electronic databases. On a similar survey administered to students in those instructors' classes, 4.95% of the responders indicated they were unsure that they could create folders to organize files. Of the students, 83.33% were

confident that they could perform that task. Another 11.72% thought they probably could perform the task. On that same survey, students reported that they completed tasks using ETSU's online library catalog and other online databases less recently than other listed tasks. Approximately 10% of the students had not used these resources since taking the CSCI 1100 course.

3) Are the computing competencies that were assumed to be necessary to address in 1995, the same competencies that would denote adequate computer literacy in 2001? Should the program have a calendar for addressing that question systematically over time?

The concept of computer literacy continues to remain a vague concept.

Clarification. Many institutions require different competencies in their "computer literacy" course. At some institutions, multiple "computer literacy" courses are offered, with different sets of required competencies. Although not evaluated as a part of this study, CSCI 1100 is undergoing a fairly major change for Fall 2002. Spreadsheet competencies will be addressed within the course as it moves from a two credit to a three credit course.

The UIT course coordinator indicated that the question of modifying competencies is addressed informally each year as new textbooks are reviewed and new software versions are installed. There is no calendar for systematically addressing the issue. As the General Education Program enters its eighth year, it would seem appropriate to review the entire program, including the UIT program, to determine if any updates are necessary. During this evaluation, several students and faculty suggested the incorporation of spreadsheet and presentation skills into the

CSCI 1100 course. As mentioned above, spreadsheets skills will be added to the CSCI 1100 course competencies beginning Fall 2002.

4) What percentage of students opt to test out of CSCI 1100? Why?

Less than 10%. Students who took the course but either considered or would have considered taking the test reported via focus groups and surveys that the reasons for not taking the test included wanting an "easy A," not being aware of the exam, not knowing if they knew all of the material, and not wanting to pay for the exam.

Clarification. During the spring, summer, and fall 2001 terms, only 226 students attempted to test out of CSCI 1100. During the 2001 calendar year, 3000 students completed CSCI 1100. The next question also addresses concerns about the challenge exam option.

5) The 1995 committee assumed that an increasing percentage of students, over time, would bring sufficient UIT proficiencies from high school and would "challenge" the course. That was based on the assumption that students were becoming more computer literate. Did that occur? If not, why not?

Yes, it occurred. However, there appears to be a discrepancy between the number of students who bring those proficiencies and the number of students who take the exam.

Clarification. During the 2001 calendar year, 226 students completed the challenge exam. This was 85 students more than in 2000 and 133 students more than in 1999. The number

of students completing the challenge exam rose each year from its first offering in 1995, when 10 students completed it, to 1998, when 168 completed the exam. The number of completers then dropped significantly, to 93 in 1999. It is likely that the reason for this drop was a major change in the course instructional and testing methodology. In 1999, the course incorporated the use of computer-based instruction and testing. During that same year a correlated drop in the average grade earned in the course occurred. Since 1999, the number of exam completers has risen each year.

The results of a pretest given at the beginning of the spring 2002 semester indicated that 62% of the students taking the pretest were able to successfully complete 70% or more of the test components. The pretest required students to use a web browser, word processor, and email application. The discrepancy between the percentage of students who could conceivably pass the challenge exam and the percentage of students who actually attempt the challenge exam should draw the attention of the UIT director and other decision makers. Instructors of the CSCI 1100 course considered that one of their difficulties was trying to work with students who knew a majority of the information, while also attempting to work with students who were novice computer users. One of this evaluation study's recommendations focuses on this concern.

6) What percentage of students complete CSCI 1100 prior to completing 32 credit hours?

According to the research method employed in this study, 88.5% of students completed CSCI 1100 prior to earning 32 credit hours.

Clarification. This conclusion is based on the fact that 144 (11.5%) of the 1,253 students enrolled in CSCI 1100 during the fall 2002 semester had already earned over 32 credit hours.

The percentage based only on affected students is likely higher, as some of the 144 students were non-degree seeking. Others were transfer students who were still completing their first 32 hours at ETSU.

CSCI 1100: Transfer Issues

1) Regarding the transferring of a "computer literacy" course, what kinds of problems exist for students who transfer to ETSU?

There do not appear to be problems for students who transfer to ETSU relative to transferring a computer literacy course.

Clarification. Over 60% of the students who transfer to ETSU attended a school that has a course equivalency for CSCI 1100. These students are automatically awarded credit for CSCI 1100. A systematic process is followed for all other transfers. First, the transcript analyst reviews any appropriate course descriptions and credit hours to determine if credit for CSCI 1100 should be awarded. If the analyst has any questions, the Director of the UIT program is asked to make a decision. Students who are denied credit, but feel that they have the appropriate skills, are advised to complete the challenge exam.

2) Are there other two-credit-hour courses at TBR institutions that transfer as CSCI 1100?

No.

Clarification. Students who earned credit for CSCI 1100 based on completion of a computer literacy course at another TBR institution all completed a three credit hour course. They were granted credit for both CSCI 1100 and CSCI 1101.

3) Are most courses transferred in two- or three-credit-hour courses?

Three-credit-hour courses.

Clarification. No student in the past few years has transferred in a recently completed two-credit-hour course for CSCI 1100. When ETSU began teaching CSCI 1100 as a two-credit-hour course in 1995, Northeast State Technical Community College added a two-credit-hour computer literacy course. That course was only offered for two years and was then phased out.

4) Do most three-credit-hour courses that are attempted by transfers include spreadsheets?

Yes.

Clarification. The 60% of transfer students who come from TBR institutions (except Nashville State Community College), Hiwasee College, and Virginia community colleges all earn three-credit-hours. They are granted credit for both CSCI 1100 and CSCI 1101. The transcript analyst indicated that for the other 40% of transfers, approximately 3/4 of those earn credit for both CSCI 1100 and CSCI 1101, based on the inclusion of spreadsheets in their original course.

CSCI 1100: Staffing

1) How has the staffing profile (including the use of graduate assistants) worked in CSCI 1100? Does the literature give any basis for addressing that in contrast to other delivery systems and in terms of student learning outcomes, cost, etc.?

The CSCI 1100 course is taught primarily by graduate assistants. They are not formally evaluated. No literature was found that compared effectiveness of graduate assistantships to regular instructors. The lack of formal evaluations prompted one of this study's recommendations for improvement.

The UIT-Intensive Component: Intensive Courses

1) To what extent is there unnecessary duplication in "technology" courses offered in various majors as intensive courses? That is, do their projected learning outcomes represent an "intensive" application of elementary principles as opposed to repeating instruction in the principles covered in the CSCI 1100 course?

There is not an inappropriate duplication of CSCI 1100 material in UIT-intensive courses.

Clarification. The Director of the UIT Program indicated that some amount of duplication may be appropriate. Students may be completing UIT-intensive courses three or more years after completing CSCI 1100. Due to the pace of technological change, it may be necessary for a review of skills based on new application or operating system versions. However, this duplication is not considered when evaluating a course to determine if it should be

given the UIT-intensive designation. Only information technology skills beyond those covered in CSCI 1100 are considered during the initial approval process and the review. The criteria for UIT-intensive courses indicates that at least one credit hour's worth of each student's final grade should be based on his or her knowledge of these new skills. All proposed courses, and those being evaluated during the mandatory three year review cycle, are rated based on whether the supporting documentation meets this requirement. Students enrolled in a senior level Curriculum and Instruction course indicated that there was considerable content overlap between CSCI 1100, CUAI 2440, and MEDA 3570. A review of the current syllabi for these three courses shows that there is some overlap between CSCI 1100 and CUAI 2440. The student feedback was likely based on an earlier version of CUAI 2440 which did more significantly duplicate the content of CSCI 1100. CUAI 2440 now has a prerequisite of CSCI 1100. There does appear to be some level of duplication between CUAI 2440 and MEDA 3570. Because this study used only a sample of courses to explore problems of duplication, it is possible that other areas besides this particular track in the College of Education have similar problems.

2) Is the definition of competencies addressed in the CSCI 1100 course sufficiently clear for those who are considering intensive course proposals to satisfy themselves that there is no duplication?

The competencies are clearly defined on the UIT-intensive course proposal documentation. The competencies have also been sent to all academic advisors. However, apparently some faculty, including those who have proposed courses for UIT-intensive designation, are unaware of these competencies.

Clarification. The Director of the UIT Program has taken several steps to disseminate information about the CSCI 1100 course to ETSU faculty and staff. However, through interviews with faculty who had submitted courses for UIT-intensive designation, it became apparent that some of these faculty were unaware of the specific competencies. Part-time faculty also reported that they were unaware of the course competencies. One of this evaluation study's recommendations for improvement is to attempt to improve communication about the UIT program, particularly with part-time faculty.

