EVALUATING EDUCATIONAL INNOVATIONS:

GRANT RECIPIENTS’ BELIEFS AND BEHAVIORS

by

CHAD ANTHONY GALLOWAY

(Under the Direction of Mary Ann Fitzgerald)

ABSTRACT

The purpose of this study was to investigate and describe how recipients of a university-funded grant program for technology integration perceived and carried out the evaluation process regarding their funded projects. This study used a qualitative methodology. Interviews and document analysis were used to collect data, which were analyzed using the constant comparative method.

Participants believed that evaluation is important to the teaching and learning process. They considered evaluation as a means of providing feedback, making improvements, and gauging effectiveness. They also tended to use informal methods of evaluation and to rely heavily on end-of-course classroom evaluations to determine the efficacy of their classroom innovations.

Constraints faced by participants included lack of time, lack of knowledge in statistics and evaluation methodologies, and feelings of insufficient return on their investment. Some participants perceived formal evaluation as being unnecessary, while others participants’ behaviors were affected by a perceived lack of accountability.
The author offers Galloway’s Model for Improving Education Funding Programs as a means of improving granting programs such as the one investigated in this research study. The model’s three components suggest the development of a support structure for recipients, a procedure to improve recipient accountability, and a plan for continuous self-evaluation and improvement of the granting program.

INDEX WORDS: Educational evaluation, Instructional innovations, Instructor attitudes, Teaching grants, Evaluation of technology, Instructional technology, Technology funding, Grant programs, Constraints to evaluation
EVALUATING EDUCATIONAL INNOVATIONS:
GRANT RECIPIENTS’ BELIEFS AND BEHAVIORS

by

CHAD ANTHONY GALLOWAY

B.A., Clemson University, 1995
M.Ed., Clemson University, 1997

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial
Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2006
EVALUATING EDUCATIONAL INNOVATIONS:
GRANT RECIPIENTS’ BELIEFS AND BEHAVIORS

by

CHAD ANTHONY GALLOWAY

Major Professor:    Mary Ann Fitzgerald

Committee:         Robert Branch
                   Janette Hill
                   Chandra Orrill
                   Thomas Reeves

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
December 2006
DEDICATION

This document is dedicated to my mother, Peggy Galloway, who called me recently to ask how many years I’ve been in college. Well, Peg, the answer is … a lot.

(Who can blame you for losing count?) But through them all, one thing has been constant—your love and support. The only thing that makes me happier than graduating with my doctorate is having you see me do it. I love you always and forever. I hope I’ve made you proud!
ACKNOWLEDGEMENTS

As one of my mentors at Clemson, Dr. Gail Delicio, used to tell me, “Chad, if a Ph.D. were that easy to get, everyone would have one.” Well, after eight and a half years working towards mine, I can say with a fair degree of certainty that she was right. It’s been a long road, and I’ve met a lot of travelers along the way. I’m thankful that I have this section to pay tribute to some of the people who have made this journey educational, enjoyable, enlightening, memorable, unbelievable, and sometimes just plain tolerable. Without their support, friendship, love, encouragement, and mentoring, this document would not exist.

I would first like to thank my committee members, whose collective patience puts Job to shame. Any praise for this document should be directed towards them as much as me.

Dr. Mary Ann Fitzgerald … wow. Words fail me. You are a rock star in my eyes. I have learned so much from you during my “tenure” at UGA. I have learned from you what it means to be a “master teacher,” because that’s exactly what you are. If I can come close to emulating you in my professional life, I’ll count myself lucky. If I can come close to emulating you in my real life, I’ll count myself blessed. Your mentoring, and perhaps more importantly, your friendship, have helped me to navigate these perilous academic waters, and for that, you will always have my gratitude.

Dr. Tom Reeves … you have taught me two of the most important lessons that any doctoral student can learn. First, you have ingrained in my head the mandate that
research should be socially responsible. Second, you have mitigated my perfectionism by repeatedly pointing out, “The only good dissertation is a done dissertation.” I am very thankful to have had your guidance and your friendship along this long and winding road— even if you did ruin my perfect 4.0.

Dr. Rob Branch … perhaps more than anyone at UGA, you have taught me how to write like an academic (a skill I am purposefully avoiding in this section, mind you). Your eagle eye and seemingly endless notes of “Jargon,” “Informal,” and “In a research proposal?!” in the margins of everything I have turned in to you have changed the way I write—for the better. I thank you for the time and effort you have put into making this document what it is.

Dr. Chandra Orrill … working with you has helped me to always consider the practical side of research. Ideas are great, but what use are they unless they can be put into practice? Thank you for your friendship, your help in keeping me grounded, and the care you have taken in reviewing this document.

Dr. Janette Hill … I would like to thank you for your support and encouragement over these past many years. I don’t know how you fit 30 hours of work into each day, but I appreciate the fact that you have always been able to give me some of your time when I’ve needed it. I know that if I ever need constructive feedback from someone, I can come to you, and I thank you for that.

While I have received considerable support from faculty within my department, the support given to me by my friends and family has been equally important. So here goes … and remember, this has been a loooooong journey!
Art … you put up with me while I was writing my comprehensive exams those many years ago. Thank you for always being there with a Pumpkin smile to brighten my day!

David … thank you for being a good TT. In many ways, you’ve taught me to be a better person – and a better tt. You made the last part of this journey a memorable one. We had a good ride, didn’t we?

Evan … we’ve been through some crap together, haven’t we? We made it through, though! Thank you for your past and ongoing friendship and belief in me.

Jen … thank you for being the first to prove that “The Class That Wasn’t” actually was. I’m honored to have followed in your footsteps!

Jaamy … you don’t know a thing about instructional technology, but you’ve been there to help me celebrate all the milestones! Thank you for your friendship and for giving me a lot of good times to remember.

Jay … thank you for encouraging me to stay a student for as long as possible. I hope I made you proud! Boy oh boy, I’m going to miss your visits to Athens.

Kakali … if I ever need anyone to call for encouragement, you’re #1 on my speed dial! You have a way of helping me see that I am good enough, darnit! Thank you for your friendship, advice, support, and Boneshakin’ over the years. And incidentally, I did take your advice regarding my defense. One word: Spider-Man!

Keith … thank you for providing empirical proof that Dr. Pookies exist. I’m very happy to join those ranks! If I go crazy, will you still call me Superman?

Kelli … thank you for your support and friendship for the past 20-some-odd years. When I’ve needed encouragement, you’ve encouraged me. When I’ve needed a
good dose of painful reality, well, you’ve given me that, too. It takes a true friend to do that, and I thank you for it. I’m so happy that you can share in my achievement.

Laura … thank you for the years of friendship and fun! If it weren’t for you, I may never have made it to Athens, and the world as we know it wouldn’t exist.

Lynne … or should I say Doc-tor Coooorey!? Thank you for being there every time I’ve needed some encouragement or just a chance to gripe about life in and out of Aderhell.

Mark … you’re a workhorse! If it weren’t for all of those early morning rides, I’d probably be writing this acknowledgment next semester.

Mary … thank you for keeping me company through this long process and for always being there when I have needed someone to talk, vent, or cry to. And thank you for editing a large portion of this document. Now if that isn’t true friendship, I don’t know what is! Viva la Wal-Mart!

Morgan … you have funded a great deal of this journey, and I thank you for that! I hope that in the future, I have a boss who is half as cool and fun to be around as you are. But that ain’t likely. And you know what? “It’s a tragedy!”

Dr. Peters … thank you for mentoring me and sending me in the direction of Athens! I can say with certainly that I wouldn’t have ended up here if it hadn’t been for you.

Priya … I thank you for your friendship, your shoulder, and for showing me that using big, scary academic words can be fun!

Sebastian … my Deutsch friend, thank you for keeping me company for many, many late nights in Aderhold, for keeping my mind engaged in both trivial and non-
trivial pursuits, and for Shanebokin’ all those times ’til the lights came on! Now those were the days!

Shawn … thank you for your lifelong friendship and for pointing me in the right direction. If it weren’t for you, I never would have entered the field of education.

Sophie … you are so amazing! Teach me how you do everything you do in the time you do it – while keeping a smile on your face! You’ve been such a great friend. Thank you!

Steve … thank you for always being around when I needed a break from the work! May some things never change!

Todd … your friendship has helped to make this journey a lot of fun. And without the fun, I doubt anyone would be reading this right now. Thank you also for your help in proofreading this behemoth!

Tommy … thank you for your support and friendship this last year. Who else came over to cook for me when I was struggling to meet a deadline? No one else, that’s who!

Vic … you were there at the beginning of this journey, and now you’re here at the end. Thank you for your support and encouragement, as well as for your love and friendship. You’re the prince, not I.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xiii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xiv</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2 REVIEW OF THE LITERATURE</td>
<td>10</td>
</tr>
<tr>
<td>3 METHODOLOGY</td>
<td>47</td>
</tr>
</tbody>
</table>

**1 INTRODUCTION**
- Background: 2
- Statement of the Problem: 5
- Purpose Statement: 6
- Research Questions: 6
- Overview of the Methodology: 7
- Relevance of the Study: 8

**2 REVIEW OF THE LITERATURE**
- Evaluation: Definitions and Evolution: 11
- Reasons to Evaluate Educational Technologies: 23
- Evaluation Paradigms and Models: 31
- Barriers to Performing Effective Evaluations: 38
- Chapter Summary: 45

**3 METHODOLOGY**
- Research Questions: 47
5 CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

Conclusions................................................................. 152
Discussion and Implications........................................... 155
Recommendations for Practice ......................................... 162
Recommendations for Further Study ................................. 167
Conclusion ..................................................................... 169

REFERENCES ..................................................................... 172

APPENDICES ..................................................................... 185
A INTERVIEW CHECKLIST .................................................. 186
B INTERVIEW PROTOCOL .................................................. 187
C INTERVIEW PROLOGUE .................................................. 189
D INFORMED CONSENT FORM ......................................... 190
E SAMPLE LTG APPLICATION ........................................... 192
F LTG PROGRAM GUIDELINES WEB PAGE ......................... 200
G INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL .......... 205
H CODING SCHEME FOR UNITS OF DATA ......................... 206
LIST OF TABLES

Table 1: Evaluation paradigms. ................................................................. 34
Table 2: Research questions and sub-questions. ............................................ 48
Table 3: Factors and strata relevant to maximum variation sampling. ................. 52
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Example of data during phase 1 of analysis.</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>Example of data during phase 2 of analysis.</td>
<td>76</td>
</tr>
<tr>
<td>3</td>
<td>Example of data during phase 3 of analysis.</td>
<td>79</td>
</tr>
<tr>
<td>4</td>
<td>Participant demographics.</td>
<td>85</td>
</tr>
<tr>
<td>5</td>
<td>Stated goals of LTG funding requests.</td>
<td>86</td>
</tr>
<tr>
<td>6</td>
<td>Participants’ general beliefs about evaluation.</td>
<td>87</td>
</tr>
<tr>
<td>7</td>
<td>Typical classroom evaluation practices.</td>
<td>102</td>
</tr>
<tr>
<td>8</td>
<td>Impact of writing evaluation component of grant applications.</td>
<td>124</td>
</tr>
<tr>
<td>9</td>
<td>Abbreviated answers to research questions.</td>
<td>153</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

The primary purpose of any institute of higher education, whether a local technical school or an Ivy League university, is to facilitate student learning. Instructors have various methods of accomplishing this goal, from lecturing in large auditoriums to overseeing students’ independent studies. As computer technologies have advanced in the recent past, many higher education administrators have recognized technology’s potential to enhance learning and reduce costs. Accordingly, many colleges and universities have begun to fund teaching improvement grants for their faculty, allowing them to develop and introduce technological innovations into their classrooms and curricula (McAlpine & Gandell, 2003).

University faculty members are often, and understandably, excited about the potential to enhance their students’ learning experiences. Faculty and designers expend time, effort, and money in their attempt to create innovations and learning environments they believe will help students achieve specific learning goals. Despite these expenditures, instructors often end their instructional process after design and implementation phases, leaving the evaluation component of instructional design to be inadequately performed, or even worse, completely ignored.

It is warranted to question why some educators make efforts to ascertain the effects of classroom innovations, while others are content to assume that technology is having the desired effect on their students. How do instructors perceive the evaluation
process? What are their underlying beliefs about evaluation? How do they evaluate their projects? Few researchers have attempted to provide answers to these questions. This study seeks to fill the existing gap in the literature regarding instructors’ beliefs about and actions related to evaluation, particularly as they relate to technological innovations.

Background

Evidence strongly suggests that computer technologies are becoming an increasingly available part of learning environments in higher education. This increased usage has brought with it an increased need for the evaluation of these technologies (Bullock & Ory, 2000). Despite the rapid proliferation of these educational technologies, their ability to enhance learning is still intensely debated.

Ten years ago, over $6 billion was spent on educational technologies in higher education in the United States alone (Jones & Paolucci, 1999). Less than five years ago, 40 percent of senior information-technology administrators at colleges and universities across the United States indicated that the most important issue for them over the next few years was the integration of technology into their classrooms (Myers, Bennett, Brown, & Henderson, 2004).

The increase of technology in higher education may prompt individuals to wonder about its impact on student learning in colleges and universities. Advocates of technology state that it can lead to more efficient learning (Hooker, 1997), prepare students for their future positions in the modern-day workplace (Oblinger & Rush, 1997), and make learning available to more students in more diverse ways, times, and places (Bates, 1997). The results from studies and research reviews conducted by Becker (1994), Christmann and Badgett (1999), and Kozma (1991) indicate that technology can
indeed bolster learning outcomes. However, there are also research studies that report that the use of technology does not significantly impact student learning (e.g., Alexander, 2001; Clark, 1983; Russell, 1999).

These contradictory findings indicate that while technological applications do have the potential to enhance learning, they are no educational panacea. These conflicting results leave the university instructor in an awkward position, perhaps contemplating, “Should I use technology in my classroom?” Considering the increasing levels of funding being used to improve and increase the technologies in higher education settings (Jones & Paolucci, 1999), the more appropriate question may be, “When I implement technology into my classroom, how will I determine its effects?”

University instructors who receive funding for technology integration are often required by funding agencies to conduct an evaluation of their projects. These instructors must often take on the role of evaluator, despite having no formal training in the field of evaluation (Oliver, 2000). Questions arise regarding what to evaluate, when to evaluate, how to evaluate, and why they should evaluate in the first place.

Evaluation in higher education has often been relegated to a summative exercise that is perfunctorily “tacked on” at the conclusion of a project’s implementation phase (Gunn, 1999). The concept of evaluation as an integral part of all phases of a project, from design through implementation, eludes many novice faculty (Draper, Brown, Henderson, & McAteer, 1996; Weston, 2004). Professional evaluators, however, note the importance of formative evaluation and stress its potential to improve the final quality of an educational product or project if used during all stages of the educational process (Alexander, 1999; Maslowski & Visscher, 1999). Therefore, the goal of an instructor
should involve determining whether their methods of teaching are effective. Project designs that look good on paper or appear to work in a controlled environment often function differently when implemented in authentic situations (Weston, 2004). Instructors should primarily seek to answer the questions, “Did learning occur, and if so, what enabled it?” A properly conducted evaluation can provide some answers to these questions.