3) Is the CSCI 1100 prerequisite being enforced for the UIT-intensive courses?

There is no formal CSCI 1100 prerequisite for UIT-intensive courses.

Clarification. No university regulation requires UIT-intensive courses to list CSCI 1100 as a prerequisite. However, one of the criteria for approving a course as UIT-intensive is that students should be expected to use the information technology skills that they have learned in the CSCI 1100 course, thus establishing an informal prerequisite. During the fall 2001 semester, 29.6% of the students enrolled in UIT-intensive courses had not completed CSCI 1100. Approximately 1/4 of those students were enrolled in courses that listed CSCI 1100 as a co-requisite. Faculty teaching UIT-intensive courses, and students enrolled in UIT-intensive courses did not indicate that the lack of a prerequisite was a problem. This may be due to the large number of students entering ETSU with prior ability to complete most of the CSCI 1100 competencies.

4) Are students completing two UIT-intensive courses prior to graduation?

Yes.

Clarification. The Associate Dean of Special Programs in the Office of Academic Affairs indicated that only 70 waivers of intensive requirements were granted in the 2001-2002 academic year. This included waivers of UIT, oral communication, and writing intensive courses. The primary reasons for granted waivers were advisor error or a student completing a course that later was designated intensive without major modifications to course content or methodology. There is no evidence from the waiver requests that students are having difficulty completing the UIT-intensive requirement. All waiver requests require significant documentation and are handled through a uniform process applied to all students.

One way students meet the UIT-intensive requirement is to complete courses that are required for a degree in their major that have also been approved as UIT-intensive. According to the 2001-2002 ETSU Undergraduate Catalog approximately 50% of the degrees have at least two courses listed as major requirements that are also designated UIT-intensive. Students in those majors meet the intensive requirement by completing their major requirements. Students in degrees that require one course that is also UIT-intensive must complete their second UIT-intensive with an elective course. Degrees offered in the departments of Art, English, Psychology, Sociology, and Dental Hygiene and the College of Continuing Studies do not have any UIT-intensive courses listed as major requirements. Students in these majors must use electives to complete both UIT-intensive courses with one of those being a course offered within their major field of study.

The UIT-Intensive Component: Instructor Knowledge and Training

1) To what extent are all instructors in intensive courses aware of the purposes of the General Education program and of the role they play in it? What implications does this have for training?

No. Not all UIT-intensive instructors are aware of the general education program and their role related to it.

Clarification. As mentioned above, some of the interviewed faculty were not aware of the specific competencies covered in the CSCI 1100 course. Other faculty indicated that although they understood the general intent of the UIT program, they were unaware of the specifics. In particular, the part-time faculty said they were uninformed about the purpose of the general education program and the exact requirements of the intensive courses. One part-time faculty member said that the university could do a better job of informing them about many campus issues. This sentiment was also articulated by one of the full-time faculty members. Another full-time faculty member indicated that although she had been here for three years, she had not taken the time to learn about the general education program.

A session of the new faculty orientation each fall focuses on the intensive courses. However, efforts need to be made to better improve the communication about the general education program to all faculty. Improving the communication about the program is one of this study's recommendations.

2) Is training for intensive instructors sufficient, and is it sustainable over time?

Yes, according to interviewed faculty, technical training is sufficient. It is sustainable over time, pending budget considerations each year.

Clarification. Each of the faculty who was interviewed indicated that he or she was impressed with the quantity and quality of technical training available at ETSU. Most had attended at least one workshop offered at the Academic Technology Lab (ATL). One of the full-time faculty had completed the Faculty Technology Leadership course.

The ATL offers numerous workshops each semester covering basic topics such as those covered in CSCI 1100, as well as advanced topics that are of interest to those teaching UIT-intensive courses. The ATL plans to continue offering these training opportunities. However, the ATL operates under the same budgetary constraints as the rest of the university. At this time, the university is uncertain of its financial future, pending annual approval of a budget by the State legislature. Also, the ATL services are currently offered by OIT, which is partially contracted with Collegis. At this time, the future of the Collegis contract is in doubt. There is no reason to believe that the ATL services are in danger of being reduced; however, the lack of a clear financial picture limits the ability to predict the future sustainability of these training opportunities.

Questions Regarding the Entire Program

1) How does the UIT program coordinate opportunities for student learning with the staff of student labs and with the student help desk?

There is little coordination between the UIT program and the student help desk.

Clarification. The Director of the UIT program and CSCI 1100 course instructors do not coordinate student training with the student labs and student help desk. The majority of the coordination focuses on solving technical problems related to the course. Students commented during focus groups that the quality of help they received in the OIT labs was dependent on the student worker who happened to be available.

Several years ago there was more coordination. All student workers were required to complete the course or challenge the course during their first semester of work. The OIT student lab manager met regularly with the CSCI 1100 course coordinator and taught a section of CSCI 1100 to the lab workers. One recommendation of this study is to improve the coordination and communication among the CSCI 1100 instructors, CSCI 1100 course coordinator, OIT staff, and OIT student workers.

2) Are the current teaching labs sufficient for teaching CSCI 1100 as well as all other UIT Intensive courses?

The number of campus teaching labs is sufficient. The quality, however, could be improved.

Clarification. See the answers to questions 3 and 4 below.

3) As the UIT program expands, including CSCI-1100, are there other labs that can be used to teach these classes?

Yes.

Clarification. There is one OIT-managed computer lab that could be used for teaching that is currently left as an open lab because there have been no requests to use it for teaching. By Fall 2003 there will be over 23 departmental labs on campus that could be scheduled for instruction. Most of these labs are only lightly scheduled for courses.

4) Are there resources for upgrading the labs to make them more accommodating or appropriate for the instruction of students? What kind of improvements would be suggested in the labs (from the last question) to be more accommodating to an instructor teaching a UIT Intensive class in the lab?

Yes, resources are available through the technology access fee program. Faculty have suggested numerous improvements.

Clarification. The technology access fee (TAF) program, funded by students, provides resources for maintaining and improving computer labs. Through the Technology Access Fee funds, computers in all OIT-managed labs and most departmental labs are replaced every three years. The committee that oversees the Technology Access Fee program has approved the building of new computer labs through a request for proposal process since 1995. The committee also considers proposals for lab upgrades.

Based on faculty input, the Department of Computer Science and OIT submitted a request to add hardware that will allow instructor control of student computers to the two main teaching labs, Gilbreath 105 and Sam Wilson 124. The proposal was denied as part of the request for proposal process, but the committee approved the allocation of money saved from

other projects to purchase and install the equipment. The only other suggestion from faculty was to purchase sound systems and microphones to improve instruction. This suggestion has yet to be forwarded to the Technology Access Fee committee.

5) Accrediting agencies in professional programs have been very complimentary of the impact of the intensive program. Is there a larger sample of perception that extends beyond students in professional programs? Does the General Education Advisory Committee receive and review these formal and informal assessments (e.g., accreditation reports, employer testimonials, advisory group opinions, etc.)?

There are few data from these types of assessment that directly indicate perceptions about the UIT program.

Clarification. No accreditation or program review documentation was found that reflected on the quality of the intensive program. Several of the program review documents made reference to the adequacy and availability of computers for faculty and students. The General Education Advisory Committee (GEAC) is not formally informed about these or other assessments. The Director of the UIT program does report on the review and approval process, and is available at GEAC meetings to address other concerns. Improving the communication between GEAC and other relevant offices is recommended.

6) What protocols are in place to assess student satisfaction, over time, with computing proficiency they have on leaving ETSU? Are there bases for benchmarking this that would be credible?

Every other year, the Office of Outcomes Assessment administers the ETSU Alumni Survey.

Clarification. The most recent version of the Alumni Survey (2000) asked graduates from the 1997-1998 academic year to indicate the frequency with which they used ETSU's computer facilities or services. Alumni responding that they did use the facilities or services were also asked to indicate their degree of satisfaction. More importantly, the survey asked the alumni to specify the degree to which their education at ETSU had added to their ability to use information technology. If the survey continues to ask for this information, the Alumni Survey should serve as a useful indicator of the success of the UIT program.

7) How do resident and commuter students differ (if at all) with respect to the availability of support associated with the CSCI 1100 and intensive offerings?

None.

Clarification. Students in focus groups did not indicate any difference in the availability of support.

8) How can the visibility of what has been achieved in the program be improved?

It depends on the intent of this visibility.

Clarification. The program has been presented at several regional and national conferences. Faculty and staff from other universities attended these conferences. The program was also documented in the Campus Wide Information Systems journal in 1997. Those faculty involved in the program will likely continue to present and publish material related to the program.

All but one student in the focus groups indicated they were unaware of the program prior to enrolling at ETSU. The one student reported that knowledge about the program had no effect on her decision to enroll at ETSU. Other students indicated that prior knowledge would have had no effect in their enrollment decisions. Students did, however, report that they were impressed with the quantity and quality of computers at ETSU compared to other schools as they were deciding where to attend.

Recommendations for Improvement

Several recommendations for improvement were drawn from the data gathered for this evaluation study. The recommendations, if implemented, should improve the instruction of the CSCI 1100 course, help gather evaluative data for the future, and improve campus knowledge about the program.

Early Detection of Pre-existing Skill Level

Data gathered through the CSCI 1100 Concluding Survey and the CSCI 1100 pretest suggest that many students who might have successfully completed the challenge exam enrolled in the CSCI 1100 course instead. Over 60% of the students successfully completed 70% of the tasks on the pretest. Instructors of the CSCI 1100 course indicated that the disparity between the

pre-existing UIT skills of students enrolled in the course make it difficult to teach. The students indicated that they chose not to take the exam because: 1) they were interested in an "easy A," 2) they were already enrolled in the course, 3) they did not want to pay the exam fee, 4) they were unaware of the exam, and 5) they did not know that they had many of the skills taught in the course. Solutions to this problem should attempt to address each of these concerns.

One suggestion from an instructor was to give all students enrolled in CSCI 1100 a pretest the first day. Students would then be informed as to the dates they would need to attend or the tests they would need to complete. The students could be excused from dates and tests that covered material that they already knew. This could solve all of the student concerns listed above. One difficulty in implementing this solution is a management problem. Over 1,000 students enroll in CSCI 1100 each spring and fall semester. Keeping track of the differing dates and tests for all of the students would be a difficult task. It might be useful to try this approach in a limited number of courses to master a management method.

Another solution would be to provide an opportunity for students to complete the course in an accelerated manner. This could also be done in conjunction with the pretest. Under this plan students would have the opportunity to complete tests and other grading components earlier then scheduled. As an example, a student who successfully completed half of the skills on the pretest would be told to complete the grading components and tests covering the other 50% of the material. The student would be given the opportunity to submit that material earlier than scheduled on the syllabus.

The course coordinator may want to explore other methods for solving this problem. However, this appears to be a serious problem and should be addressed as soon as possible.

Implement Formal Evaluation of CSCI 1100 Instructors

Only the teaching of full-time faculty instructors of CSCI 1100 is currently evaluated. Although no literature was found during this evaluation to indicate that graduate assistants are less effective instructors, and student feedback during focus groups did not indicate any problems with instructors of CSCI 1100, it seems more than appropriate to conduct evaluations of these graduate assistant instructors.

At ETSU, the Student Assessment of Instruction is the regularly accepted form of evaluation and it is currently being used to evaluate the full-time instructor. Based on these points, the SAI should also be used to evaluate the other instructors. Because half of the graduate assistant instructors in fall semesters are teaching their first college class, it may be useful to conduct additional evaluative measures such as peer review or self-assessment.

Also, the graduate assistants indicated in a focus group that they would be favorable toward regularly scheduled discussions of college teaching practices. All of these graduate assistants enroll in a one-credit-hour course that is currently used to discuss the CSCI 1100 topics for the week and other administrative matters. Perhaps some of this time could be spent focusing on teaching practices. Additional topics suggested by the graduate assistants included handling cheating, solving attendance problems, presentation skills, and classroom management.

Improve Communication

Faculty reported a lack of information about the UIT program. In particular, some faculty reported that they were unaware of the specific competencies covered in the CSCI 1100 course. Several faculty who submitted courses for UIT-intensive approval indicated that there was a lack of communication about the status of proposals. Part-time faculty expressed more

concern about the general lack of information relayed to them about the UIT program and many other programs at ETSU. The university has begun placing an emphasis on improving the support for part-time faculty and improving communication should be incorporated into that program. As expressed by one full-time faculty member, communication among administrators, staff, students and faculty is always difficult in an institution this large.

There also appears to be a lack of communication and coordination between the instructors of the CSCI 1100 course and appropriate OIT staff and student workers. Regular meetings between the OIT computer lab staff and the instructors would likely solve many of the problems reported by students and course instructors. Student lab workers could be trained to provide support for the CSCI 1100 competencies and course instructors could be provided with information that would be useful to students about ETSU's computer facilities.

Additionally, a better effort could be made to make sure that all decision makers are aware of data affecting the UIT program. Feedback about the UIT program, computer facilities, and computer services gained from accreditation reports, program reviews, and regularly administered surveys should be directed to the Director of the UIT program. The Director could be responsible for reporting those data to appropriate committees, such as the General Education Advisory Council. Hopefully, these efforts, ongoing modifications to ETSU's web site, and other university efforts will improve the availability of information and may improve communication between all constituents.

Find and Resolve Content Duplication Problems

Although the content overlap problems in CSCI 1100, CUAI 2440, and MEDA 3570 appear to be unique, it is possible that this type of duplication is occurring elsewhere. The major

concern is not that they students were being asked to use information technology in a similar manner in both classes, but rather that the content of the two courses appeared to be the same. The affected departments in the College of Education and the Director of the UIT Program should investigate this particular problem. It would also be in the best interest of the university to determine if similar problems are occurring in other areas. The major difficulty in exploring this problem is that both CUAI 2440 and MEDA 3570 meet the specific requirements of the UIT-intensive criteria. Other courses with similar problems will meet the requirements individually as well.

Gather Baseline Data for New Version of CSCI 1100

Starting Fall 2002, the CSCI 1100 course will incorporate spreadsheet skills and will be changed from a two-credit-hour to a three-credit-hour course. Along with this change, the number of UIT-intensive courses that a student will be required to complete will be reduced to one, which must be completed in the student's major. The change may significantly impact the ability of students to successfully complete the challenge exam, as spreadsheet skills will be incorporated into that exam. As the cost of the challenge exam increases $15, the financial obstacle that some student indicated as a reason for not taking the exam may also increase. Intensive courses that cover spreadsheets skills as an intensive competency will also be affected. Initial baseline data should be gathered during the 2002-2003 academic year so as to incorporate the addition of spreadsheets and to address some of these issues.

Also, due to the large number of concerns expressed by students related to the NetG training and testing software used in previous semesters, it is also advisable to gather data on the effectiveness of the currently used software-based instructional system. The problems with the

NetG software package included technical problems with the database used to store student grades and instructional components, network problems caused by both the NetG software and ETSU owned and maintained software, problems with the content of the NetG instructional modules, and problems with the way the NetG product scored student responses. In particular, students had significant difficulties when trying to use the software from off-campus via a modem. The network congestion and software execution time caused slow responses that often penalized the student by incorrectly scoring an exam component or by not recording a completed exam. In Spring 2002, a new software-based instructional system was used. The system was developed by a different company and was chosen partly because it used a different testing methodology and the software executed on hardware owned and maintained by the publisher. Due to the serious concerns about the prior computer based instruction, efforts should be made to closely evaluate this new product and appropriate steps should taken to ensure that similar problems like those previously experience do not recur.

Evaluation Conclusion

It appears that the UIT program is meeting the intent of the framers of the program. Students are completing the foundation course, CSCI 1100, having demonstrated competency in the established objectives. These students are retaining the skills into their senior year. Alumni report high levels of satisfaction with ETSU computer facilities and services. They also report that their ability to use information technology was improved through the education they received at ETSU.

The most significant problem with the program is the negative impact that students who do not need to take CSCI 1100 have on the instructional resources and methods of the course.

Obstacles preventing these students from taking the challenge exam should be removed, or other opportunities should be created for these students to demonstrate their expertise. Another area for improvement would be to improve the availability and usefulness of information about the program for both full-time and part-time faculty. It is also in the best interest of the university and instructors of CSCI 1100 to provide methods for evaluating all of the instructors involved in the course.

Meta-evaluation

The Program Evaluation Standards published by the Joint Committee on Standards for Educational Evaluation (1994) include meta-evaluation as the final standard. The intent of the standards is to allow the strengths and weaknesses of the evaluation to be examined. This section reports on the extent to which this evaluation study adheres to the standards.

The standards are separated into four components: utility, feasibility, propriety, and accuracy. The utility standards focus on ensuring that the evaluation will address the needs of the stakeholders. Feasibility standards guide the evaluator so that the evaluation is conducted in a practical, politically viable and cost effective manner. The legal and ethical requirements are described in the propriety standards section. And, the accuracy standards describe documentation and data-gathering requirements such that the final report will include reliable, valid, and impartial data. This evaluation of the UIT program adheres to these standards. Each of the following four paragraphs describes components of this evaluation that address each of the four categories.