Instructors who have integrated innovations into their courses do not always properly evaluate the impact of the technology (Alexander, 1999; Bain, 1999). Instructors often state that they do not have the time to conduct thorough evaluations of their projects. Sometimes instructors receive funding for technology integration, but this funding does not include monies for hiring a professional evaluator to determine the impact of a program. Lacking expertise in evaluation, some instructors try to do their best but commit common mistakes in conducting evaluations. One frequent mistake that instructors make is measuring students’ attitudes toward the technology rather than the technology’s impact on student learning (Alexander, 1999; Devlin & James, 2003), which may relate to a lack of teaching experience or the demands on instructors’ time. Other problems include using untested instruments, ignoring researcher bias, and using improper statistical techniques (Bamberger, Rugh, Church, & Fort, 2004). The literature presented in Chapter 2 will support the assertion that evaluation should be regarded as more than merely giving students tests and surveying their attitudes toward the teaching method.
Statement of the Problem

The Learning Technologies Grants (LTG) program began disbursing funds to instructors in 1998 to enhance teaching and learning at the university through the effective use of media and information technology. The program allows instructors to use or create classroom innovations they believe will benefit their students. Program guidelines do not specify the types of projects that may be funded. Instructors have received funding for a wide variety of projects, including the development of computer laboratories and new courses, the creation of multimedia modules and computerized testing centers to better instruct and assess students, and the purchase of various software and hardware to provide students with previously unavailable opportunities.

Since 1998, the LTG program has supported over 80 projects with funding in excess of $2.8 million. However, overall funding for this university system has decreased over the past several years, and departments at the university have been asked to develop plans for reducing expenses in order to prevent or minimize employee layoffs.

Due to these reductions in funding, it seems prudent to carefully consider where funds are being directed and what results from these financial decisions. Has the LTG program achieved its anticipated goals, or might the funding allocated to the program be better used elsewhere? Have the projects funded by the LTG program been successful? In order to answer these questions, the efficacy of the funded projects must be determined. Evaluations, whether formal or informal, must be conducted in order to ascertain whether these projects have met their goals. Prior to this study, little was known about the ways in which recipients of LTG monies evaluated their funded projects.
Literature, to be summarized in Chapter 2, suggests that university instructors who are untrained in evaluation methods often perform evaluations that professionals in the field would find inadequate. Is this true for the LTG program? This question could only be answered by collecting information regarding project evaluations. Are instructors willing to expend the time and effort required to evaluate their projects? Are they familiar with the various methods of conducting evaluations? Do they consider evaluation a good use of their time? Understanding the factors that influence instructors’ project evaluation behaviors can aid the LTG program in addressing the needs of its audience and provide information that may be useful to similar granting agencies.

Purpose Statement

The purpose of this study was to investigate and describe how recipients of a university-funded grant program for technology integration perceived and carried out the evaluation process regarding their funded projects.

Research Questions

This study had two primary research questions, guided by seven sub-questions:

1. How do instructors funded for technology integration perceive the process of project evaluation?
   a) What are participants’ general beliefs and underlying philosophies regarding evaluation?
   b) How have participants previously evaluated their classroom practices?
   c) How do participants believe the evaluation requirement of the grant program influenced their evaluation plan and activities?

2. How do these instructors evaluate the impact of their technology integrations?
a) How do participants propose to evaluate their projects when requesting funding?

b) How do actual evaluations differ from planned evaluations?

c) For participants who do not follow their evaluation plans, what are their reasons?

d) What constraints do instructors face when conducting evaluations?

Overview of the Methodology

The research questions for this study suggested the use of qualitative research methods to explore and describe participants’ beliefs and behaviors regarding project evaluation. The goal of a qualitative researcher is to “better understand human behavior and experience…to grasp the processes by which people construct meaning and to describe what those meanings are” (Bogdan & Biklen, 1998, p. 38). This study dealt, in part, with participants’ beliefs, philosophies, and attitudes regarding evaluation, and as such, qualitative methods were most appropriate.

The specific methodology for this study was what Merriam (1998) refers to as the generic qualitative study. This type of study is appropriate for researchers attempting to “discover and understand a phenomenon, a process, or the perspectives and worldviews of the people involved” (Merriam, p. 11) and typically results in the identification of recurring patterns or themes across the data. In this study, these themes helped to identify instructors’ evaluation practices, as well as the beliefs and attitudes that influenced these practices. Due to the limited number of participants for this study, data considered to be outside of these themes were also considered to be significant and were reported if considered relevant.
Eleven grant recipients participated in this study. Considerations for participant selection originally included award amount, year awarded, length of funding, evaluation status, and academic discipline. However, due to various difficulties, to be explained in Chapter 3, all participants who agreed to be interviewed were included in the study.

Data collection techniques for this study included interviews and document analysis. The researcher interviewed participants once using a semi-structured interview format. Relevant documents included grant applications and any evaluation reports or other related documentation produced by the instructors or the university’s granting agency. Data were analyzed using the constant comparative method.

Relevance of the Study

The information sought in this study is relevant to university students, instructors, administrators, and funding agencies, as all of these stakeholders are likely to be interested in technology’s success at enhancing learning. Particularly in light of current financial factors, identifying university instructors’ attitudes and behaviors regarding evaluation should be of interest to funding agencies that invest substantial amounts of money into teaching grants. Are these investments paying off? Only through project evaluation can this question be answered.

This study investigated, among other things, the barriers that instructors face in performing evaluations of the projects they were funded to implement. A better understanding of the factors that prevent instructors from adequately evaluating their projects may lead to changes within the LTG program. Perhaps the program will enlist the services of an expert evaluator or suggest that grant applicants include a request for funding to conduct project evaluations. As instructors are better supported in their efforts
at project evaluation, they will likely learn more about how to effectively incorporate technology into their classrooms and curricula, and their students will be the ultimate beneficiaries.
CHAPTER 2

REVIEW OF THE LITERATURE

In this chapter, I outline the literature on how university instructors perceive and carry out the process of evaluation as it relates to the technology-based innovations they have integrated into their classes. Based on my review of relevant literature, it appears that limited information is available that directly addresses instructors’ perceptions about evaluation and their rationales for conducting evaluations. This chapter offers the available research, as well as information regarding the philosophies and processes that drive evaluation, in an effort to inform the findings of this study.

This chapter is divided into four sections. The first section begins by describing some of the different ways that evaluation has itself been defined, both by seminal authors in the field of evaluation, as well as contemporary evaluation researchers and practitioners. This section also provides a historical overview of how educational evaluation has grown in both prominence and substance over the last fifty years and how the evolution in research and development in higher education has influenced its development.

The second section briefly looks at the reasons that instructors are increasing their efforts to integrate technology into their curricula. It also provides some of the reasons noted by the literature that instructors do (or should) perform effective evaluations of their projects. The third section describes some of the current and contemporary paradigms and models that have been used to evaluate educational technologies.
The fourth section discusses what previous research has found to be the major constraints preventing instructors from performing adequate evaluations of their innovations. This section also describes common mistakes that instructors make when evaluating their projects.

The materials in this chapter were collected primarily through three methods. I relied heavily on the ERIC Index, Academic Search Premier, and Dissertation Abstracts databases to find relevant material. Search terms included “educational evaluation,” “instructor attitudes,” “teaching grants,” and “evaluation of technology.” In addition, when I found journals that appeared to be particularly relevant or helpful (such as American Journal of Evaluation and Journal of Research on Technology in Education), I manually scanned through the past few years’ issues searching for material relevant to my topic. As a final method of finding relevant material, I scanned through the literature reviews and reference sections of sources I had found. I attempted to limit my sources to those published within the last ten years, with the exceptions of seminal authors and works, in order to reflect the current state of educational technologies and their evaluation in higher education.

Evaluation: Definitions and Evolution

Before discussing the purposes, constraints, models, and perceptions of educational evaluation, it is important to understand what the central term itself means. This section first describes several ways in which evaluation has been defined, and then provides an overview of how the field of evaluation has developed over the past several decades. This overview describes how the field has evolved, in addition to providing a
historical backdrop that offers some insight into participants’ beliefs regarding educational evaluation and the underlying philosophies that drive their evaluation efforts.

**Definition of Evaluation**

Pioneers and practitioners in the field of evaluation have offered an assortment of definitions of and ideas about evaluation over the past several decades. The term *evaluation* can refer to the process of determining an object’s value, the academic discipline of systematically performing this type of evaluation, the work done by professional evaluators, and even a mathematical procedure (Scriven, 1991). The term can also refer to an element of the critical thinking process in which people engage on a daily basis (Fitzgerald, 1998). Perhaps the most seminal and most often referenced definition of evaluation is that of Scriven (1967), who defined evaluation as judging the worth or merit of something. This value-oriented concept of evaluation can be seen in the Joint Committee on Standards for Educational Evaluation’s definition of evaluation as the “systematic investigation of the worth or merit of an object” (1981, p. 152; 1994, p. 205).

While many descriptions of evaluation retain the spirit of Scriven’s definition, many also stress additional aspects of evaluation, such as its systematic nature, the process through which it occurs, or its specific or general purposes. Popham (1992) states that “systematic educational evaluation consists of a formal appraisal of the quality of educational phenomena” (p. 7), differentiating this type of evaluation from the more informal acts of evaluation referred to by the critical thinking researchers. Worthen, Sanders, and Fitzpatrick (1997) provide an expanded definition along the same lines. They define evaluation as “the identification, clarification, and application of defensible
criteria to determine an evaluation object’s value (worth or merit), quality, utility, effectiveness, or significance in relation to those criteria” (p. 5), acknowledging the different characteristics of an evaluand that are subject to evaluation.

Patton (1986) offers a definition of evaluation that avoids direct reference to an object’s value. He defines program evaluation as “the systematic collection of information about the activities, characteristics, and outcomes of programs for use by specific people to reduce uncertainties, improve effectiveness, and make decisions with regard to what those programs are doing and affecting” (p. 14), while stating elsewhere that he “use[s] the term evaluation quite broadly to include any effort to increase human effectiveness through systematic data-based inquiry” (1990, p. 11).

Other researchers conceptualize evaluation as an integral part of pedagogy, project design, and policymaking. Gunn (1999) defines the concept of evaluation as “an ongoing process of examination, reflection and improvement; an integral part of the development of innovative learning environments and materials; and a mechanism for informing teaching, learning, assessment and IT policy articulation” (p. 186), stressing the various roles that evaluation can have in an educational setting.

Although the terms evaluation and assessment are often used interchangeably, they are not synonyms. Parker, Fleming, Beyerlein, Apple, and Krumsieg (2001) discuss this issue in depth and stress that these two terms are often confused and confounded. They describe evaluation as “a judgment or determination of the quality of a performance, product, or use of a process against a standard” (p. T3A-1). They describe assessment as “the process of measuring a performance, work product, or a learning skill
and giving feedback, which documents growth and provides directives to improve future performance” (p. T3A-1). In short, *things* are evaluated, while *people* are assessed.

There appear to be nearly as many definitions or conceptualizations of evaluation as there are evaluation practitioners. This study attempted, in part, to determine how different university instructors perceive evaluation.

*The Evolution of Evaluation*

The evolution of evaluation in the United States has been significantly impacted by a number of factors, including the growth of higher education during the past sixty years, the government’s investments in higher education, the growth of research and development in higher education, and the social evolution of the country. It is beyond the scope of this document to provide a complete history of the field of evaluation. However, this section does describe the evolution of evaluation over the past sixty years and the reasons underlying the changes in the field. In order to discuss how evaluation has evolved since World War II, it is important to discuss not only evaluation in education, but also evaluation in governmental programs, as government has often taken a large role in funding educational programs in both K-12 and higher education settings during the last sixty years.

History explains how social establishments came to be the way they are and provides us with information and understandings that may prevent us from repeating mistakes of the past. This accounting of the evolution of evaluation as a discipline and the factors that have impacted the relative emphasis placed on evaluation over the past several decades provide a historical backdrop against which the context of this study can be considered.
World War II and its aftermath had a profound impact on this country’s social and educational programs. During the war, the American government invested in a number of programs to improve the efficiency and morale of our troops, as well as to improve job training and job placement for soldiers after their time in service. Along with these programs came others aimed to improve housing, community development, and family planning (Fitzpatrick, Sanders, & Worthen, 2004).

The expansion of government-funded programs in these various areas prompted a growth in social research. Whereas in the past, program studies were oftentimes focused on particular facets of a program that interested the researcher, the wider scope and size of these new programs led to more holistic program evaluations. According to Fitzpatrick et al. (2004), “if we are liberal in stretching the definition of evaluation to cover most types of data collection in health and human service programs, we can safely say evaluation flourished in those areas in the 1950s and early 1960s” (p. 34). Most of these studies, however, drew on existing research methods based on behavioral and social research, rather than developing research methods that were more conceptually and methodologically appropriate to evaluation research.

Along with the postwar growth in military-based and social programs came substantial changes in higher education. After the end of the war, there was astounding growth in college enrollment. According to Lucas (1994), “no mind-numbing litany of statistics, however extensive and important, could do justice of itself to the growth of American higher education in the postwar period” (p. 232). Much of this was due to the passage of the Servicemen’s Readjustment Act of 1944, more popularly referred to as the “G.I. Bill of Rights.” This bill represented a new chapter in the partnership between
government and academia. Aided by this legislation, over two million veterans had enrolled in college within a year of the end of the hostilities.

The growth of government involvement in primary and higher education climaxed in the late 1950s. The launch of \textit{Sputnik I} in 1957 signified the beginning of the “space race” between the Soviet Union and the United States and prompted calls for more effective teaching of science and mathematics to American students (Fitzpatrick et al., 2004). The government responded by passing the National Defense Education Act (NDEA) of 1958, which stated that Congress had found that an educational emergency exists and required action by the federal government (Fitzpatrick et al., 2004; Sputnik, n.d.).

More legislation followed the NDEA, and over the following five years, the federal government appropriated hundreds of millions of dollars for higher education, turning “scores of sleepy bucolic campuses…into bustling research and development centers sustained with federal largess” (Lucas, 1994, p. xv). This funding went into providing scholarships and student loans, expanding counseling and guidance services and testing programs in school districts, developing research and development programs, and funding new national curriculum projects, primarily in science, mathematics, and modern foreign language (Geiger, 1999; Stufflebeam & Shinkfield, 1985; Summary, n.d.). Although only a few such programs were funded, their size and importance prompted policy makers to also provide funds for the evaluation of many of the projects (Fitzpatrick et al., 2004, Stufflebeam & Shinkfield).