The evaluation report and recommendations provide useful direction to decision makers as suggested by the utility standards. Decision makers were chosen that had some amount of oversight and management responsibility for the program. Their needs were determined and

research questions generated. Information was gathered from a broad base of sources, including full-time and adjunct faculty, students in the CSCI 1100 course, intensive courses, and upper division courses, graduate teaching assistants, course documents, and regularly administered surveys, so that the questions could be addressed appropriately. The decision makers were given intermediate reports so that they could help direct further investigations. Also, recommendations were accompanied by suggestions for implementing the recommendations, so that the usefulness of the evaluation was increased.

The evaluation was in accordance with the feasibility standards by being conducted in a practical and cost effective manner, with the institution incurring minimal expenses of time and resources. The disruption of ETSU services was kept to a minimum, with only a few surveys being conducted during regularly scheduled class times. The institution only incurred minor expenses associated with the generation of multiple survey copies. The political viability of the evaluation appeared to have been improved by being conducted as a part of a dissertation. Several individuals indicated that they were more willing to speak freely and cooperate because it was dissertation research rather then being supervised from any single university office.

At all times, appropriate research methodologies protected the rights of those involved in surveys, focus groups, and interviews as suggested by the propriety standards. The evaluation was designed to provide a service to the institution. The rights of all participants were respected as required by the standards and the ETSU institutional review board. The evaluation also respected the confidentiality of all responses. The assessment has been complete and fair and all findings have been disclosed.

The evaluation was conducted in a manner that met the requirements of the accuracy standards. This dissertation includes a full description of the procedures used during this

evaluation. Although some of the administered surveys had low response rates that may make the results of those individual components less generalizable, data were collected in other ways to help confirm any information found in those surveys. Every effort was made to analyze the gathered data in a systematic and impartial method. Through these procedures, the evaluation of the UIT program at ETSU adheres well to the Program Evaluation Standards.

This concludes the evaluation report.

Recommendations for Further Research at ETSU

The Associate Dean of Special Programs has suggested expanding the focus of this evaluation to document the learning outcomes of the UIT-intensive courses. This would have the effect of providing a more complete picture of the intensive component of the program. Additional research could also compare the effectiveness of the approach to computer literacy implemented at ETSU to models used at other institutions. Finally, the methods employed for this study could be modified to evaluate the Writing and Oral Communication programs at ETSU that have been implemented in a similar fashion.

Recommendations for Evaluation Practitioners

This study used the responsive evaluation model as its basis. During the data gathering phase the intent was to take multiple "snapshots" of different components of the program. Each snapshot provided data that were compared to the data from other snapshots. For many questions answered in the study, snapshots were used to confirm the data gathered in other snapshots. This process generated a final "picture" of the UIT program that was much clearer than that provided by each of the individual snapshots.

For practitioners wishing to duplicate this process for their own study, several suggestions might improve the process. First, ensure that the decision-makers are committed to being fully involved in the process. This is a critical component of the responsive evaluation model. The decision-makers for this study were available at all times to provide feedback and support. Without that commitment, this study would be less complete and likely less useful.

Secondly, be conscious of the timing of the individual components of the study. The program being studied may have components that occur only at certain times of the year. The data about these components will need to be gathered at appropriate times. In this study, the CSCI 1100 Pretest was not initially identified as a key component. Only after analyzing the results of the CSCI 1100 Concluding Survey was it determined that the pretest would provide valuable data. Fortunately for this study, the survey was analyzed during a semester break and ample time was available to generate and schedule the pretest. Otherwise, the study would have been extended by at least 5 months.

Finally, before deciding on the final set of questions to be addressed make sure that they are evaluative in nature. One question in this study, "How can the visibility of the program be improved?" was not evaluative and should have been eliminated prior to beginning the study. This did not cause a significant problem because the study was conducted at no cost to the institution and with no contract. If a contract had been signed, it would have been necessary to negotiate an appropriate solution.

Summary

This chapter presented the evaluation report of the UIT program at ETSU. The evaluation followed a responsive evaluation process that involved decision makers in the

question generation phase and throughout the study. The research used to respond to the evaluation questions was presented in Chapters 4, 5, and 6. The UIT program appears to be meeting its intended goal. Recommendations have been given that may help improve the effectiveness of the program.

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APPENDICES

APPENDIX A

ETSU General Education Requirements

GENERAL EDUCATION REQUIREMENTS

The General Education requirements here described apply to all undergraduate students pursuing a baccalaureate degree. The purpose of the program resides in the "Philosophy and Goals of General Education."

To fulfill the goals, students must take the prescribed core curriculum and fulfill related requirements.

PHILOSOPHY AND GOALS OF GENERAL EDUCATION

The purpose of general education is to provide a common experience in order to ensure that students acquire important skills, knowledge, as well as the ability to think critically and perceive interdisciplinary relationships. Students should develop qualities of thought and character that foster and support a lifetime of learning, full and rounded lives, the ability to meeting expectations of the workplace, and the desire for quality living in a complex and changing world.

Proficiencies

ETSU's general education program seeks to ensure that graduates possess at a minimum the following proficiencies:

1. the ability to write clear, coherent, and grammatically correct expository prose;

2. the ability to communicate orally in a succinct, persuasive, and grammatically correct manner, as well as to adapt one's mode of communication to the needs and expectations of various audiences, including those who are literate in various academic disciplines;

3. the ability to read and comprehend serious texts in a variety of academic areas, to relate what one reads to what one knows, and to distinguish fact from opinion;

4. the ability to understand and make use of basic mathematical concepts and tools that are of general use in various academic disciplines; and

5. the ability to use information and creative resources that are available electronically.

Areas of Familiarity

Beyond these proficiencies the general education program also seeks to ensure that ETSU graduates are familiar with important information and modes of thinking or investigation in various areas of study. This knowledge is not an end in itself. Its purpose is to aid the educated person in perceiving relationships among areas of study and continuing to learn.

It is the expectation of the ETSU faculty and administration that those courses which constitute the general education curriculum will collectively represent a common experience for all students and that in total they will ensure the following:

1. that students understand selected basic scientific principles and technological accomplishments which have shaped our culture and others; that, through in-depth awareness of at least one field of science, students come to understand that science is the process used to discover the fundamental laws of our natural world; and that students recognize the power and limitations of the scientific method, quantitative thinking, and technology;

2. that students understand major components of our nation's heritage – its people, ideas, and wealth of cultural diversity – and how that heritage intersects with and influences our own lives both today and for the future;

3. that students understand how the arts and humanities influence our ability to perceive and appreciate beauty, that students understand the relationship between art and other elements of culture, and that students recognize how art expresses and influences the complex fabric of assumptions that undergird any society;

4. that students identify their own beliefs, values, ethical basis for decision-making, and sense of social responsibility by using the humanities and literature to experience some of the great thinking about personal identity, social relationships, and social and personal responsibility; and

5. that students, in the interest of social and ethical responsibility, are exposed to varied value and belief systems and the historical and cultural processes that produce them; that students are able to think critically about how individuals are influenced by political, economic, cultural, or family institutions in our own or other cultures; and that students are able to explore how institutions might be directed toward constructive ends.

In summary, ETSU's general education program serve two paramount goals. First, it seeks to ensure that students who earn the baccalaureate degree possess those basic proficiencies that denote an educated person and one suitable for employment. Second, ETSU's general education aims to ensure that graduates understand information and modes of investigation that will permit them to continue to learn, to see relationships and verify learning experiences, and to find their own voices. This understanding will enable students to adapt to change, appreciate cultural variation, and show respect and suspend judgment toward others when exploring different viewpoints and alternatives to problems.

GENERAL EDUCATION PROGRAM

The university's general education program includes two parts. Part I is a Core Curriculum of 41-44 semester credit hours that address specific academic "Proficiencies" and "Areas of Familiarity." Part II, Requirements Reinforcing Academic Proficiencies, requires students to complete a minimum number of courses that provide intensive experiences in writing, oral communication, and using information technology.

PART I: CORE CURRICULUM

WRITING	**6 Credits**
ENGL 1010 Critical Reading and Expository Writing	(3 cr.)
ENGL 1020 Critical Thinking and Argumentation	(3 cr.)

Students eligible to enroll in ENGL 1010 must do so during their first term. Students required to take DSPW courses should enroll in this course the next term after completing DSPW 0800.

USING MATHEMATICS	**3-4 Credits**
Select one course from the following:	
MATH 1820 Calculus for Business	(3 cr.)
MATH 1840 Analytic Geometry and Differential Calculus	(3 cr.)
MATH 1530 Probability and Statistics - noncalculus	(3 cr.)
MATH 1910 Calculus I	(4 cr.)

Students eligible to enroll in one of these math courses must do so during their first calendar year of enrollment or prior to accumulating 33 semester credits at ETSU. Students required to take DSPM courses should complete the math requirement after completing DSPM 0850, and must do so in the next calendar year or prior to accumulating 33 more semester credits at ETSU.

USING INFORMATION TECHNOLOGY	**0-2 Credits**
CSCI 1100 Using Information Technology	(2 cr.)

Students must demonstrate a working knowledge of word-processing, electronic communication, and online searches during their first calendar year of enrollment or prior to accumulating 33 semester credits at ETSU. This requirement may be met by passing the UIT challenge exam or by completing successfully CSCI 1100, Using Information Technology.

AREAS OF FAMILIARITY

SCIENCE	**8 Credits**
Select two courses from the following (required labs are shown with the lecture numbers):	
ASTR 1010 Astronomy I	(4 cr.)
ASTR 1020 Astronomy II	(4 cr.)
BIOL 1010-1011 Biology for Non-majors I	
BIOL 1020-1021 Biology for Non-majors II	
BIOL 1110-1111 Biology for Science Majors I	
BIOL 1120-1121 Biology for Science Majors II	
BIOL 1130-1131 Biology for Science Majors III	
CHEM 1110-1111 General Chemistry	(4 cr.)

CHEM 1120-1121 General Chemistry	(4 cr.)
CHEM 1320-1321 Introductory Chemistry	(4 cr.)
GEOL 1040 Physical Geology	(4 cr.)
GEOL 1050 Historical Geology	(4 cr.)
GEOG 1110 Earth Science: Weather and Climate	(4 cr.)
GEOG 1120 Earth Science: Landforms and Processes	(4 cr.)
HSCI 2010-2011 Anatomy and Physiology I	(4 cr.)
HSCI 2020-2021 Anatomy and Physiology II	(4 cr.)
PHYS 2010-2011 General Physics I - Non-Calculus	(4 cr.)
PHYS 2020-2021 General Physics II - noncalculus	(4 cr.)

Open to Nonscience Majors only:

CHEM 1000 Chemistry and Well Being	(4 cr.)
CHEM 1030 Intro. to Chemistry Survey	(4 cr.)
PHYS 1030 Intro. to Physics Survey	(4 cr.)

HERITAGE	**9 Credits**
HIST 2010 The United States to 1877	(3 cr.)
HIST 2020 The United States Since 1877	(3 cr.)
And one of the following:	
ENGL 2030 Literary Heritage	(3 cr.)
ENGL 2130 American Literature	(3 cr.)
ENGL 2210 British Literature I	(3 cr.)
ENGL 2220 British Literature II	(3 cr.)
ENGL 2430 European Literature	(3 cr.)
ENGL 2330 World Literature	(3 cr.)

ARTS AND THE ARTISTIC VISION	**3 Credits**
Select one of the following:	
ARTA 2010 Art History Survey I	(3 cr.)
ARTA 2020 Art History Survey II	(3 cr.)
HUMT 2310 Introduction to the Humanities I	(3 cr.)
HUMT 2320 Introduction to the Humanities II	(3 cr.)
MUSC 1030 Introduction to Music	(3 cr.)

MUSC 1035 History of Jazz	(3 cr.)
PEXS 3500 Dance as Human Experience	(3 cr.)
THEA 1030 Introduction to the Theatre	(3 cr.)

IDENTITY, ETHICS, & SOCIAL RESPONSIBILITY	**3 Credits**
Select one of the following:	
ENGL 3150 Literature, Ethics, and Values	(3 cr.)
PHIL 1030 Self and World	(3 cr.)
PHIL 2020 Values and Society	(3 cr.)
PHIL 2040 Philosophy as Conversation	(3 cr.)
PHIL 2210 Intro. to the Study of Religion	(3 cr.)
PSCI 1110 Political Life	(3 cr.)
SOAA 2020 Social Problems and Human Values	(3 cr.)
WMST 2010 Introduction to Women's Studies	(3 cr.)

INSTITUTIONS AND SOCIETY	**6 Credits**
Select two of the following (only one course from ECON):	
ECON 1050 Economics and Society	(3 cr.)
or	
ECON 2210 Principles of Economics Part I	(3 cr.)
GEOG 1012 Intro. to Cultural Geography	(3 cr.)
PSCI 1120 Intro. to American Government	(3 cr.)
PSYC 1310 Introduction to Psychology	(3 cr.)
SOAA 1020 Introduction to Sociology	(3 cr.)
SOAA 1240 Intro. to Cultural Anthropology	(3 cr.)

HUMANITIES ELECTIVE	**3 Credits**
Select one of the following:	
ENGL 3280 Mythology	(3 cr.)
ENTC 3020 Technology and Society	(3 cr.)
HIST 1110 World History and Civilization to 1500	(3 cr.)
HIST 1120 World History and Civilization Since 1500	(3 cr.)
PHIL 2640 Science and the Modern World	(3 cr.)

or one unduplicated course from the above areas of:	
HERITAGE	
ARTS AND THE ARTISTIC VISION	
IDENTITY, ETHICS, AND SOCIAL RESPONSIBILITY	

PART II: REQUIREMENTS REINFORCING ACADEMIC PROFICIENCIES

Courses that fulfill writing-intensive, oral communication-intensive, and using information technology-intensive requirements are indicated in the Schedule of Classes each term. A complete listing of proficiency-intensive courses is also available at http://www.etsu.edu/reg/intensiv.htm.

WRITING

Students must complete a minimum of four writing-intensive courses. At least two of these courses must be in the major field of study. At least two of the four courses must be at the 3000-4000 levels.

ORAL COMMUNICATION

Students must complete a minimum of two oral communication-intensive courses. At least one of these courses must be in the major field of study.

USING INFORMATION TECHNOLOGY

Students must complete a minimum of two using information technology-intensive courses. At least one of these courses must be in the major field of study.

READING

Students who are required to take the AAPP test (see "Enrolling at ETSU") and who are assessed as being deficient in reading must complete DSPR 0800 prior to accumulating 33 semester credits at ETSU. Faculty in any course who question whether a student is reading at a reasonable college level may remand the student to the Developmental Studies Program for assessment.

SPECIAL NOTES ON MEETING CORE REQUIREMENTS:

1. The following categories of students are only required to take TWO writing-intensive courses, ONE oral communication-intensive course, and TWO using information technology-intensive courses:

a. Transfer students with an associate degree designed for transfer;

b. Transfer students with 60 or more transferable semester credits; and

c. Readmission students with 60 or more hours, whose last term of enrollment at ETSU was prior to 1995.

2. Students must meet proficiency intensive requirements through courses taken at ETSU.
3. A student has six years to complete the requirements of the undergraduate catalog under which he or she entered ETSU. ETSU also provides transfer students the opportunity to meet the ETSU catalog degree requirements in effect for a period of six years from the date of first entrance into higher education.

Additional Requirements for Graduation:

PHYSICAL EDUCATION 2 Credits One PHED course from the fitness activity category (any 1000 level course) and one PHED course from the lifetime activities category (any 2000 level course) or MUSC 1201 Marching Band, or Military Science MSCI 1217, 2130, and 3217.

APPENDIX B

Program Evaluation Standards Summary

The Program Evaluation Standards

Summary of the Standards

Utility Standards

The utility standards are intended to ensure that an evaluation will serve the information needs of intended users.

U1 Stakeholder Identification--Persons involved in or affected by the evaluation should be identified, so that their needs can be addressed.

U2 Evaluator Credibility--The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.

U3 Information Scope and Selection--Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of clients and other specified stakeholders.

U4 Values Identification--The perspectives, procedures, and rationale used to interpret the findings should be carefully described, so that the bases for value judgments are clear.

U5 Report Clarity--Evaluation reports should clearly describe the program being evaluated, including its context, and the purposes, procedures, and findings of the evaluation, so that essential information is provided and easily understood.

U6 Report Timeliness and Dissemination--Significant interim findings and evaluation reports should be disseminated to intended users, so that they can be used in a timely fashion.

U7 Evaluation Impact--Evaluations should be planned, conducted, and reported in ways that encourage follow-through by stakeholders, so that the likelihood that the evaluation will be used is increased.

Feasibility Standards

The feasibility standards are intended to ensure that an evaluation will be realistic, prudent, diplomatic, and frugal.