This growth in America’s higher education system was rapid and constant until around 1962, but the field of evaluation was not keeping pace (Fitzpatrick et al., 2004;
Lucas, 1994). Although programs were being evaluated, “the resulting studies revealed the conceptual and methodological impoverishment of evaluation in that era” (Fitzpatrick et al., p. 35). Despite an oftentimes substantial collection of information about programs, educators did not use these data to improve educational services.

Patton (1986) refers to this situation as a “utilization crisis” (p. 23). Rather than developing new, more practical models of evaluation, emphasis was instead placed on creating new tools and strategies for use with Tyler’s objectives-based model of evaluation (House, 1993; Reeves & Hedberg, 2003). Evaluation theory was virtually unknown, and it was slowly becoming clear that methods lifted from social and behavioral research were simply not what was needed for educational evaluation (Fitzpatrick et al., 2004). This period concluded with Cronbach (1963) authoring an article lambasting current evaluation techniques and calling for new directions in the field. This article had little impact at the time, but sparked a broader conception of evaluation that would have significant impact upon evaluation during the next decade.

1964 – 1972. By the mid-1960s, the ideological consensus that followed World War II began fragmenting, and growing racism, poverty, and unemployment fueled social discord (Fitzpatrick et al., 2004; House, 1993). As part of his War on Poverty, President Lyndon B. Johnson launched the Great Society legislation, which aimed to equalize opportunities for citizens in all walks of life. Substantial funds were provided for programs aimed to improve education, health, criminal justice, unemployment, and housing. One of the centerpieces of this legislation was the Elementary and Secondary Education Act (ESEA) of 1965, which is considered by many to be “the one event that is
most responsible for the emergence of contemporary program evaluation” (Fitzpatrick et al., p. 36).

When the ESEA legislation was being deliberated in Congress, some senators voiced concerns that massive amounts of funding were attached to this legislation, despite a lack of evidence proving that any previous federal funding for education initiatives had resulted in educational improvements (Fitzpatrick et al., 2004). In particular, Senator Robert Kennedy was unconvinced that the federal monies provided to assist underprivileged children would be used to benefit the children and thus insisted that the legislation be amended to include specific evaluation criteria (House, 1993; Stufflebeam & Shinkfield, 1985). Eventually, Congress approved evaluation mandates for some parts of the legislation, requiring many grant recipients to submit evaluation reports stating how the federal funds had been used and what outcomes had resulted from the funded programs (Fitzpatrick et al., 2004).

During the period from 1964 to 1972, federal funding increased not only for educational programs, but also for social programs designed to combat poverty and improve job training and urban development. These increases in federal funding led Congress, the public, and the media to call for more accountability. As a result, the government began providing more money for program evaluation, up from $17 million in 1969 to $100 million in 1972 (Fitzpatrick et al., 2004; Shadish, Cook, & Leviton, 1991). This led to more professionals being asked to perform evaluations, and it became increasingly evident that new approaches and methods were needed to conduct practical, appropriate, and informative evaluations (Fitzpatrick et al., 2004).
The growing malaise with evaluation efforts and consistently negative findings in the mid- to late 1960s led to the creation of the National Study Committee on Evaluation in 1967, which was chaired by Daniel Stufflebeam. This committee’s report “concluded that educational evaluation was ‘seized with a great illness’ and called for the development of new theories and methods of evaluation as well as for new training programs for evaluators” (Stufflebeam & Shinkfield, 1985, p. 22). As if responding to this indictment, several researchers and theorists began to develop new ways of conceptualizing what educational evaluation should be, and various books and articles regarding evaluation began to appear in the late 1960s and early 1970s (Fitzpatrick et al., 2004).

Fitzpatrick et al. (2004) and Stufflebeam and Shinkfield (1985) note some of the important evaluation developments from 1964 to 1972. They note that some researchers (e.g., Eisner, Hammond, Provus) advocated changes to Tyler’s model, while others (e.g., Glaser, Popham, Tyler) began to consider the benefits of criterion-referenced testing over norm-referenced testing. Campbell advocated more social experimentation to determine the effectiveness of programs, while Scriven, Stake (1967/1996), and Stufflebeam theorized about new evaluation models that were more appropriate for specific evaluation needs.

As Rossi, Freeman, and Lipsey (1999) note, evaluations during the 1964 to 1972 period emphasized innovation over complacence. The new theories and models of evaluation emphasized making judgments about the merit or worth of evaluands, examining both intended and unintended effects of programs, and considering the implementation and delivery of programs rather than only program effects (Stufflebeam
& Shinkfield, 1985). The increasing importance of evaluation around this time period also prompted colleges and universities to begin offering graduate programs in evaluation (Fitzpatrick et al., 2004).

*1973 – 1984.* The period between 1973 and 1984 can be described as one in which the field of evaluation changed from being characterized as amorphous and fragmented to being more distinct and professionalized. Numerous journals and books were published that focused on evaluation. Several professional organizations were formed, as well as the American Educational Research Association’s Division H, the School Evaluation and Program Development division.

In 1976, twelve professional organizations dealing with evaluation in education and psychology formed the Joint Committee on Standards for Educational Evaluation. The purpose of this committee was to develop a set of standards to use in assessing evaluations. In 1981, the Joint Committee published *Standards for Evaluations of Educational Programs, Projects, and Materials* (1981), which has become one of the seminal works in the field of evaluation (Fitzpatrick et al., 2004; Stufflebeam & Shinkfield, 1985).

Despite this new professionalization of the evaluation field, beginning in the 1970s, state budgeting for public higher education began to decrease (Lucas, 1996). In the late 1970s, federal funding for evaluation began to decline as well. During the Reagan administration, funding cuts for evaluation were severe. Much of the funding that had previously been dispensed to states and institutions along with a mandatory evaluation component was replaced with block grants with no evaluation requirement (Fitzpatrick et al., 2004). While overall funding during the Reagan administration
decreased by 4 percent, funding for evaluation declined 37 percent (House, 1993). Levitan (as cited in Fitzpatrick et al., 2004) found a 50 percent decrease in evaluation staff and budgets during the 1980s, while Cordray and Lipsey (as cited in Fitzpatrick et al., 2004) found that some federal agencies reduced the number of evaluation studies by 90 percent.

Shadish et al. (1991) suggests that the decline in federally funded evaluation during this period actually resulted in a diversification in evaluation settings and approaches. Although many state and local agencies first began their evaluation studies because of federal mandates, some soon recognized the benefits of evaluating their programs with or without a mandate to do so. As the funders of evaluation studies became more diverse, so did the approaches and models used to structure the evaluations (Fitzpatrick et al., 2004).

A number of researchers worked to develop and refine new models of evaluation during the 1973 to 1984 time period. Wolf’s adversary evaluation model borrowed from America’s judicial system (Reeves & Hedberg, 2003), while Eisner’s connoisseurship model was based “on the premise that artistic and humanistic considerations are more important in evaluation that scientific ones” (Scriven, 1991, pp. 91-92). Formative evaluation, based on Scriven’s work, became much more prominent as evaluators and program administrators searched for incremental ways to improve their programs (Fitzpatrick et al., 2004). Stake developed his responsive evaluation model, which moved evaluation away from social science paradigms by emphasizing human instrumentation and the importance of a program’s stakeholders (Fitzpatrick et al., 2004; Reeves & Hedberg, 2003). Building on Stake’s work, Guba and Lincoln (1981)
developed their naturalistic evaluation model and advocated debate over the relative merits of qualitative and quantitative evaluation methods (Fitzpatrick et al., 2004). For every evaluation need, there seemed to be an appropriate evaluation model being developed.

1985 – the present. The profession of evaluation has continued to grow professionally over the past twenty years. One big step for the field was the formation of the American Evaluation Association (AEA) in 1985 from the merger of two other evaluation organizations. The AEA has helped to professionalize the practice of evaluation by developing a code of conduct for evaluators, publishing the Guiding Principles for evaluators, and providing a forum for evaluators across the country to discuss and debate ideas in the field (Fitzpatrick et al., 2004).

Evaluation has become an even more important concept in higher education during the past twenty years. Colleges and universities have been facing a financial crisis since the late 1980s (Lucas, 1996). The economic recession the United States experienced in the early 1990s “resulted in cuts to public higher education unequaled since at least World War II” (Zusman, 1999, p. 110). Due to increasing competition for public resources, funding for higher education has not grown as quickly as many would like. As a result, universities have shifted a larger portion of their costs to students and families, dramatically increasing tuition (Lucas, 1996). In addition to these funding shifts, many observers of higher education alleged during the 1980s and 1990s that academic standards had declined precipitously (Lucas, 1994). The combination of these two factors, along with a renewed emphasis on standardized achievement testing and
performance indicators, has increased the public’s interest in accountability in higher education (House, 1993).

Summary

This section has provided information related to the various ways that evaluation has been defined and conceptualized by various experts and practitioners. It has also provided historical information related to the evolution of educational evaluation during the past several decades. Current literature indicates that evaluation has become a more integral part of the field of education, leading to what one would expect to be a greater emphasis on evaluation among instructors in higher education. This study investigated whether or not this is the case among technology grant recipients at one university. The information provided in this section provided a historical backdrop for the analysis of participants’ beliefs about and philosophies of evaluation.

Reasons to Evaluate Educational Technologies

Technology is becoming an increasingly consistent, and likely an increasingly costly, part of educational curricula at all levels. As far back as 1994, over $6 billion was spent on educational technology in higher education alone in the United States (Jones & Paolucci, 1999). The Campus Computing Project (CCP) has collected information regarding technology from over five hundred colleges and universities since 1990. Data from these surveys indicate that the use of technology in university courses has risen sharply since 1994. Furthermore, 40 percent of the senior information-technology administrators who responded to the survey in 2000 indicated that technology integration into the classroom was the single most important issue for them over the following two to three years (Myers et al., 2004). This section addresses some of the reasons instructors
may choose to use or to avoid using technology in their classrooms. It also addresses factors that may encourage instructors to evaluate their learning technologies.

**Educational Technologies: Advantages and Disadvantages**

What accounts for the perceived importance of technology in education and instructors’ willingness to embrace materials that generally require changes to their teaching styles? Many instructors, university administrators, and governmental entities appear to view technology as a means of improving the educational system in America and other countries. Thus far, research on technology’s impact on student learning has provided inconsistent and contradictory results.

**Benefits of technology.** Writings on technology integration offer numerous reasons why instructors may choose to incorporate technology into their classes. Educational technology can make information more easily accessible to students, help them develop knowledge and skills, and link people who are geographically distributed (Bransford, Brown, & Cocking, 1999; Knapp & Glenn, 1996). Laurillard (2002) stresses the flexibility of educational technologies and their potential to make learning available to students in more ways, times, and places than traditional methods of teaching.

Some researchers prefer to emphasize how the use of technology can actually enhance the learning process itself. Some believe that technology can facilitate the construction of complex learning environments that enhance students’ mental processes (Pea, 1985), while others believe that technology can help to create a more student-centered learning environment to enhance student learning (Gandell, Weston, Finkelstein, & Winer, 2000). Other writers note technology’s potential to reduce the costs of
education and improve the cost-effectiveness of education (Bates, 1997). These benefits of using technology provide only a sample of the reasons for technology integration.

Technology’s questionable effects. Several potential reasons were mentioned above that may explain why instructors choose to integrate technology into their classrooms, with the primary reason being to improve learning. But what impact does technology have on student learning? The answers to this question have been mixed over the past two decades. After analyzing the research on learning from and with media, Clark (1983) concluded that “consistent evidence is found for the generalization that there are no learning benefits to be gained from employing any specific medium to deliver instruction” (p. 445). More than twenty years later, the term technology often replaces the term media, but the results of large-scale evaluations of the effect of technological innovations remain largely unchanged.

A study of 104 technology-based projects across colleges and universities led Alexander (2001) to conclude that the simple use of information technology does not of itself improve student learning. A review of recent writing on the effectiveness of distance education for the Institute of Higher Education Policy led the authors to conclude that “with few exceptions, the bulk of these writings suggests that the learning outcomes of students using technology at a distance are similar to the learning outcomes of students who participate in conventional classroom instruction” (Gold and Maitland, 1999, p. 1). Having reviewed 355 studies evaluating the impact of technology-enhanced instruction, Russell (1999) reports the preponderance of “no significant difference” results for various outcome measures between students whose learning experiences included technological innovations and those whose did not. Johnson, Aragon, Shaik,
and Palma-Rivas (2000) report similar findings of no significant difference, while Ehrmann (1995) reports that technology can influence student learning both positively and negatively.

**Summary.** This section has provided a brief look at some of the factors that may influence instructors’ decisions regarding the use of technology in their curricula. Research on technology’s ability to improve student learning is inconclusive. Regardless, many instructors continue to add educational technologies to their curricula in the hopes of improving student learning, as well as for other reasons. Instructors and administrators may be concerned with the effect of technology on student learning, cost-effectiveness, or any other of numerous variables. Whatever the purpose for technology integration, it is necessary to conduct some type of evaluation in order to determine technology’s impact on the factors of interest.

**Why Evaluate?**

There are numerous instructional design models available to assist educators in their instructional planning. Virtually all of these models include some sort of evaluation component (e.g., Dick & Carey, 1996; Leshin, Pollock, & Reigeluth, 1992; Reiser and Dick, 1996; Smith & Ragan, 1999). However, the unfortunate reality is that evaluation is often an underappreciated, underutilized, poorly conducted, and occasionally ignored facet of many instructors’ pedagogical practices.

One purpose of this research study is to explore why instructors do or do not evaluate the technologies that they integrate into their courses. Just as there are numerous reasons why instructors integrate technology, there are also various reasons why instructors may choose to evaluate the impact of these innovations. This section
addresses some of the factors found in the literature that may encourage instructors to perform evaluations of their educational technologies.

*Mandate.* Social and economic forces over the past two decades have had a major impact on funding for higher education. Particularly at the state level, legislatures have become increasingly unwilling to continuously increase budget allocations for colleges and universities (Karelis, 1996). This plateauing or reduction in funding levels has led to a rise in the call for accountability for money spent to improve education. Both taxpayers and the government wish to know if the money being dispensed to educational institutions is resulting in the desired effects.

The rising emphasis on accountability and evaluation is exemplified in a 2003 “notice of proposed priority” issued by the Department of Education in the *Federal Register*:

We take this action to focus Federal financial assistance on expanding the number of programs and projects Department wide that are evaluated under rigorous scientifically based research methods in accordance with the Elementary and Secondary Act (ESEA) as reauthorized by the No Child Left Behind Act of 2001.” (“Scientifically based,” p. 62445)

Funding that is tied to evaluation activities may serve as a strong motivating factor to perform evaluations of grant-subsidized educational projects.