F1 Practical Procedures--The evaluation procedures should be practical, to keep disruption to a minimum while needed information is obtained.

F2 Political Viability--The evaluation should be planned and conducted with anticipation of the different positions of various interest groups, so that their cooperation may be obtained, and so that possible attempts by any of these groups to curtail evaluation operations or to bias or misapply the results can be averted or counteracted.

F3 Cost Effectiveness--The evaluation should be efficient and produce information of sufficient value, so that the resources expended can be justified.

Propriety Standards

The propriety standards are intended to ensure that an evaluation will be conducted legally, ethically, and with due regard for the welfare of those involved in the evaluation, as well as those affected by its results.

P1 Service Orientation--Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.

P2 Formal Agreements--Obligations of the formal parties to an evaluation (what is to be done, how, by whom, when) should be agreed to in writing, so that these parties are obligated to adhere to all conditions of the agreement or formally to renegotiate it.

P3 Rights of Human Subjects--Evaluations should be designed and conducted to respect and protect the rights and welfare of human subjects.

P4 Human Interactions--Evaluators should respect human dignity and worth in their interactions with other persons associated with an evaluation, so that participants are not threatened or harmed.

P5 Complete and Fair Assessment--The evaluation should be complete and fair in its examination and recording of strengths and weaknesses of the program being evaluated, so that strengths can be built upon and problem areas addressed.

P6 Disclosure of Findings--The formal parties to an evaluation should ensure that the full set of evaluation findings along with pertinent limitations are made accessible to the persons affected by the evaluation, and any others with expressed legal rights to receive the results.

P7 Conflict of Interest--Conflict of interest should be dealt with openly and honestly, so that it does not compromise the evaluation processes and results.

P8 Fiscal Responsibility--The evaluator's allocation and expenditure of resources should reflect sound accountability procedures and otherwise be prudent and ethically responsible, so that expenditu res are accounted for and appropriate.

Accuracy Standards

The accuracy standards are intended to ensure that an evaluation will reveal and convey technically adequate information about the features that determine worth or merit of the program being evaluated.

A1 Program Documentation--The program being evaluated should be described and documented clearly and accurately, so that the program is clearly identified.

A2 Context Analysis--The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified.

A3 Described Purposes and Procedures--The purposes and procedures of the evaluation should be monitored and described in enough detail, so that they can be identified and assessed.

A4 Defensible Information Sources--The sources of information used in a program evaluation should be described in enough detail, so that the adequacy of the information can be assessed.

A5 Valid Information--The information gathering procedures should be chosen or developed and then implemented so that they will assure that the interpretation arrived at is valid for the intended use.

A6 Reliable Information--The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use.

A7 Systematic Information--The information collected, processed, and reported in an evaluation should be systematically reviewed and any errors found should be corrected.

A8 Analysis of Quantitative Information--Quantitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.

A9 Analysis of Qualitative Information--Qualitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.

A10 Justified Conclusions--The conclusions reached in an evaluation should be explicitly justified, so that stakeholders can assess them.

A11 Impartial Reporting--Reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that evaluation reports fairly reflect the evaluation findings.

A12 Metaevaluation--The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.

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APPENDIX C

CSCI 1100 Course Syllabus

CSCI 1100 - Course Syllabus

Course: CSCI 1100: Using Information Technology

Credit hours: 2

Description: Students will gain a working knowledge of word-processing, electronic communication, and on-line database searching and will learn the skills necessary to integrate electronic information from various sources.

Note: This course is required of all ETSU students prior to completing 32 credit hours.

Materials Required: 2 High-Density Diskettes

Course Objectives:

- learn the necessary components of word processing that will enable you to write term papers, reports, résumés, and research papers
- learn how to use e-mail to communicate with others - locally, nationally, and globally
- learn how to manage files as applicable to the various software packages
- learn how to access electronic databases, and search for and retrieve information from those sources. This includes sites available via the internet and databases available through ETSU's library system.
- learn the social and ethical responsibilities that are inherent in the use of computers

This course allows you the flexibility to complete the course in a semi-traditional manner or through self-paced instruction. Please pursue the option that best fits your learning style.

This course is being taught as a distance education course. Fifty percent of the material will be completed in class, while the other fifty percent is available via a combination of LAN-based training modules and course content available via the internet. All software/hardware that is needed to complete the course is available in Computer Services Computer Labs (including Bristol and Kingsport labs). If you are unable to access the content from home, you will need to make use of the campus labs.

Course Policies

Tests: There will be three required tests during the semester plus an *optional* comprehensive final. The final exam, if taken, will be used to replace the lowest regular test score.

Homework: The homework will consist of completing Mastery Modules in the on-line tutorial program SkillVantage. These assignments will be done outside of class time and will be checked for completion by the instructor on the corresponding due dates.

Extra Credit: NO extra credit points will be given.

Incompletes: Incompletes will only be given for extenuating circumstances. These circumstances must be fully documented. Notify your instructor immediately if these circumstances should arise.

Makeups: **No makeup exams will be offered for this course.** A missed exam for any reason will be recorded as a zero. The final exam is the only form of makeup. In the event that you miss an exam, you will have to take the final in order to replace the score. Missing two exams will cause you to fail the course, as the final will only replace one score.

Late Drops: Late drops will not be given in this course. If you plan to drop the course, make sure that you do so before the last drop date.

Testing and Grading

Homework

There will be a total of 7 homework assignments for this course. Each assignment is worth 100 points. All homework grades will be averaged together and serve as the equivalent of a single test score (or 25% of your final grade). Please see the table below for further explanation. The assignments are:

- PC's and Application Software Unit 1
- PC's and Application Software Unit 2
- PC's and Application Software Unit 3
- PC's and Application Software Unit 4
- MS Word 2000 Fundamentals Unit 1
- MS Word 2000 Fundamentals Unit 2
- MS Word 2000 Fundamentals Unit 3

Tests

There will be a total of 3 required tests for this course. Each test is worth 100 points. The optional comprehensive final is also worth 100 points and may be used to replace the lowest regular test score. The subject material for the tests will be:

- Test1: Windows essentials and e-mail.
- Test2: Internet and on-line resources.
- Test3: Word processing.
- Final Exam (optional): Comprehensive.

Final Grade

Your final grade will be calculated as follows:

Test1	25%
Test2	25%
Test3	25%
Homework average	25%

The following grading scale will be used to determine your final grade:

- 93+ points = A
- 90+ points = A-
- 87+ points = B+
- 85+ points = B
- 83+ points = B-
- 80+ points = C+
- 77+ points = C
- 75+ points = C-
- 73+ points = D+
- 70+ points = D

APPENDIX D

CSCI 1100 Concluding Survey

CSCI 1100 - Concluding Survey

Prior to taking this class, did you:

1) Know how to send email? YES NO

2) Know how to use a word processor? YES NO

3) Know how to use a web browser? YES NO

==========

4) Were you aware that you could test out of this class? YES NO

4a) If you answered YES to question 4, why did you choose not to try to test out of the class?

5) If you had taken the test, do you think you could have successfully passed it?

YES NO

6) What percent of the material covered in this class did you already know prior to taking the class (for example: 10%, 50%, 75%, etc.)?

==========

7) How many courses **other** than CSCI 1100 are you enrolled in this semester?

8) In how many of those courses have you used email to communicate with the instructor or another student?

9) In how many of those courses have you used a word processor to complete an assignment?

10) In how many of those courses have you used resources available on the internet to complete an assignment?

CSCI 1100 Pretest

CSCI-1100 Pretest

NAME: _____

You will not be graded on this exam. It will be used to help improve the course. If you can not complete one of the tasks, just go on to the next one.

For this exam, you will need to use a floppy disk. Your instructor will provide you with a blank disk.

Internet

1. Using a web browser find the current governor of Wisconsin.

   Governor's Name: _____

   Title of page: _____

   URL of page: _____

2. Using a web browser find the weather forecast for Johnson City for tomorrow.

   Forecast: _____

   Title of page: _____

   URL of page: _____

3. Who is the author of the book in ETSU's library titled *How the Internet Works?*

   Author's Name: _____.

   Is the book checked out? (circle one)
   YES NO COULD NOT DETERMINE

4. Go to http://deserve.etsu.edu/csci1100/final.doc
   Download this file to your disk. It should be saved as **final.doc**
   IF YOU ARE UNABLE OR DO NOT KNOW HOW TO DO THIS, CIRCLE THIS QUESTION, THEN RAISE YOUR HAND AND THE INSTRUCTOR WILL PERFORM THIS TASK.

THIS PRETEST CONTINUES ON THE OTHER SIDE OF THIS SHEET. →

Microsoft Word

You are going to modify the **final.doc** file that you just downloaded. Make the following formatting changes:

- Open **final.doc** in Microsoft Word
- Change the font of the entire document to Times New Roman 12 pt.
- Add the title **CSCI-1100 Syllabus** at the top of the document. Leave a blank line between the title and the rest of the document
- Bold and center the title and make it a 16 pt font
- Full justify the rest of the document (not including the title)
- Find and Replace all occurrences of **coarse** with **course**
- Format the list of five course objectives as a bulleted list
- Format the document so that page numbers will appear in the upper-right corner of all pages.
- Spell-Check the document
- Save the document

E-mail

- Send an e-mail message to chenowet@etsu.edu
- The subject should be **Pretest for <insert your name here>**
- The body of the message should include the answers to questions 1, 2, and 3 in the Internet part of the exam.
- Following the answers to the questions, you must include your name and e-mail address
- Attach the modified file **final.doc** to the message (this is the file that you modified in the Microsoft Word part of the exam)

Upon completion of the test:

- **Make sure your name is on this exam sheet and on the exam disk**
- **Return this exam sheet and the exam disk to the instructor**

APPENDIX F

Graduating Senior Survey

Information Technology Questionnaire for Graduating Seniors

Please indicate your major: _____.

For each of the following three statements, please circle the response that best describes your skill level.

1. I am able to write a report using a word processor.	I can perform basic operations and use advanced features to enhance my work.	I can perform basic operations and complete standard tasks.	I am unsure about how to perform basic operations and standard tasks.
2. I am able to search for information in electronic databases, such as the online library catalog and the Internet/WWW.	I can perform basic operations and use advanced features to enhance my work.	I can perform basic operations and complete standard tasks.	I am unsure about how to perform basic operations and standard tasks
3. I am able to send and receive e-mail.	I can perform basic operations and use advanced features to enhance my work.	I can perform basic operations and complete standard tasks.	I am unsure about how to perform basic operations and standard tasks

For the following three statements, circle the appropriate response:

SA) Strongly Agree, A) Agree, D) Disagree, SD) Strongly Disagree or U) uncertain.

4. I feel confident that my computer knowledge will allow me to learn additional computer skills.

SA A D SD U

5. After completing the CSCI 1100: Using Information Technology course (or proficiency exam), students are required to take additional courses requiring the use of computers. These additional courses provided me with valuable computer skills.

SA A D SD U

6. ETSU prepared me with the computer skills I will need for my career.

SA A D SD U

==========

7. What recommendations do you have that would help ETSU prepare students with the computer skills they will need for their careers. Comments that would help us evaluate and improve the CSCI 1100 course and the technology intensive courses would be appropriate and appreciated.

_____
_____
_____
_____
_____

_____

If you have questions, comments or concerns feel free to contact me at chenowet@etsu.edu or 439-5385.

APPENDIX G

UIT-Intensive Instructor Survey

Information Technology Questionnaire for Instructors of Information Technology Intensive Courses

For this survey, please reflect on the ability of the students in the Using Information Technology Intensive course that you are teaching this semester. Consider their abilities as they entered the course.

For each of the following three statements, please circle the response that best describes the students' skill level.

1. They are able to write a report using a word processor.	Over 75% of the students can perform the basic operations I expect of them.	Between 25% and 75% of the students can perform the basic operations I expect of them.	Less than 25% of the students can perform the basic operations I expect of them.
2. They are able to search for information in electronic databases, such as the online library catalog and the Internet/WWW.	Over 75% of the students can perform the basic operations I expect of them.	Between 25% and 75% of the students can perform the basic operations I expect of them.	Less than 25% of the students can perform the basic operations I expect of them.
3. They are able to send and receive e-mail.	Over 75% of the students can perform the basic operations I expect of them.	Between 25% and 75% of the students can perform the basic operations I expect of them.	Less than 25% of the students can perform the basic operations I expect of them.

For the following three statements, circle the appropriate response: SA) Strongly Agree, A) Agree, D) Disagree, SD) Strongly Disagree or U) uncertain.

4. Their prior computer knowledge helped them to learn additional computer skills.

SA A D SD U

==========

5. Which computer skills would you prefer that the CSCI 1100: Using Information Technology course would have done a better job teaching your students prior to enrolling in your course?

_____

_____

_____

_____

_____

_____

6. Please add any additional comments that might help us to evaluate or improve the Using Information Technology program at ETSU.

_____

_____

_____

_____

_____

_____

If you have questions, comments or concerns feel free to contact me at chenowet@etsu.edu or 439-5385.

APPENDIX H

ETSU Class Technology Skills Survey (students)

ETSU Student Technology Skills Self-Assessment

Thank you for participating in this self-assessment of the technology skills of ETSU students. The purpose of the self-assessment is for students to evaluate how well they have retained the technology skills learned in CSCI-1100 and the technology intensive courses they have taken. This self-assessment is anonymous. The results of the self-assessment will be used to improve ETSU's Using Information Technology program.

Demographic Information

Have you taken CSCI-1100? _____ Yes _____ No

If not, have you taken the Proficiency/Challenge Exam for CSCI-1100? _____ Yes _____ No

What is your classification? ___ Freshman _____ Sophomore _____ Jr _____ Sr
What is your major? _____

Basic Computer Skills

How confident are you that you can do the following?

1. Boot up a computer system
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

2. Access various software applications
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

3. Navigate in the Microsoft Windows Operating System
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

4. Use a printer
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

File Management

How confident are you that you can do the following?

5. Use a disk to transfer files between computers
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

6. Use "My Computer" or Windows Explorer to create folders to organize files
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

7. Save a file to a folder
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

8. Open a previously created file from a folder
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

Electronic Mail

How recently have you done the following?

9. Sent an e-mail message
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

10. Sent an e-mail message with an attachment
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

11. Viewed an attachment sent to you in an e-mail message
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

12. Used e-mail to communicate with your instructors at ETSU
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

Electronic Databases

How recently have you done the following?

13. Used the internet to do research
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

14. Downloaded a file from the internet
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

15. Used ETSU's online library catalog (Voyager)
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

16. Used ETSU's other online databases provided by the library (InfoTrac, etc.)
   - ❑ Not since taking CSCI-1100
   - ❑ In the last year
   - ❑ In the last month

Basic Word Processing Skills

How confident are you that you can do the following?

17. Create a word-processed document using either Microsoft Word or WordPerfect
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

18. Use a word processors spelling and grammar check functions
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

19. Apply special formatting to a document (font style, font size, text alignment, margins, page numbers)
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

20. Use the cut, copy and paste features in a word processor
   - ❑ Unsure
   - ❑ Probably Can
   - ❑ Confident

APPENDIX I

ETSU Class Technology Skills Survey (instructor)

ETSU Class Technology Skills Survey

Thank you for participating in this survey of the technology skills of ETSU students in Junior and Senior level UIT Intensive courses. The purpose of the survey is to determine how well students have retained the technology skills learned in CSCI-1100 and the technology intensive courses they have already taken. **This survey pertains to your class as a whole.** As an instructor of a UIT Intensive course, you should have the opportunity to evaluate the technology skills of the students in your class. The results of this survey along with the student's self-assessment of their skills will be used to improve ETSU's Using Information Technology program.

Please return this survey along with the ETSU Student Technology Skills Self-Assessment Survey to:
Kellie Price, Box 70711.

Basic Computer Skills

What percentage of students in your class would you rate as having demonstrated the following levels of *basic computer skills*?

Exceeded expectations _____%
Met expectations _____%
Did not meet expectations_____%
Total 100 %

Improvement needed in the following areas:

- ❑ Booting up a computer system
- ❑ Accessing various software applications
- ❑ Navigating in the Microsoft Windows Operating System
- ❑ Using a printer
- ❑ _____

File Management

What percentage of students in your class would you rate as having demonstrated the following levels of *file management*?

Exceeded expectations _____%
Met expectations _____%
Did not meet expectations_____%
Total 100 %

Improvement needed in the following areas:

- ❑ Using a disk to transfer files between computers
- ❑ Using "My Computer" or Windows Explorer to create folders to organize files
- ❑ Saving a file to a folder
- ❑ Opening a previously created file from a folder
- ❑ _____

Electronic Mail

What percentage of students in your class would you rate as having demonstrated the following levels of *using electronic mail*?