*Improve the product.* Noting problems that hindered the success of technology-based projects in Australia’s higher education system, Alexander (2001) writes that for some projects, an “evaluation [was] conducted (if at all) only when the project was complete, and [it was] discovered that changes were required for which funds were no
longer available” (p. 244). Projects such as these overlooked an integral part of the evaluation process—formative evaluation.

Scriven (1991) describes formative evaluation as evaluation that is conducted during the development of a product or program by or for the developers with the intent to improve it. There is a substantial body of literature regarding formative assessment of educational technologies (e.g., Flagg, 1990; Gustafson & Branch, 1997; Maslowski & Visscher, 1999). These experts in the fields of educational technology and evaluation note that formative evaluation should address feedback, revision, review, and improvement of product designs. Despite the availability of information regarding formative evaluation, this type of evaluation is still underused by designers and users of educational technologies (Maslowski & Visscher, 1999).

It is logical that instructors want their educational projects to succeed. Formative evaluation is a means through which they can improve projects’ chances of impacting teaching and learning in a positive way. Studies of technology’s use in educational settings have shown that formative evaluation can result in considerable benefits to the evaluand (Char & Hawkins, as cited in Maslowski & Visscher, 1999; Flagg, 1990). Designers or instructors can determine the strengths and weaknesses of a product or project and make changes accordingly to address or correct its deficiencies (Clarke, 1999). Laurillard (2002) notes that “designers learn more from watching a small number of students trying to learn from their materials than they ever do from questionnaire studies” (p. 233). This information can certainly be helpful in product improvement.
Determine impact. Evaluation can provide valuable feedback regarding the impact of a classroom innovation. Weston (2004) describes why summative evaluation should be an integral part of any educational project:

Designers of educational technology applications incorporate principles addressing compatibility, but the translation of a design principle to implementation tends to be incomplete because the designer cannot fully anticipate how his or her creation will function in its ultimate environment. Design that looks good on paper, in a laboratory, or in a controlled classroom environment functions differently when used outside of these contexts. (p. 58)

Once a product or project has been created and implemented, it stands to reason that an instructor will want to determine its impact on learners. In a study conducted by Gibbs, Graves, and Bernas (2001), instructional technology experts were asked to rate the importance of various evaluation criteria for multimedia instructional courseware. The most highly rated category was “evidence of effectiveness.” Mills and Tincher (2003) suggest that technology integration research focus on learner outcomes. Jones and Paolucci (1999) note that the ability or inability of technology to affect learning outcomes should be of utmost importance for instructors because “the assessment of learning outcomes provides the major feedback mechanism within the instructional design process. It is critical in evaluating the instructional system and its effectiveness” (p. 24). Determining whether or not students learn from classroom innovations is a common theme across the literature on technology integration and evaluation (e.g., Draper et al., 1996).
Strengthen pedagogy. The term technology typically brings to mind ideas of the Internet, computers, and other electronic devices. However, in his review of the history of technology in education, Spencer (1999) contends that teachers have always used new technologies:

Teachers do use educational technology. They always have done: the written word, on a blackboard or in a book, represents technology which is so embedded in teaching that we hardly acknowledge its presence. The new technologies, such as artificial intelligence tutors, are just emerging. Soon they, too, will become ubiquitous, and so totally embedded within the educational context that they will become transparent, in much the same way that written communication is hardly noticed as an embedded technology today. (p. 32)

Despite the rapid proliferation of computer-based innovations that have infiltrated educational settings at all levels, educators must understand that the development of sophisticated technology for use in educational settings is still in its infancy and that it will take time to discover and understand the most effective ways to integrate it.

A report conducted for the Center for Research on Information Technology and Organizations at the University of California by Anderson and Dexter (2000) lists program evaluation and impact assessment as one of six items in their taxonomy of educational technology leadership decisions, noting the need to evaluate and refine a variety of approaches to integrating technology in instruction. The importance of evaluation is also highlighted by Charp (1998), who states, “With all the studies and documentation available, research on why and how the use of technology is effective in
education remains minimal…. Challenges remain for accurate and meaningful research to ensure the proper use of technology in education” (p. 6).

Subjects such as learning theories and multiple intelligences are now common areas of study in the field of education; however, much remains to be learned about their relationships to educational technologies. It is reasonable to assume that many instructors who have been teaching for substantial periods of time have become both accustomed to and adept at teaching with traditional classroom materials and methods—textbooks, lectures, and electronic media such as television and filmstrips. These instructors may need to go through a period of acclimation in order to understand how technology can best be integrated into their curricula. This belief is reflected in Clark’s (1983, 1994) assertion that increases in student learning are not due to technology, per se, but rather to the changes in teaching that accompany classroom integration of educational technologies. By performing appropriate and thorough evaluations of technological innovations, instructors can add information to their own understanding of how technology can benefit learners and enhance various learning environments.

Summary. There are numerous reasons that instructors evaluate their classroom innovations. Some instructors are required to perform evaluations due to requirements from superiors or granting agencies. Others evaluate in order to improve an evaluand, determine its impact, or strengthen the pedagogy they use in their classrooms.

Evaluation Paradigms and Models

The literature regarding evaluation is filled with references to paradigms and models. Although some authors and practitioners use these terms interchangeably, others draw distinctions between them. It is necessary to briefly describe what these terms
mean, or at least what evaluation experts perceive them to mean, before discussing the
different types of each within the field of educational evaluation. As with the history of
evaluation provided earlier, I believe that understanding the underlying philosophies and
goals of various evaluation paradigms and models provides a more holistic background
for the analysis of instructors’ attitudes toward and rationales for evaluation.

Evaluation Paradigms

According to Walberg and Haertel’s (1990) International Encyclopedia of
Educational Evaluation, a paradigm refers to the explicit and tacit assumptions that guide
inquiry within a field. Reeves (1997) notes that in the scientific sense of the word, a
paradigm represents a “well-established, clearly-delineated approach to conducting
inquiry in a field” (p. 163). Scriven (1991) describes a paradigm as a “general
conception of or model for a discipline or subdiscipline, which may be very influential in
shaping its development” (p. 253) and notes that paradigms are often rejected because
they are too far removed from reality. However, according to Kuhn (as cited in Reeves,
1997), paradigms themselves describe a “reality” that is based on the interrelationships of
philosophies, theories, measurement assumptions, research methods, and analytical
procedures.

Reeves (1997) describes four types of overarching evaluation paradigms,
catenating various names that have been used to describe them. He also provides
additional information on evaluation theorists who fall under each of the four paradigms.
Reeves suggests evaluation models that reflect the philosophies underlying each
paradigm and notes each paradigm’s strengths and weaknesses. Some of this information
is presented in Table 1.
Evaluation Models

In his *Evaluation Thesaurus*, Scriven (1991) attempts to define what a model of evaluation is and how it relates to an evaluation paradigm:

[Model] is a term loosely used to refer to a conception or approach or sometimes even a method (naturalistic, goal-free) of doing evaluation (or evaluation within a certain area such as program evaluation). Models are to paradigms as hypotheses are to theories, which means less general but with some overlaps….The multitude of models illuminatingly reflect [sic] the many facets of program evaluation. (pp. 233-234)

There are many different models that can be used to evaluate educational products, projects, and programs. Fitzpatrick et al. (2004) and Stufflebeam, Madaus, and Kellaghan (2000) provide descriptions and analyses of many of these models.

Theoretically, each model can be placed under one of the previously mentioned evaluation paradigms. While describing all of these models is beyond the scope of this document, this section presents five evaluation models that literature suggests have been used in educational settings (Bullock & Ory; 2000; Draper et al., 1996). These models have been chosen to reflect a cross-section of evaluation paradigms and to represent both traditional and contemporary approaches to evaluation.

*Quasi-experimental comparative.* A quasi-experimental comparative evaluation involves “an impact research design in which ‘experimental’ and ‘control’ groups are formed by a procedure other than random assignment” (Rossi, Freeman, & Lipsey, 1999). Typically, in an educational technology context, the experimental group is the group using the innovation, while the control group is learning or being taught with a
### Table 1

*Evaluation Paradigms*

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Paradigm Characteristics</th>
<th>Exemplary Models</th>
<th>Authors</th>
</tr>
</thead>
</table>
| Analytic-Empirical-Positivist-Quantitative | • Belief in an objective, deterministic reality  
• Belief that everything can be measured  
• Cause and effect relationships  
• Emphasis on comparative effectiveness of programs  
• Most widely-used paradigm within education | • Experimental and quasi-experimental models  
• Tyler’s objectives-based model | • Campbell  
• Stanley  
• Suchman  
• Thorndike  
• Tyler |
| Constructivist-Hermeneutic-Interpretivist-Qualitative | • Truth is constructed by individuals  
• Multiple perspectives of reality  
• People are primary instruments of evaluation  
• Rejection of mathematical modeling and analysis  
• Use of observational methods and “rich, thick description”  
• Emphasis on meaning, not measurement | • Patton’s qualitative approaches to evaluation  
• Guba and Lincoln’s Fourth Generation Evaluation model | • Guba  
• Lincoln  
• Patton  
• Preissle |
| Critical Theory-Neomarxist-Postmodern-Praxis | • Basic tenets are skepticism and questioning assumptions  
• Proponents are considered “social activists”  
• Concerned with questions of power and control  
• Desire to expose “hidden agendas” that only benefit certain groups  
• Deconstruction of “texts” to reveal contradictions and exclusion of minority interests  
• Emphasis on a search for “little truths” instead of a “big truth” | • Eisner’s Art Criticism Model  
• Postmodern evaluation model | • Eisner  
• Foucault  
• Habermas  
• Hlynka  
• Yeaman |
| Eclectic-Mixed Methods-Pragmatic        | • Open to borrowing methods from various paradigms to solve problems  
• Multiple measures are used to triangulate or “bracket” information  
• More concerned with problem solving than conceptions of reality  
• Modes of inquiry are viewed as “tools” to choose from when problem solving | • Stake’s responsive evaluation model  
• Multiple methods model | • Belland  
• Jencks  
• Mark  
• Shotland  
• Stake |

*Note.* Adapted from Reeves, 1997.
more traditional approach. This approach was developed and defended by Campbell, Stanley, and Cook from the late 1950s until the late 1970s (Campbell, 1969; Scriven, 1991).

Called a “brilliant invention” by Scriven (1991, p. 297), this type of evaluation is both the most often used approach for evaluating innovations in the classroom (Bullock & Ory, 2000), as well as the most often criticized (Reeves, as cited in Bullock & Ory, 2000). This model is considered an improvement over the nonexperimental design, which does not utilize different groups receiving different treatments and therefore cannot indicate causality. Drawbacks to the quasi-experimental comparative model include difficulty in arranging the two groups, ethical considerations related to withholding a potentially better form of learning from a group of students, and the lack of qualitative data that could explain why differences do or do not occur (Bullock & Ory; Jones et al., 1996; Worthen et al., 1997).

Objectives-based. Developed by Ralph Tyler in the 1930s and 1940s, the objectives-based evaluation focuses on the extent to which specific goals or objectives have been attained (Worthen et al., 1997). Stufflebeam (2000b) claims that this approach to evaluation has been the most prevalent one for program evaluation, perhaps because of its “common-sense appeal” (p. 41). The objectives-based model typically uses pre- and post-instruction measures, such as tests or surveys, that are built around the unit of instruction to ascertain how successfully goals and objectives were met through the use of the educational technology (McKenna, as cited in Bullock & Ory, 2000).

One common criticism of the objectives-based model of evaluation is that, like the quasi-experimental design, it provides little information regarding how or why
learning is occurring, or what changes in the educational environment might lead to improvements in learning. Further, it does not uncover positive and negative side effects of the innovation. Stufflebeam (2000b) also notes that while this model does reveal whether or not objectives were met, it does not question the legitimacy of the objectives themselves.

**Goal-free.** Researchers studying technological innovations in educational settings are often interested in determining not only the anticipated outcomes of educational technologies on students’ learning and attitudes, but also the unanticipated outcomes (Scriven, 1991; Stufflebeam, 2000a). Scriven developed the goal-free evaluation approach in the early 1970s because of his distrust of the overarching goals proposed by many projects (Patton, 1986). An evaluator using this approach describes what actual effects a program is having without being told what the intended goals of a program are.

Patton (2002) notes four reasons for utilizing this model of evaluation: (1) to avoid the risk of missing important unanticipated outcomes due to a narrow focus on stated program objectives; (2) to remove the negative connotations of finding unanticipated outcomes, or “side-effects”; (3) to eliminate the perceptual biases caused by an evaluator’s knowledge of a project’s goals; and (4) to maintain evaluator objectivity and independence. One of the criticisms of this type of evaluation is that the evaluator greatly limits his or her contact with project leaders or staff, which can lead to hostile reactions (Scriven, 1972).

**Illuminative.** Proposed by Parlett and Hamilton in the early 1970s and based on the social anthropology paradigm, the illuminative model of evaluation is a naturalistic approach that involves intensive study of a program as a whole—its rationale, evolution,
operations, achievements, and difficulties in an organizational context (Parlett & Hamilton, 1972/1977; Worthen et al., 1997). Evaluators using this model are not concerned with taking measurements or making predictions, rather seeking to “illuminate” the factors and issues of a program that are important or relevant to participants in a particular setting (Draper et al., 1996). Parlett and Hamilton stress the importance of context for any educational program, noting that a learner’s setting can significantly impact his or her intellectual tasks and academic experiences.

While this type of evaluation provides relevant information about a program, its drawbacks are that it does not provide substantial information regarding actual performance outcomes and that it is rather time-consuming due to the qualitative nature of inquiry (Worthen et al., 1997). Scriven’s (1991) comment that this model is “very light on tough standards” (p. 190) reflects its lack of emphasis on stated goals and performance outcomes. Many decision-makers dismiss this type of evaluation as being too “soft.”

**Integrative.** Integrative evaluation is a recent addition to the pantheon of evaluation models. Developed by Draper et al. (1996), the goal of integrative evaluation is to improve teaching and learning by modifying the ways that computer-assisted learning (CAL) applications are integrated into given contexts. The authors state that integrative evaluation is not primarily formative or summative in nature. Rather than emphasizing how to change the CAL, the evaluator suggests ways in which materials and activities can be altered to better support student learning. Perhaps the largest benefit to this model of evaluation is that it often leads to immediate changes to the educational setting that benefit the learner.
Summary

This section has provided a look at a small selection of models that have been used for evaluating educational innovations. The various evaluation models reflect different emphases on evaluation design, pedagogy, and project outcomes. The participants in this study may not have followed any particular evaluation model; some may never have even heard of some of the models. However, a familiarity with various evaluation models provided a way to analyze and compare participants’ beliefs and behaviors regarding evaluation.