Exceeded expectations _____%
Met expectations _____%
Did not meet expectations_____%
Total 100 %

Improvement needed in the following areas:

- ❑ Sending an e-mail message
- ❑ Sending an e-mail message with an attachment
- ❑ Viewing an attachment sent with an e-mail message
- ❑ Using e-mail to communicate with instructors
- ❑ _____

Electronic Databases

What percentage of students in your class would you rate as having demonstrated the following levels of *using electronic databases*?

Exceeded expectations _____%
Met expectations _____%
Did not meet expectations_____%
Total 100 %

Improvement needed in the following areas:

- ❑ Using the Internet to do research
- ❑ Downloading files from the Internet
- ❑ Using ETSU's online library catalog (Voyager)
- ❑ Using ETSU's other online databases provided by the library (InfoTrac, etc.)
- ❑ _____

Basic Word Processing Skills

What percentage of students in your class would you rate as having demonstrated the following levels of *basic word processing skills*?

Exceeded expectations _____%
Met expectations _____%
Did not meet expectations_____%
Total 100 %

Improvement needed in the following areas:

- ❑ Creating a word-processed document using either Microsoft Word or WordPerfect
- ❑ Using a word processors spelling and grammar check functions
- ❑ Applying special formatting to a document (font style, font size, text alignment, margins, page numbers)
- ❑ Use the cut, copy and paste features in a word processor
- ❑ _____

Additional Comments:

Demographic Information

Department_____
College_____

Course Level:

- ❑ 3000
- ❑ 4000

APPENDIX J

Senior Level Course Instructor Survey

Information Technology Questionnaire for Instructors of Senior Level Courses

For this survey, please use the students in your senior level course that you are teaching this semester when drawing conclusions about students.

For each of the following three statements, please circle the response that best describes the students' skill level.

1. They are able to write a report using a word processor.	Over 75% of the students can perform the basic operations I expect of them.	Between 25% and 75% of the students can perform the basic operations I expect of them.	Less than 25% of the students can perform the basic operations I expect of them.
2. They are able to search for information in electronic databases, such as the online library catalog and the Internet/WWW.	Over 75% of the students can perform the basic operations I expect of them.	Between 25% and 75% of the students can perform the basic operations I expect of them.	Less than 25% of the students can perform the basic operations I expect of them.
3. They are able to send and receive e-mail.	Over 75% of the students can perform the basic operations I expect of them.	Between 25% and 75% of the students can perform the basic operations I expect of them.	Less than 25% of the students can perform the basic operations I expect of them.

For the following three statements, circle the appropriate response: SA) Strongly Agree, A) Agree, D) Disagree, SD) Strongly Disagree or U) uncertain.

4. ETSU prepares students with the computer skills they will need for their careers.

SA A D SD U

==========

5. What recommendations do you have that would help ETSU prepare students with the computer skills they will need for their careers.

_____

_____

_____

_____

_____

_____

6. Please add any additional comments that might help us to evaluate or improve the Using Information Technology program at ETSU.

_____

_____

_____

_____

_____

_____

If you have questions, comments or concerns feel free to contact me at chenowet@etsu.edu or 439-5385.

APPENDIX K

UIT-Intensive Course Proposal Cover Sheet

Using Information Technology (UIT)-Intensive Course Proposal Cover Sheet

Complete this cover sheet, the UIT-Intensive Information Sheet, and the Miscellaneous Administrative Information Sheet, include a course syllabus (as approved by the University Curriculum Committee, unless it is an experimental course), and submit to the UIT Proficiency Committee, Box 70711.

Note: If this is an already existing course that has had its content modified to meet the UIT-Intensive requirements, it must go through the University Curriculum Committee; submit the syllabus after it has been approved by the University Curriculum Committee. If the content has not been modified, please submit the syllabus that was approved by the University Curriculum Committee. If this is an experimental course, please submit the forms that are required by the University Curriculum Committee directly to the UIT Proficiency Committee.

Please fill in all of the following information:

Course Number:___

Course Title:_____

Credit Hours:_____

Department:_____

College:_____

Signatures: _____
Department Head

_____
College Dean

Contact Person: Name:_____

Mailbox:_____

Phone:_____

Email address:_

APPENDIX L

UIT-Intensive Information Sheet

Using Information Technology (UIT)-Intensive Course Proposal
UIT-Intensive Information Sheet

Please answer these questions in the space following each question.

1) What new tools/skills (those not covered by the proficiency exam or UIT course) related to information technology will be taught in this course?

2) How do the instructors of this course plan to ensure that **every** student will be using these new tools throughout this course?

3) Will the instructor(s) of this course demonstrate how the new skills (those not covered by the proficiency exam or UIT course) can be incorporated with the skills that the student has demonstrated through the UIT proficiency test or course? Please explain how this will be accomplished, or why it will not be demonstrated.

4) How will it be determined that the students have in fact acquired the skills to use the information technology taught in this course (examinations, projects, etc.)? Please include samples of these methods (sample assignments, exams, projects, etc.).

APPENDIX M

Miscellaneous Administrative Information Sheet

Using Information Technology (UIT)-Intensive Course Proposal Miscellaneous Administrative Information Sheet

The information on this page is for our records. It will NOT be used in deciding whether proposals are accepted or rejected.

1. Course is:
   _____ General Education Core course
   _____ Required for major
   _____ Required for minor
   _____ Elective
   _____ Other

2. This is a(n):
   _____ existing course
   _____ experimental course (as provided for in the faculty handbook)
   _____ new course

   If this is a new course that was previously taught as an experimental course, please list the experimental course number under which it was taught:

   _____

3. Does your department plan to offer this course in the next academic year? If so, which semesters?

4. How frequently will this course generally be offered by the department in the future (according to your best guess)?

5. Who, according to <u>current</u> department plans, will teach the course?

6. Who are the possible instructors for the course in the future, in addition to the instructor(s) listed above?

APPENDIX N

Intensive Course Routing Sheet

Intensive Course Routing Sheet

The Registrar's Office will use the following information to list courses approved as intensive in the course schedule and to mark student records for graduation check-out.

To be completed by department submitting course

Course number _____ Title _____

Credits _____ Is this an active course on the SIS Screen 125 - Course Inventory? ____ YES _____ NO

If not, why?

_____

This course is proposed to be: _____ Oral Communication Intensive

_____ Using Information Technology Intensive

_____ Writing Intensive

Initial term in which course is proposed to be intensive: _____ _____
Term Year

Complete the following if only certain sections of the course will be taught as intensive:

Professor (s) who will teach intensive sections: _____

Section No. (s) _____
Days/Time _____

Courses approved as section specific will satisfy the intensive course requirement only for the indicated term when taught by the professor(s) named above.

Department chairs must submit new routing sheets to intensive committee chairs prior to each term section-specific offerings will be taught. Routing sheets must provide the section numbers of these offerings.

Submitted by Department of: _____

Chair Signature: _____ Date: _____

A listing of courses designated intensive will be published in the catalog under "General Education Program,
Part II: Requirements Reinforcing Academic Proficiency." Should a department wish to remove a course from intensive status, the change will occur only with the publication of the next catalog. See page 16 for closing date for status change.

To be completed by Intensive Area Committee Chair

Approved: _____ Date: _____
Signature

Effective Term: _____ _____ all offerings of the course

_____ only sections listed above

To be completed by Associate Dean for Special Programs

Approved: ____ Date: __

APPENDIX O

UIT-Intensive Designation Rating Form

UIT Intensive Designation Rating Form

We will use this new form to help focus our evaluation of new course proposals and course reviews. A course must have an acceptable rating in all four categories in order to be designated as Using Information Technology Intensive. For any course that has an inadequate or cannot determine rating for one or more of the categories, the instructor of that section will be contacted by a member of the UIT Committee. The UIT Committee Member will inform the faculty member of the UIT designation of the course and the requirements of teaching a UIT Intensive course and provide the help necessary to make sure that the course is meeting the requirements.

Course Number: _____

Section Number: _____

	Exceptional	Acceptable	Inadequate	Cannot determine
Every student is required to use information technology.				
Current technology is used throughout the semester				
CSCI 1100 material is integrated into the course				
At least 1 credit hour's worth of final grade is based on knowledge of new skills.				

Comments:

VITA

JOHN DALTON CHENOWETH

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- Date of Birth: May 22, 1969
- Place of Birth: Summit, NJ
- Marital Status: Married

Education:
- Wagner Community School, Wagner, SD
- Augustana College, Sioux Falls, SD; Computer Science, B.A. 1991
- University of South Dakota, Vermillion, SD; Computer Science, M.A. 1993
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Professional Experience:
- Graduate Assistant, University of South Dakota, Department of Computer Science, 1991-1993
- Instructor, East Tennessee State University, Department of Computer and Information Sciences, 1993-1999
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Publications:
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