Barriers to Performing Effective Evaluations

The previous section provided numerous reasons to evaluate learning technologies. Considering these reasons, one might wonder why all instructors who use innovations in their classrooms do not conduct evaluations. There is much literature available regarding the use of technology in higher education. A majority of this literature focuses on the methods and results of project evaluations. The literature suggests that university instructors often implement innovations into their curricula without formally or adequately evaluating these resources or how they are used. Little information is provided, however, regarding why this is the case.

Constraints

Although barriers to evaluation are rarely directly addressed in empirical studies, references to them can be found throughout the literature. These references provide some insight into the constraints that may dissuade instructors from performing evaluations, or constraints that cause instructors to conduct inadequate evaluations. One goal of this study was to investigate barriers to the evaluation of classroom innovations in higher
education. This section presents the reasons and constraints that were suggested by the literature.

**Data.** Noting that many evaluations take place under various constraints, Bamberger, Rugh, Church, and Fort (2004) developed what they call the “Shoestring Evaluation.” They list three main constraints to evaluations: data, time, and budget. Bamberger et al. note four ways that data can be a constraining factor in an evaluation: lack of baseline data for a project’s population; lack of a control group for an experimental, comparison study; problems in working with nonequivalent control group data; and collecting data on sensitive topics or from groups who are difficult to reach. This last reason could be particularly important when attempting to conduct any type of a longitudinal study of student learning in a university setting.

**Time.** The literature on evaluation of technology in higher education supports the notion that many instructors are unable to conduct adequate evaluations because of time constraints (Draper et al., 1996; Shephard, 2003). Time constraints may occur because of deadlines for evaluation reports to be submitted or because evaluation is left to be done by the instructor, whose work hours are often filled with teaching, research, and advisory obligations (Maslowski & Visscher, 1999). Evidence collected from project leaders for technology-based projects across Australia provides support for time being a constraining factor in evaluation, although data were not available regarding how often this constraint was mentioned (Alexander, 1999, 2001).

**Money.** There are many different levels of evaluation, from simply observing students and taking notes on their successes and difficulties, to doing statistical comparisons of scores, to hiring professional evaluators to analyze a program’s design,
implementation, and results. Depending on the size, duration, and needs of the project, evaluation costs can be quite high. In discussing the importance of formative evaluation throughout all stages of a project, Maslowski and Visscher (1999) note that “despite the benefits of this comprehensive level of evaluation, it is almost never achieved because of the financial and time constraints designers face” (p. 253). Gunn (1996) notes that there have been cases of evaluation being excluded entirely from projects because of the expense it would incur. Alexander’s (1999, 2001) work with leaders of technology-based projects supports this constraint, as well.

**Expertise.** Several authors note that a large number of evaluations are improperly or incompletely conducted, if not entirely avoided, due to the lack of expertise on the part of instructors serving as project evaluators. If done correctly, planning and implementing an evaluation of educational technology is a complex task that requires grounding in educational and evaluation theory, as well as social science research methods (Kennedy, 2003). Hayden and Speedy (1995) found that in many cases the paucity of evaluation studies reflected ignorance of the part of instructors as to how to properly conduct evaluations of their projects to determine how successful they were in improving the projects’ intended outcomes. Those who are novice evaluators often find it difficult to select methods that can be relied upon to produce useful judgments (Gros & Spector, 1994). Shephard (2003) states, “It is clear that some tutors [individualized instructors in Britain] are not comfortable with the extent of reflection and analysis required for effective evaluation” (p. 306). Even one developer of a technology evaluation framework notes that using it is not particularly easy (Gunn, 1999).
Despite these constraints, instructors are increasingly being asked to conduct evaluations of their projects as part of their requirements for funding (Oliver, 2000). According to Kennedy (2003), “it is unwarranted (and perhaps optimistic) to expect practitioners whose research interests fall outside the field of education to become self-taught experts in the evaluation of educational technology” (p. 188). In these situations, the quality of the evaluation largely reflects the instructor’s skill and knowledge in the field of evaluation (Maslowski & Visscher, 1999). As with other constraints, Alexander’s (1999, 2001) project leaders also cited a lack of knowledge regarding evaluation as a constraint to conducting evaluations on their projects.

**Administrative accountability.** Despite recent increases in funding for the integration of technology into college and university classrooms, evaluation of these innovations is not always given the weight some believe it deserves, as is reflected in Laurillard’s (1993) comment that “research and development projects on educational media pay quantities of hard cash for development, lip-service to evaluation, and no attention to implementation” (p. 8). While instructors should not have to rely on pressure from university administrators or funding providers to conduct some form of evaluation of their innovations, it appears that this might sometimes be the case.

**Summary.** Literature indicates that instructors face several possible constraints in evaluating their classroom innovations. Important data may be unavailable or difficult to collect. Many instructors have limited time for evaluation due to other more highly prioritized requirements of their jobs. Some instructors do not have the money or expertise to design and execute thorough evaluation plans. A final constraint is a lack of accountability in conducting the evaluations.
**Addressing Constraints**

The scope of this document prevents a discussion of all possible constraints for evaluations and all of the possible methods of addressing and working around those constraints. However, some authors offer suggestions for addressing the problems these constraints may pose, from both a practitioners’ point of view, as well as from the standpoint of a funding agency or educational department.

Laurillard (2002) acknowledges the lack of emphasis that evaluation, particularly formative evaluation, receives from many instructors and project leaders. Laurillard describes where she believes the answer lies:

Although formative evaluation is crucial to the success of design, it is not automatically included in the plans of development teams. If it is, it tends to be the final stage, so it is typically ousted to make room for development overruns. The inevitability of this, given the reality of software development, is that management must take responsibility for protecting the quality assurance process by planning for and monitoring the iteration between design and evaluation.

Evaluation must be part of the design process, not separate from it. It need not add greatly to the resource needed, and will certainly improve the cost-effectiveness of what is produced. Management must ensure that the evaluation process…is fully supported, and carried through in practice. (p. 233)

Chelimsky (2001) also addresses the need for evaluation support for those integrating technological innovations into their curricula, suggesting that foundations look carefully at grantees for substance and ability to conduct evaluations, as well as provide evaluative assistance to grant recipients. Alexander (2001) and Kennedy (2003) also suggest
providing faculty with development and support in the area of evaluation, as well as in project management and time management.

In addition to detailing different aspects of budget, time, and data constraints, Bamberger et al. (2004) also offer a plethora of suggestions and design models to address each of these constraints, suggesting a six-step approach for ensuring maximum possible methodological rigor in conducting evaluations under these constraints.

**Common Mistakes of Instructor-Evaluators**

As discussed previously, instructors and project leaders often encounter and cite a number of constraints that prevent them from conducting thorough evaluations of their projects. However, the literature suggests that when instructors do undertake an evaluation of their technology-based projects, there are some common problems that occur regularly. This section addresses two of the most common mistakes committed by instructors evaluating their projects.

*Measuring attitudes rather than learning outcomes.* While instructors and project leaders generally want to know how the innovations they integrate into their curricula affect student learning, their evaluations often do not reflect learning outcomes. The lack of appropriate methods of measuring learning outcomes is a well-known problem in evaluating educational technologies, and satisfaction surveys completed by students after they have used an innovation are often the sole indicators used to make evaluative judgments about an innovation (Devlin & James, 2003). Further, many evaluations of technology are based on implementation surveys and teachers’ and students’ self-reports of the impact of the technology (Baker and Herman, 2000; Shephard, as cited in Shephard, 2003).
In a study conducted on technology-based grants in Australia’s higher education system, Alexander (1999) found that 87 percent of the 104 cases reported improving learning outcomes as an intended result, with 37.3 percent of the cases achieving success. However, the author cautions that when asked about the indicators they had used to judge the success of their projects, project leaders stated that “students’ reactions were the main focus of responses; the majority of project leaders used positive student response and students’ enjoyment in using the program as indicators of success” (p. 179). These findings validate Hayden and Speedy’s (1995) findings from a previous research study in Australia.

Poor evaluation design. The literature suggests that there are various design flaws prevalent in evaluations performed by technology project leaders. Bamberger et al. (2004) remark on evaluations (not necessarily technology-related ones) that take place under the constraints mentioned previously:

In an effort to deliver evaluation results on time and within budget, many of the basic principles of sound evaluation design, such as random sampling, specification of the program theory, instrument development, control for researcher bias, and general quality control may be compromised. (p. 6)

These design problems appear to cross over into the realm of technology-based applications or projects:

The methodology of many research designs is weak, with regard to such factors as the populations being compared or otherwise studied: the treatments being given, the statistical techniques being applied, and the validity, reliability, and
generalizability of the data on which the conclusions are based. (Gold & Maitland, 1999, p. 22)

Further, many evaluations result in findings of no significant difference simply because they were inadequately designed (Ester, 1995; Khalili & Shashaani, 1994; Kulik & Kulik, 1991; Martin & Rainey, 1993) or because the evaluators do not adequately describe and measure the characteristics of the innovation (Reeves, as cited in Bullock & Ory, 2000).

Summary. The literature suggests that two common problems in educational evaluation are improper techniques for measuring student learning and generally poor evaluation design. There are, of course, other problems that occur within evaluations of technology-based educational projects, such as a lack of formative evaluation during the design phase (Bain, 1999) or a failure to observe projects in their natural settings during formative evaluation (Weston, 2004).

Chapter Summary

In this chapter, I have provided information related to the evaluation of technological innovations in higher education. This first section included different conceptions of evaluation and a history of evaluation as it has been impacted by developments in higher education. This information allows the reader to view this study in a more historical context. The second section provided a look at various paradigms and models of evaluation to serve as a backdrop for better understanding and identification of participants’ attitudes and beliefs about evaluation during the data analysis phase of this study. The third section provided some of the factors that may influence instructors in their decisions to use innovative classroom technologies. It also presented reasons suggested by the literature that instructors do (or should) perform
effective evaluations of their projects, which informed the first research question for this study. The final section presented what previous research has found to be the major constraints and problems that prevent instructors from performing adequate evaluations of their innovations, which informed the second research question for this study. To my knowledge, no researcher has yet studied in depth instructors’ beliefs and philosophies regarding evaluation in a college or university setting, nor the entire evaluation process itself. The information provided in this chapter informed this study as I attempted to fill this gap in the educational evaluation literature.
CHAPTER 3

METHODOLOGY

This chapter includes the research questions that drove this study, the research design for the study, methods of data collection and analysis, and a description of how participants were selected for inclusion in the study. This chapter also describes the perspective of this researcher, notes several limitations of the study, and addresses the issues of generalizability, reliability, and ethical concerns regarding the research.

Research Questions

The purpose of this study was to investigate and describe how recipients of a university-funded grant program for technology integration perceived and carried out the evaluation process regarding their funded projects. The research questions for this study are listed in Table 2, along with their related sub-questions.

The research questions for this study involved learning about participants’ beliefs and actions regarding evaluation. As a result, data collection involved both interviews with participants regarding their thoughts and beliefs about evaluation, as well as analysis of actual artifacts relevant to their evaluation plans and the evaluative activities they performed.

Research Design

A qualitative methodology was the most appropriate fit for conducting this research study. Qualitative researchers are often concerned with how participants view phenomena from their own perspectives, also called an emic perspective (Merriam,
Table 2
Research Questions and Sub-questions

<table>
<thead>
<tr>
<th>Research questions</th>
<th>Sub-questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How do postsecondary instructors funded for technology integration perceive</td>
<td>a) What are participants’ general beliefs regarding evaluation?</td>
</tr>
<tr>
<td>the process of project evaluation?</td>
<td>b) How have participants previously evaluated their classroom practices?</td>
</tr>
<tr>
<td></td>
<td>c) How do participants believe the evaluation requirement of the grant program influenced their evaluation plan and activities?</td>
</tr>
<tr>
<td>2. How do these instructors evaluate the impact of their technology integrations?</td>
<td>a) How do participants propose to evaluate their projects when requesting funding?</td>
</tr>
<tr>
<td></td>
<td>b) How do actual evaluations differ from planned evaluations?</td>
</tr>
<tr>
<td></td>
<td>c) For participants who do not follow their evaluation plans, what are their reasons?</td>
</tr>
<tr>
<td></td>
<td>d) What constraints do instructors face when conducting evaluations?</td>
</tr>
</tbody>
</table>

1998). It is the goal of the qualitative researcher to “better understand human behavior and experience…to grasp the processes by which people construct meaning and to describe what those meanings are” (Bogdan & Biklen, 1998, p. 38). In this study, one goal was to examine what instructors believed about the process of evaluation and to explore why they performed certain behaviors with respect to evaluation. Qualitative methods allow a researcher to conduct in-depth interviews with participants and to ask
personalized questions based on their comments and documents they provide, allowing a better understanding of their individual viewpoints and beliefs. Each participant in this study was expected to have unique experiences with teaching, technology, and evaluation. While a survey would have elicited certain information from them, it would not have allowed me to ask immediate, unanticipated follow-up questions of the participants or request more detailed explanations from them when I did not fully understand their responses.

The specific methodology I chose for this study is what Merriam (1998) refers to as the generic qualitative study. Likely the most common form of qualitative research, this type of study is appropriate for researchers attempting to “discover and understand a phenomenon, a process, or the perspectives and worldviews of the people involved” (Merriam, 1998, p. 11). Merriam (personal communication, December 5, 2002) provided additional information about this type of study:

For lack of a better name, the generic or basic [qualitative] study is just that – a basic [qualitative] study drawing from the philosophical assumptions underlying the qualitative paradigm. Until recently, most qualitative dissertations or studies were this. Now we have people differentiating among different types of [qualitative studies], like phenomenological, grounded theory, narrative analysis, critical, postmodern, life history, etc….But there are still plenty of [qualitative] dissertations that do not make use of the techniques or worldview unique to one of these varieties. Most of the basic qualitative studies use the constant comparative method of data analysis borrowed from grounded theory (without building a substantive theory).
Merriam’s (1998) generic qualitative study typically results in the identification of recurring patterns or themes across the data. It was my goal to identify and use these themes to better understand instructors’ evaluation practices, as well as the beliefs and attitudes that influence these behaviors. However, it is important to note that while patterns found across several participants were most helpful in answering my research questions, information that did not appear to be part of an overall pattern was also considered because of the limited number of study participants. It is possible that these unique units of data would have recurred if a greater number of participants were involved in the study.

Participants

In the original research design, I planned to use a maximum variation purposeful sampling approach to select the participants for this study. However, after eliminating certain recipients and experiencing a surprisingly high degree of difficulty in recruiting participants, the participant pool shrank to such a small size that I abandoned this sampling method and lifted some of the data reduction criteria. Simultaneously, as data collection proceeded, I realized that data redundancy was occurring, and under advisement, ceased participant recruitment. Although the study ended with fewer participants than originally intended (12 to 15), the 11 who did take part in the research nevertheless yielded a rich data set. This section describes the evolution of the study’s participant selection procedures.

Sampling

Qualitative researchers often use a purposeful sampling technique because it allows them the flexibility to choose information-rich cases that are likely to best inform
their research in a way that random sampling would not allow (Merriam, 1998; Patton, 1990; Schwandt, 1997).

There are many different sampling strategies that fall under the category of purposeful sampling; Patton (1990) alone lists fifteen. I originally chose to use the maximum variation sampling technique, which Patton describes:

This strategy for purposeful sampling aims at capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation. For small samples a great deal of heterogeneity can be a problem because individual cases are so different from each other. The maximum variation sampling strategy turns that apparent weakness into a strength by applying the following logic: any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program. (p. 172)

Patton (1990) and Merriam (1998) suggest that a researcher using the maximum variation sampling technique identify the different ways in which the population can be categorized. The researcher should then choose a sample that reflects as many of those categories as possible. I categorized the projects funded by the LTG program according to five variables: award amount, year awarded, length of funding, evaluation status, and academic discipline. In order to achieve maximum variation, I originally attempted to select participants in such a way as to include as many levels of the defined project strata as possible (see Table 3).

I also considered using participants’ demographics and personal background information as factors relevant to the maximum variation sampling. These potential
Table 3
*Factors and Strata Relevant to Maximum Variation Sampling*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award amount</td>
<td>• Tier 1 (&lt; $20,000; n=20)</td>
</tr>
<tr>
<td></td>
<td>• Tier 2 ($20,000 - $44,999; n=28)</td>
</tr>
<tr>
<td></td>
<td>• Tier 3 ($45,000 - $100,000; n=19)</td>
</tr>
<tr>
<td>Year awarded</td>
<td>• Each fiscal year, from 1999 to 2003</td>
</tr>
<tr>
<td>Length of funding</td>
<td>• One year</td>
</tr>
<tr>
<td></td>
<td>• Two years</td>
</tr>
<tr>
<td>Evaluation status</td>
<td>• Evaluation conducted</td>
</tr>
<tr>
<td></td>
<td>• Evaluation not conducted</td>
</tr>
<tr>
<td>Academic discipline</td>
<td>• Sciences (e.g., chemistry, veterinary medicine, physics, agricultural engineering, computer science)</td>
</tr>
<tr>
<td></td>
<td>• Arts and Humanities (e.g., education, English, drama, art, psychology, music)</td>
</tr>
</tbody>
</table>

Factors included age, race, gender, teaching experience, academic rank, experience integrating innovations into their teaching, and comfort level with technology. However, due to the recruitment problems described below and the subsequent discarding of the sampling strategy, this idea never came to fruition.

*Sample Reduction*

Due to the involved nature of their investigations, researchers must often determine ways to reduce the participant pool for their studies. This allows researchers to focus on participants who are likely to provide the most useful information for their research. For this research study, I originally intended to reduce the participant pool in three ways.
The first technique of sample reduction was eliminating grant recipients who were tightly connected to my own learning community. This included recipients within my academic department and the department in which I was employed at the time.

The second sample reduction technique was to choose only participants who have completed the initial implementations of their LTG-funded projects. This reduction technique was chosen to ensure that each participant had an opportunity to conduct a formative evaluation and to begin a summative evaluation of the project.

The third reduction technique was to choose only grant recipients who were still employed by the university and were willing to discuss their projects and efforts at evaluation. This reduction technique facilitated locating grant recipients, conducting in-person interviews and face-to-face discussions about the projects, and acquiring relevant project documentation that the granting agency may not have had available. I describe below why these criteria were eventually softened.

Number of Participants

Merriam (1998) notes the difficulty of determining the appropriate number of participants in a qualitative study and suggests that the researcher use “an adequate number of participants, sites, or activities to answer the question posed at the beginning of the study” (p. 64). Patton also addresses this issue:

There are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what’s at stake, what will be useful, what will have credibility, and what can be done with available time and resources.” (p. 244)
Patton (1990) advises that the design for a qualitative study should be “flexible and emergent” (p. 186), but also suggests that for the purposes of planning, a researcher should set a minimum expected sample size.

In the period between 1998 and 2002, approximately 92 individuals received funding for 67 projects through the LTG program. For this study, I initially chose to target 12 to 15 participants, believing this would satisfy the maximum variation requisite and provide a sufficient (but not overwhelming) amount of data addressing the research questions.

**Difficulties of Participant Recruitment**

I began recruiting participants by using the selection criteria described above, choosing them in such a way as to maximize the variation of the funded projects, while maintaining the participant reduction criteria I had adopted. As I contacted LTG recipients, I realized that I had underestimated the difficulty of recruiting participants for this study.

I encountered several difficulties in recruiting participants. Some recipients of LTG funding had left the university. A large number of recipients did not return phone calls or reply to multiple emails requesting their participation. Some recipients did reply, only to decline my invitation to participate. There were also some recipients who were willing to participate, but whose availability did not coincide with my availability to interview them or with the overall period of data collection. As a result, I chose to remove the second and third participant reduction criteria to ensure an adequate number of participants.
Despite the difficulty of recruiting participants, I was pleased at the variety of those who agreed to take part in the study and with the rich data they provided. (Participant descriptions are provided in Chapter 4.) Furthermore, after interviewing eleven participants, data redundancy began to occur with respect to several of the research questions. At that point, under advisement, I ceased my recruitment efforts.

Data Sources

There are three main data collection techniques in qualitative inquiry – interviews, observations, and document analysis (Merriam, 1998). Using different data sources allows the researcher to obtain information through one means that may not be available through another. It also provides different points of view for looking at a situation or phenomenon. The processes of collecting and analyzing different sources of data in a study help the researcher to develop a more holistic understanding of the phenomenon under study.

Another benefit of multiple data sources is that it allows for triangulation in a study, thereby strengthening the validity of research findings (Mathison, 1988; Patton, 1990). Patton offers this explanation of triangulation:

By using a variety of sources and resources, the evaluator-observer can build on the strengths of each type of data collection while minimizing the weaknesses of any single approach. A multimethod, triangulation approach to fieldwork increases both the validity and the reliability of evaluation data. (p. 245)

Denzin (1978) describes four types of triangulation: data, investigator, theory, and methodological. I used methodological triangulation to strengthen my study. Methodological triangulation involves “the use of multiple qualitative and/or quantitative
methods” (Guion, 2002, p. 2), such as interviewing and document analysis. The rationale for this type of triangulation is “that the flaws of one method are often the strengths of another; and by combining methods, observers can achieve the best of each while overcoming their unique deficiencies” (Denzin, 1978, p. 302).

This study involved two of the three main data collection techniques: interviews and document analysis. I did not anticipate that participants were still actively performing any type of evaluative activities regarding their grants, and therefore I chose not to attempt to collect data through observations. Collecting data via interviews and document analysis was essential to this study. Not only did each method provide different types of information, but each method also provided certain information similar to the other, strengthening the study’s validity. For example, during interviews participants were able to provide insight into their attitudes toward evaluating innovations related to their instructional practices, but many of them had forgotten the detailed information regarding proposed evaluation activities that they submitted with their application for LTG funding. Collecting and analyzing documents did not provide substantive data on participants’ beliefs, but they did provide information on instructors’ pre-funding evaluation plans. These different sources of data allowed me to determine the degree of alignment between instructors’ beliefs regarding evaluation and their actual evaluation behaviors.

**Interviews**

I was interested in probing instructors’ attitudes toward and experiences with evaluation. To this end, interviews offered an excellent way to get at my participants’ thoughts, as well as their prior and current experiences regarding evaluation of
instruction. Every participant was interviewed once. I had intended to request secondary interviews from participants if I needed clarification on some points or additional information. However, over the course of the interviews I conducted, it became clear that the time burden on the participants was significant. Also, many of the interviews lasted longer than anticipated, and in some cases, far longer than indicated by the consent form. As a result, I decided, under advisement, to limit myself to one interview with each participant.

I conducted semi-structured interviews with all of the participants. (See Appendix A for Interview Checklist.) I used an interview protocol (Merriam, 1998), or a set of questions to guide the interview with each participant in my study (see Appendix B). I asked additional questions as needed based on participants’ responses and the documentation provided by the participants.

Prior to beginning the actual interviews, I explained to the participants the purpose of the study by reading from a prepared “interview prologue” (see Appendix C). I explained that its purpose was not to evaluate them or their instruction, but rather to determine what grant recipients do to evaluate the projects for which they have been funded. I asked each interviewee to read and sign the informed consent form (see Appendix D), attained permission to audiotape the interview, and explained how long I expected the interview to last (45 to 75 minutes).

Before interviewing each participant, I engaged in informal conversation to put the interviewee at ease. The first group of interview questions related to participants’ basic beliefs about evaluation. This group included questions regarding participants’ backgrounds in statistics and evaluation, as well as any grants they may have previously
received. The second group of interview questions allowed me to focus on the project for which the participant was funded. I asked participants to describe their projects, including project goals and their perceptions of success. The final group of questions involved the evaluation of the projects. I asked participants questions regarding how they felt about writing the evaluation section of the grant proposal, how they planned to evaluate their projects, what evaluation activities they actually performed, and what constraints to project evaluation they experienced. The interview guide helped to keep me on track with specific questions I intended to ask, but also allowed me the flexibility to add additional relevant questions or discard questions found to be irrelevant to individual interviews.

After each interview, I thanked the participant for taking the time to be interviewed. I then carefully transcribed the audiotaped interview to assist in data analysis. I then thoroughly read through the transcript in its entirety. This process often led to changes in the interview protocol for subsequent interviews.

**Document analysis**

Document analysis was an integral part of this proposed study. The plan for data collection included two types of documents in order to have information on both evaluation plans as well as actual evaluation efforts. The first document data source was grant applications (see Appendix E for sample LTG application). Applicants to the LTG program had to include in their applications a section on how they intended to evaluate the learning outcomes resulting from their technological innovations. There was no required length for this section. I examined these grant applications to determine how
participants proposed to evaluate their projects, if funded. The current LTG Program Guidelines Web page is provided in Appendix F.

The second document data source for this study was expected to be reports submitted after project implementation. The granting agency requests final reports, but does not stringently enforce this request. I asked the granting agency for any progress reports or final reports submitted by the participants in my study. However, an LTG project coordinator at the granting agency informed me that none of my participants submitted any reports.

I also requested from the participants any available documentation relating to project evaluation. I anticipated receiving written documentation in the form of personal notes, report drafts, publications, or materials from conference presentations, intending to conduct comparisons of evaluation plans and evaluation efforts. However, documentation of this type was extremely scarce.

Data Analysis

I used the constant comparative method of data analysis in this study. Although developed by Glaser and Strauss (1967) as part of their grounded theory approach to qualitative research, this method of analysis has been widely adopted (and adapted) by researchers seeking to understand a phenomenon without building substantive theory from their data (Merriam, 1998). It is an “inductive process of organizing data into categories and identifying patterns (relationships) among the categories” (Leedy, 1997, p. 165).

Several researchers and qualitative methodologists have described how they interpreted, implemented, or adapted Glaser and Strauss’s (1967) original constant
comparative method of data coding and analysis (e.g., Bogdan & Biklen, 1998; Huberman & Miles, 1994; Merriam, 1998; Strauss & Corbin, 1994). I reviewed several of these depictions of the constant comparative method and came to regard the method as having four phases: (1) identifying individual, relevant units of data, (2) assigning one or more labels—or codes—to each unit, (3) assigning these coded units of data into higher-level, more abstract, categories, and (4) noting relationships or patterns within and across categories. Although I present the process as “phases,” the constant comparative method does not begin once all of the data have been collected, with the researcher beginning one phase after completing the previous one; it begins when the first data are collected and continues throughout the entire data collection phase of the research. The process is cyclical rather than linear, and its phases often overlap, requiring the researcher to perform different phases of data analysis almost simultaneously (Glaser, 1978; Leedy, 1997).

A description of the basic constant comparative process is provided below. Chapter 4 provides a more in-depth explanation of how this process was used in this research study (see Method of Analysis, p. 72).

The first two phases listed above are closely related. The first stage involved reading through the interview transcripts and considering the relevance of each unit of data to my study. Merriam (1998) describes a unit of data as “any meaningful (or potentially meaningful) segment of data” (p. 179) and notes that it can be as small as one word or as long as several pages. If a unit of data was relevant to my research question, I proceeded to phase two, which involved assigning to it one or more codes reflecting its
meaning and then indicating the code or codes next to the unit of data (as suggested by Glaser, 1978).

Some researchers begin their coding process with a prefabricated starting list of codes and add to it as necessary, while others support beginning with no list of codes in mind (Miles and Huberman, 1994). Suggesting the latter method, Miles and Huberman state that “data get well molded to the codes that represent them, and we get more of a code-in-use flavor than the generic-code-for-many-uses generated by a prefabricated start list” (p. 58). I began data analysis with no pre-set codes or categories; doing otherwise may have caused data to be unintentionally “forced” into predetermined categories rather than carefully placed into newly developed, more accurate categories.

Once some data had been assigned codes, the third phase began. In this phase, I reviewed data segments and codes and then placed them into broader categories (Miles and Huberman, 1994). As Merriam (1998) describes it, units of data are “literally sorted into groupings that have something in common” (p. 179). This allowed similar units of data to be grouped together and facilitated the recognition of patterns within and across categories. Glaser and Strauss (1967) state that the “defining rule of the constant comparative method [is] *while coding an incident for a category, compare it with the previous incidents in the same and different groups coded in the same category*” (p. 106, emphasis in original). Categories were changed and data were reassigned into different categories as needed.

The fourth phase of the constant comparative method of data analysis involved finding patterns within and across categories. As McMillan and Schumacher (1993) describe it, the researcher must “gradually seek order and integration into larger patterns”
These larger patterns should provide researchers with information and insights that help them “put forth a set of relational assertions” (Leedy, 1997, p. 160) that help to answer their research questions. The emergence of these patterns from a heterogeneous sample strengthens the likelihood that they are issues relevant to the population as a whole.

Data that did not fit into any pattern also proved useful. Patton (1990) notes that while researchers should look for patterns that cut across several cases in a small sample, they should also pay attention to the uniqueness of each case. When I was satisfied that I had gleaned all of the possible patterns as well as relevant information that did not fit into any pattern from the units of data, I considered the data analysis to be complete.

Researcher’s Perspective

In qualitative studies, the researcher is the instrument of data collection as well as the instrument of data analysis (Merriam, 1998). Each researcher brings into a study his or her background, prior knowledge, assumptions, hypotheses, and worldview. Merriam explains the innate imperfection of the human researcher in qualitative research: “The investigator as human instrument is limited by being human – that is, mistakes are made, opportunities are missed, personal biases interfere. Human instruments are as fallible as any other research instrument” (p. 20). For this reason, qualitative researchers must be vigilant in determining and admitting factors that may affect how they perceive and interpret phenomena. Likewise, researchers must attempt to understand how these personal factors influence their collection, interpretation, and analysis of data (Leedy, 1997; Merriam, 1998; Peshkin, 1988). In this section I disclose personal factors that may have influenced the way I collected or interpreted the data in this study.
My educational background, as well as my current academic interests, introduced possible biases into this study. My educational background includes two degrees in mathematics education, and a part of my studies included the design of evaluation components to learning modules to ascertain whether or not intended learning goals were attained. My graduate studies, particularly in instructional design and product evaluation, also added to my knowledge of and belief in the importance of evaluation as an integral part of the pedagogical process. I strongly believe that structured learning environments should include appropriate methods of evaluation.

I also have three years of teaching experience at the collegiate level. My teaching reflected a strong belief in evaluation, as I often conducted mid-term and end-of-semester evaluations to determine the effectiveness of my teaching strategies and activities. I used the feedback derived from these evaluations to refine lessons and to improve their effectiveness for future students.

I have participated in several classes incorporating varying degrees of technology, from listserv use only to nearly full reliance on a Web-based classroom tool for class interactions. In some cases, I have thought that the technological aspects of the classes have been beneficial to the learning process, while in other cases I have believed that more learning would have occurred without the technology. In my personal experience, I have seen some instructors act as if technology is a panacea for problems in education. While I strongly believe that technology can enhance the teaching-learning process, I also believe that it has equal potential to prove detrimental to these processes. That is the reason I place a great deal of emphasis on evaluation in educational settings.
During this study I collected information on instructors’ techniques of evaluation regarding their projects and programs. While I obviously place much importance on evaluation, I do understand that other instructors may not have similar backgrounds in pedagogy or evaluation and may not place as much importance on the evaluation process as I do.

My biases were also apparent in my speculations of what I would find during and at the conclusion of this research study. I suspected that many instructors would not have the expertise, time, or money to conduct thorough and meaningful evaluations of their projects. I also anticipated that many instructors would not perform the project evaluations as described in the grant applications because they did not believe that they would be held accountable.

Generalizability

Generalizability, also known as external validity (Guba and Lincoln, 1981), typically refers to the extent to which research findings can be applied to cases outside the research sample and in settings different than the research setting. Different types of researchers approach the issue of generalizability from different philosophical perspectives. Patton (1990) states, “While scientists search for universal laws and generalizations across time and space, evaluators tend to focus on providing useful information that is fairly specific to one or a few programs” (p. 486). This comment can also be applied to qualitative researchers. In reference to my study, generalizability refers to how closely my research findings may apply to similar grant programs at other universities, particularly programs related to technological innovations.
While generalizability was not a primary goal in this study, I recognize the potential the results of this study may have for improving programs similar to the LTG program at other universities. I encourage the readers of this study to exercise what Merriam (1998) calls reader or user generalizability or what Firestone (1993) refers to as case-to-case transfer. Walker (as cited in Firestone, 1993) describes this type of generalizability: “It is the reader who has to ask, what is there in this study that I can apply to my own situation, and what clearly does not apply?” (p. 34 in original source).

As a way of increasing the reader’s ability to determine the generalizability of my findings, I provided what Merriam (1998) calls “rich, thick description” (p. 211) of my research setting. Chapter 1 provided a description of several aspects of my research setting that others may use to determine transferability of my findings, including information about the university, the history of the LTG program, and the size, number, and type of grants awarded. Knowing these characteristics of the research setting allows readers to determine for themselves how applicable the findings of this study may be to other research settings (LeCompte and Preissle, 1993).

Reliability

Reliability refers to the extent to which research findings can be replicated if the research is performed again by the same or other investigators (Bogdan & Biklen, 1998; Schwandt, 1997). Quantitative and qualitative researchers view this concept differently. Quantitative or positivistic researchers conduct their investigations with the preconception that there is one reality and that repeated inquiries into a phenomenon will yield similar or identical results. Qualitative researchers do not share the same view (Merriam, 1998).
Social scientists understand that human behavior is complex and difficult to predict. Descriptions and interpretations of behavior may differ from researcher to researcher or even across time with the same researcher. As a result, repeated qualitative investigations into the same phenomenon may not result in identical, or ever similar, findings (Merriam, 1998). Guba and Lincoln (1985) suggest thinking of reliability in terms of “dependability” or “consistency” (p. 288) when considering qualitative research studies. In qualitative research it is less important that repeated investigations result in identical findings and more important that any findings “make sense” (Merriam, 1998, p. 206) based on the data for that study.

Merriam (1998) notes three techniques for increasing the reliability of a study: describing the researcher’s position, triangulating findings, and using an audit trail. This study utilized all three methods.

*Investigator’s Position*

To increase reliability, Merriam (1998) suggests that the researcher describe the basis for selecting informants, which I did in this chapter (see Participants, p. 50). The researcher should also describe any biases or prejudices that may influence interpretation of the data (see Researcher’s Perspective, p. 62).

*Triangulation*

Merriam (1998) also suggests triangulation as a means of increasing the reliability of a study. This study used methodological triangulation, as described in the Data Sources section in this chapter (see p. 55). Information collected from participants’ grant proposals was compared with information provided during the interview sessions. I had hoped to be able to further compare this information to that provided by final reports on
participants’ projects. However, these final reports were either unavailable or non-existent.

Audit Trail

Merriam (1998) also suggests using an audit trail to explain how findings were developed from the data collected. Dey (1993) states, “If we cannot expect others to replicate our account, the best we can do is explain how we arrived at our results” (p. 251). Merriam recommends describing how the data were collected, how categories were derived, and how decisions were made throughout the inquiry. I have attempted to do so throughout this chapter (see Data Analysis, p. 59) and Chapter 4 (see Method of Analysis, p. 72).

Limitations

There were several limitations to the trustworthiness or value of this study. These limitations resulted from choices regarding participants and methodology, as well as data availability. In this section I describe the limitations of this study and the steps taken to address these limitations.

The selection of participants for this study may have caused certain limitations. One original selection criterion was that only grant recipients of fully implemented programs would be selected. Although I decided not to implement this criterion, it is possible – and probably likely – that participants whose projects did not achieve full implementation were less likely to respond to my attempts at recruitment due to embarrassment. This may have increased the chances of fully implemented projects being included in the study.
Another limitation to this study was the possibility that grant recipients may have been less willing to discuss their projects with a researcher if they considered their projects to be underevaluated or unsuccessful. When recruiting potential participants, I attempted to address this limitation by explaining that the purpose of this study was not to judge the actual projects, instructors’ pedagogical approaches, or project personnel, but rather to learn how grant recipients evaluated their projects in order to improve the success of the LTG program. I also explained that confidentiality would be guarded as much as possible. These steps may have increased project directors’ willingness to participate in the study.

Interviewing participants provided rich data for this study, but it also implied certain limitations. While it is likely that each project director aimed to be as helpful and cooperative as possible, interview data are inherently limited, as Patton (1990) explains:

[An interviewee’s] perspectives and perceptions are subject to distortion due to personal bias, anger, anxiety, politics, and simple lack of awareness. Interview data can be greatly affected by the emotional state of the interviewee at the time the interview takes place. Interview data are also subject to recall error, reactivity of the interviewee to the interviewer, and self-serving responses. (245)

Some of these issues may be relevant to this study. Participants were asked to recall information from several years ago. This recall factor may have made it difficult for interviewees to remembering things accurately.

I did not utilize the process of member checking for this study. Schwandt (1997) describes member checking as “soliciting feedback from respondents on the inquirer’s findings….for corroborating or verifying [the] findings or of ensuring they meet the
criterion of confirmability” (p. 88). The participants were not given an opportunity to revisit their comments or my interpretation of their comments. If they had been given this chance, it is possible that they may have corrected some misunderstandings or misinterpretations of the data.

This study was also limited by the quantity and quality of artifacts available for analysis. The LTG Web site states, “Awarded projects must be documented. Progress reports for two-year projects and final reports for all projects must be submitted no later than January 15 of the year following implementation of the project.” The granting agency also reserves the right to visit projects on site as part of the evaluation process. After speaking with two members of the granting agency, however, it seemed that the committee did not stringently enforce project evaluations. As a result, few grant recipients tended to follow through with their reports. Additionally, evaluation-related artifacts that may have been accessible several years ago may have become lost or discarded. I made efforts to acquire any documentation that may exist regarding the evaluation of projects selected for inclusion in this study.

Ethical Considerations

All researchers should carefully consider the ethical aspects of their research projects, particularly those working with human subjects. Federal regulations exist to ensure the safe and fair treatment of individuals who participate in research studies. Guidelines for research with human subjects typically address two issues: informed consent and protection from harm (Bodgan & Biklen, 1998). The Institutional Review Board’s (IRB) Office of Human Subjects oversees all research activities involving human
participants at this university. A reproduction of the IRB approval for this research study is provided in Appendix G.

Informed consent involves providing participants with information relevant to their decision to participate in a study, making sure they understand this information, and ensuring that participation is voluntary (Silverman, 2000). I was forthright with my participants in explaining the purpose of my study, informing them that I hoped my study would help to improve the LTG grant program. The grant recipients in my study knew that their participation was completely voluntary and that they could end their participation at any time. The informed consent forms provided this information to participants.

Some findings of this study included evidence of poor evaluations on the part of grant recipients. I tried not to present this information in a critical or blaming fashion. I instead reported the reasons or constraints underlying participants’ activities as objectively as possible and used this information to make constructive suggestions regarding possible improvements to the LTG program.

It is possible that someone could identify the participants based on biographical information provided, as well as information regarding the projects for which recipients received funding. This could prove embarrassing to participants whose project evaluations may be considered substandard. I explained this to each participant and made an effort to report especially sensitive information in a way that protects participants’ identities. Despite my efforts at protecting participants’ identities, however, confidentiality in this study could not be guaranteed.
Chapter Summary

In this chapter I described the methodology used to achieve the purpose of this research, which was to investigate and describe how recipients of a university-funded grant program for technology integration addressed the topic of evaluation regarding their funded projects. I used a basic qualitative methodology, with eleven participants selected for study. Interviews and documents were used to inform this study. Data were analyzed using the constant comparative method of analysis. The themes emerging from this data analysis, along with supporting evidence, are presented in the following chapter.
CHAPTER 4

RESULTS

This chapter provides the results from this research study, as well as illustrative data examples collected via the methods described in Chapter 3. I used a modified version of Glaser and Strauss’s (1967) constant comparative method of analysis to discover themes in the data that were collected. In this chapter, I present these themes as answers to this study’s research questions. Before presenting the themes that emerged from the data, I provide a description of each of the eleven participants, along with a description of the project for which each participant received funding from the LTG program. Although a thorough understanding of each participant’s funded project is not necessary to comprehend many of the themes that emerged from the data, the reader may find it helpful to have a general idea about each participant’s project.

This chapter is broken down into four sections. First, I describe the analytical process that I used to develop the themes contained within this chapter. Second, I present descriptions of the participants in the study and the projects for which they received funding. Third, I provide the answers to this study’s research questions by presenting the themes generated by the data analysis. Fourth, I present additional themes that emerged from the data in this study.

Method of Analysis

This chapter contains the results of the analysis procedures that were described in Chapter 3. In this section I describe in more detail how the data collected in this study
were analyzed to develop the themes that are described in this chapter. I began the data analysis process by transcribing each audiotaped interview as accurately as possible. After transcribing all 11 interviews, I relistened to each one and carefully made corrections to the original transcriptions. The process of coding the data followed. A description of this process is provided below.

Phase 1: Identifying Units of Data

I transcribed each interview using Microsoft Word 2004 for Mac. I then used the method suggested and described by Ruona (2005) to format each interview using tables. This process involved breaking the interview text into smaller segments, each of which represented what I considered to be a single unit of thought. These “units of data” ranged in size from one word to nearly a full page of text.

As an example of this phase of the analysis, consider the following response Middleton gave to a question I asked:

Well, the stu-, they did the evaluations, the student evaluation, and then as far as graduate [professionals] go, it was used in continuing education courses, and so that would be part of the evaluation process. So there would be…I really liked the way it was done, or I didn’t…to tell you the truth, I have never had any negative comments about it at all.

Middleton’s response was broken into three units of data:

*Unit of data #1:* Well, the stu-, they did the evaluations, the student evaluation,

*Unit of data #2:* and then as far as graduate [professionals] go, it was used in continuing education courses, and so that would be part of the evaluation process. So there would be…I really liked the way it was done, or I didn’t…
Unit of data #3: to tell you the truth, I have never had any negative comments about it at all.

Passages with strong relevance to the topics of study were typically broken down into smaller segments. I allowed passages with no or minimal relevance to the research topic to remain together to allow for more efficiency in the next phase. The 11 interviews resulted in over 4,100 units of data.

Figure 1 provides an example, taken from Moore’s transcript, of how a section of the data appeared after being separated into individual units of data. As suggested by Ruona (2005), columns were used to indicate the speaker (ID #), note which question from the interview protocol was being discussed (Q #), provide the number of the unit of data from that interview (Turn #), and provide each individual unit of data (Data).

Phase 2: Coding the Data

The second phase of data analysis involved analyzing each unit of data created in the first phase and assigning one or more labels, or codes, to it in a separate column in the Microsoft Word table for that interview (see Figure 2). I did not begin with a predetermined set of codes; rather, I allowed the data to drive the creation of the different codes that were used. Essentially, I read each unit of data and asked myself the question, “What is this data segment really about?” Ruona’s (2005) coding scheme involved determining codes, clustering them into hierarchies, and assigning to each code a number, which would then be used in the table. While attempting this procedure, I realized that one of its limitations was that each numerical code could only reflect a single hierarchical code group. As a result, I chose to retain the written codes within the table to allow me to filter according to codes that may belong under multiple categories.
<table>
<thead>
<tr>
<th>ID #</th>
<th>Q #</th>
<th>Turn #</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>cag 10</td>
<td>1</td>
<td>6</td>
<td><em>When I say the word “evaluation,” what does that mean to you?</em></td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>7</td>
<td>Um, [pause], um, [pause], I think about creating some sort of – how do I define it without using the word evaluation? It’s looking at students’ performance and seeing whether they’re achieving the goals that I set out for them or that they set out for themselves.</td>
</tr>
<tr>
<td>cag 10</td>
<td>2</td>
<td>8</td>
<td><em>OK. Do you think that evaluation is an important part of the teaching process?</em></td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>9</td>
<td>Um, yes. Absolutely.</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>10</td>
<td>Sometimes the numerical assigning of grades, I’m less interested in.</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>11</td>
<td>But giving feedback to students is an essential part of what we do. And that’s part of evaluating.</td>
</tr>
<tr>
<td>cag 10</td>
<td>3</td>
<td>12</td>
<td><em>What about project evaluation or program evaluation? Do you know anything about that? Not just evaluation of students’ work, but of projects or programs.</em></td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>13</td>
<td>Well, I’ve, um, I’ve written up summaries for the [deleted] area, in terms of year-end reports and things like that, in terms of evaluation.</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>14</td>
<td>But I would say that I’m not as versed as some other people in the [deleted] Department about program evaluation.</td>
</tr>
</tbody>
</table>

*Figure 1.* Example of data during phase 1 of analysis.

I will exemplify the coding process using two units of data. Consider the following response by Bender: “the only reason I was doing it at that point was that I wanted to write it up, so I needed to collect this [sic] data.” This unit of data was given the code “publication” because it referred to the participant’s desire to publish an article about her classroom innovation.

Consider also the following unit of data from Henderson: “In the case of this grant, we wanted a skill set that a kid could put on a résumé that would help him get a job and give him a leg up and make him smarter.” I provided this unit of data with three codes –“career,” “learning,” and “goal” – because the sentence deals with students’ future careers, reflects the importance of student learning, and represents a goal of the project.
<table>
<thead>
<tr>
<th>Code</th>
<th>ID #</th>
<th>Q #</th>
<th>Turn #</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>meaning</td>
<td>cag10</td>
<td>1</td>
<td>6</td>
<td><em>When I say the word “evaluation,” what does that mean to you?</em></td>
</tr>
<tr>
<td>meaning</td>
<td>10</td>
<td>1</td>
<td>7</td>
<td>Um, [pause], um, [pause], I think about creating some sort of — how do I define it without using the word evaluation? It’s looking at students’ performance and seeing whether they’re achieving the goals that I set out for them or that they set out for themselves.</td>
</tr>
<tr>
<td>important</td>
<td>cag10</td>
<td>2</td>
<td>8</td>
<td><em>OK. Do you think that evaluation is an important part of the teaching process?</em></td>
</tr>
<tr>
<td>important</td>
<td>10</td>
<td>2</td>
<td>9</td>
<td>Um, yes. Absolutely.</td>
</tr>
<tr>
<td>grade</td>
<td>10</td>
<td>2</td>
<td>10</td>
<td>Sometimes the numerical assigning of grades, I’m less interested in.</td>
</tr>
<tr>
<td>feedback</td>
<td>10</td>
<td>2</td>
<td>11</td>
<td>But giving feedback to students is an essential part of what we do. And that’s part of evaluating.</td>
</tr>
<tr>
<td>background</td>
<td>cag10</td>
<td>3</td>
<td>12</td>
<td><em>What about project evaluation or program evaluation? Do you know anything about that? Not just evaluation of students’ work, but of projects or programs.</em></td>
</tr>
<tr>
<td>background</td>
<td>10</td>
<td>3</td>
<td>13</td>
<td>Well, I’ve, um, I’ve written up summaries for the [deleted] area, in terms of year-end reports and things like that, in terms of evaluation.</td>
</tr>
<tr>
<td>background</td>
<td>10</td>
<td>3</td>
<td>14</td>
<td>But I would say that I’m not as versed as some other people in the [deleted] Department about program evaluation.</td>
</tr>
</tbody>
</table>

*Figure 2. Example of data during phase 2 of analysis.*

After I had coded each unit of data from all eleven interviews, I compiled the list of codes that I had generated and tried to collapse or expand some as needed. For instance, I had inadvertently created two codes – “common” and “natural” – to reflect an instructor’s perception of evaluation as a casual, everyday occurrence. I collapsed these codes into the single code “common.” At the conclusion of this coding process, approximately 80 codes had been created to label the units of data. (See Appendix H for
a listing of these codes and their meanings.) Additional sub-codes were created to provide more detail about some codes.

*Phase 3: Grouping Codes*

The third phase of the data analysis process involved grouping similar codes into broader categories. At this point in the analysis, I found aspects of Ruona’s (2005) analysis procedure to be inefficient for this project. For instance, her procedures suggest creating extra rows for units of data that require multiple codes, likely because Word does not offer the ability to easily filter information according to some characteristic (e.g., units of data containing the word “accountability” or code lists containing the word “time”). This was an option that I strongly desired for my analysis, so I diverged from Ruona’s’ procedures at this point and began to develop my own technique of data analysis using Microsoft Excel 2004 for Mac.

After importing all of the data from the 11 interview transcripts into a single Excel file, I was able to interact with the data in new ways that would have been difficult or impossible in Word. For instance, with the data in Excel, I was able to show only the units of data coded as “informal,” view all 11 participants’ responses to a certain question from the interview protocol, or create a custom filter to show only the entries in which a participant used the word “report” in a response.

Using the features in Excel made it much easier to add codes that reflected a broader category. For instance, there were many units of data where the participants had described why they did not fully perform the evaluation that they had proposed in their grant applications. I had assigned to these units of data codes such as “need,” “problem,” and “time.” I used the custom filtering feature of Excel to show all of the units of data...
that were assigned these codes. I then added a “constraint” code to these units of data. This allowed me to view all of the units of data related to evaluation constraints simultaneously simply by using the Excel filter feature. This facilitated the development of thematic groups. An example of this occurred I realized that the constraints coded as “inappropriate,” “need,” and “unnecessary” were all referencing the same issue – that a grant recipient did not think that a formal evaluation was necessary for his or her project. Figure 3 shows the result of a request for units of data that were given the code of “publication.”

At this point, I added a component to the analysis plan. Due to the way that I had coded some of the units of data – sometimes with broad codes and other times with more specific ones – I realized that I needed to combine some codes into larger categories. I also found it helpful to subdivide some of the codes into smaller categories to better understand the nature of those codes. Referring back to the code “constraint” provides an example of this. For units of data assigned the code of “constraint,” I went back and sub-coded them with more specific codes, such as “time,” “knowledge,” “interest,” “need,” “manpower,” and “ROI.” The code of “knowledge” was then further subdivided using the codes “statistics” and “evaluation knowledge.”

Phase 4: Recognizing Patterns

The fourth phase of the data analysis process involved detecting patterns that existed within and across categories. While several of my research questions relied primarily on the responses to particular questions or to a certain section of the grant applications, this phase of analysis was helpful in determining participants’ overall beliefs and attitudes about evaluation. This phase involved looking across the data
categories that resulted from the second and third phases of analysis to see overarching themes that emerged in the study. This process facilitated developing the overarching themes into a narrative form, to be found later in this chapter.

![Example of data during phase 3 of analysis](image)

**Figure 3.** Example of data during phase 3 of analysis.

**Participant and Project Descriptions**

I interviewed 11 participants for this study. Ten of the participants had teaching positions at the university at the time they received the LTG funding, while one had a non-teaching position. This section provides a brief biographical sketch of each participant. Participants’ resumes and curriculum vitae were the primary sources for these biographical shorts, although additional information was collected through email.
communication with the participants, relevant Web sites, and participant interviews. Information provided is accurate as of the time the interview took place.

More biographical material was available for some participants than for others. As a result, certain information was included for some participants although the same information was not available for others. This section also provides a general description of the project for which each participant received funding from the LTG program.

**Phillips**

Phillips is a White male in his mid-50s. He currently serves as a full professor in a department within the professional and applied studies. Phillips has received grants from the National Science Foundation, USDA, and other sources, and he is active in publishing. Phillips requested funding from the LTG program to help establish an introductory course for his department. The funding was requested to provide equipment for the proposed class.

**Knight**

Knight is a White male in his mid-60s who serves as a non-tenured lecturer within the professional and applied studies at the university. He moved from industry to the university setting in 2000. Knight requested funding to develop an electronic system that would allow students to have an experience that was previously unavailable to them. The LTG-funded grant is the only one for which he has been funded.

**Clemens**

Clemens is a White female who is approximately 50 years old. She entered the professoriate in the early 1980s and is currently a full professor in the professional and applied studies at the university. Clemens has a strong record of scholarly research and
has received eight grants ranging in amount from $1,500 to nearly $1 million. She has served as a referee for two granting agencies. Clemens has taught numerous courses at both the undergraduate and graduate levels. Clemens requested funding to purchase equipment for a specific class. This equipment would make it possible for students in her department to learn how to use software that they will be expected to know once they begin their careers.

_Henderson_

Henderson is a White male in his late 50s who currently serves as an associate professor in the professional and applied studies. Since becoming a professor in the late 1980s, he has received several prestigious awards for teaching. Henderson has published approximately ten articles, and he has been involved with several instructional innovations. Henderson requested funding from the LTG program to enable his department to purchase new electronic equipment that would provide students with opportunities and experiences that were previously unavailable.

_Bender_

Bender is a White female in her early 40s. She is currently an assistant professor in the life sciences. Bender has won awards for teaching both as a graduate student instructor and a university faculty member. She has authored three refereed journal publications and several peer-reviewed publications of educational materials. She has been the recipient or co-recipient of three grants ranging in amount from under $1000 to nearly $100,000. Bender requested funding to convert class materials to an electronic format.
Lawson

Lawson is a White male in his mid-50s. He has been employed as a professor for over 20 years and currently holds the rank of full professor in the social and behavioral sciences. Lawson has authored or co-authored over 40 refereed journal articles and has presented papers at over 40 national and international conferences. He has received several grants and contracts ranging in amount from $3,000 to more than $1.5 million. He has twice received an award for excellence in graduate-level teaching. Lawson requested funding from the LTG program to create a discipline-specific laboratory to benefit the students in his department.

Crawford

Crawford is a White male in his late 40s. He currently holds the rank of full professor in the physical sciences. He has received awards for excellence in teaching at both the undergraduate and graduate levels. Crawford has authored or co-authored 28 publications and over 50 abstracts. He has received 17 grants ranging in amount from approximately $5,000 to $840,000. Nine of these grants were funded through the National Science Foundation. Crawford’s request for funding was based on his desire to give undergraduate students a hands-on experience that would make them more marketable for future employment.

Middleton

Middleton is a White female in her early 50s. She became an assistant professor in the health and clinical sciences in the mid-1980s and eventually attained full professorship. Middleton has a reputation of being an excellent teacher, and has won multiple teaching awards at the departmental, university, and state levels. She has written
a textbook and has authored or co-authored 17 textbook chapters, over 40 peer-reviewed instructional publications, and 37 peer-reviewed journal articles. She has received 19 research grants. Middleton requested funding to purchase equipment to facilitate student interaction in class.

**Thompson**

Thompson is a White male in his late 50s. He has been a professor at various universities since 1979 and currently serves as an associate professor in the professional and applied studies. Thompson has authored or co-authored nearly 30 refereed journal articles, two books, seven book chapters, and four technical reports. He has participated in over 30 presentations at professional conferences and has received seven grants ranging in amount from $1,000 to $375,000. Thompson requested funding to purchase a software and hardware system to enhance the learning of students in various courses in his department.

**Moore**

Moore is a White male in his mid-30s. He is currently an assistant professor in the humanities. He participated in over 50 professional exhibitions between the years of 1992 and 2004. He has received at least six grants, including two faculty research grants. Moore requested funding to purchase a variety of equipment for his department. Knowledge of how to use this equipment would improve the marketability of graduates of his department.

**Somers**

Somers is a White female in her early to mid-50s. She is employed in a non-academic position within a school of professional and applied studies at the university.
Somers has received eight grants ranging in amount from $1,000 to $26,500. She has had 13 articles published in non-research journals and has made several contributions to other publications. Somers is the only participant in this study who has never been employed as a teacher in a university setting. Somers requested funding to create an online software application that she believed would be helpful to students and faculty in her school.

Summary

The seven males and four females who participated in this study came from various departments across the university’s campus and had very different research interests. Some were relatively new to teaching at an institute of higher education, while others had taught at the university level for over twenty years. They ranged in age from mid-30s to mid-60s and represented various university ranks, from lecturer to full professor. All of the participants were White. Participant demographics are provided in Figure 4.

The participants in this study requested funding from the LTG program for various types of projects. The funding requests ranged from approximately $15,000 to $86,000. Proposed projects reported a variety of goals, from developing a class on a topic that was not offered at the university to creating a specific type of online software application. Brief project descriptions are provided in Figure 5.

General Beliefs About Evaluation

A main goal of this study was to determine participants’ general beliefs about and attitudes toward evaluation. Did participants view evaluation as a nuisance or as a necessary and useful component of a successful classroom? Did they think of evaluation
<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>General Discipline Area</th>
<th>Gender</th>
<th>Race</th>
<th>Approximate Age</th>
<th>Teaching Experience¹ (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillips</td>
<td>Professor</td>
<td>Professional and Applied Studies</td>
<td>M</td>
<td>White</td>
<td>mid-50s</td>
<td>18</td>
</tr>
<tr>
<td>Knight</td>
<td>Lecturer</td>
<td>Professional and Applied Studies</td>
<td>M</td>
<td>White</td>
<td>mid-60s</td>
<td>5</td>
</tr>
<tr>
<td>Clemens</td>
<td>Professor</td>
<td>Professional and Applied Studies</td>
<td>F</td>
<td>White</td>
<td>around 50</td>
<td>23</td>
</tr>
<tr>
<td>Henderson</td>
<td>Associate Professor</td>
<td>Professional and Applied Studies</td>
<td>M</td>
<td>White</td>
<td>late 50s</td>
<td>18</td>
</tr>
<tr>
<td>Bender</td>
<td>Assistant Professor</td>
<td>Life Sciences</td>
<td>F</td>
<td>White</td>
<td>early 40s</td>
<td>11</td>
</tr>
<tr>
<td>Lawson</td>
<td>Professor</td>
<td>Social and Behavioral Sciences</td>
<td>M</td>
<td>White</td>
<td>mid-50s</td>
<td>26</td>
</tr>
<tr>
<td>Crawford</td>
<td>Professor</td>
<td>Physical Sciences</td>
<td>M</td>
<td>White</td>
<td>late 40s</td>
<td>19</td>
</tr>
<tr>
<td>Middleton</td>
<td>Professor</td>
<td>Health and Clinical Sciences</td>
<td>F</td>
<td>White</td>
<td>early 50s</td>
<td>21</td>
</tr>
<tr>
<td>Thompson</td>
<td>Associate Professor</td>
<td>Professional and Applied Studies</td>
<td>M</td>
<td>White</td>
<td>late 50s</td>
<td>26</td>
</tr>
<tr>
<td>Moore</td>
<td>Assistant Professor</td>
<td>Humanities</td>
<td>M</td>
<td>White</td>
<td>mid-30s</td>
<td>7</td>
</tr>
<tr>
<td>Somers</td>
<td>[withheld]</td>
<td>Professional and Applied Studies</td>
<td>F</td>
<td>White</td>
<td>early to mid-50s</td>
<td>0²</td>
</tr>
</tbody>
</table>

Figure 4. Participant demographics.
¹ Teaching experience is given in years, including any reported graduate teaching experience.
² Somers had no teaching experience, but had 25 years of professional experience working in her field.
<table>
<thead>
<tr>
<th>Participant</th>
<th>Reason for Funding Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillips</td>
<td>Development of an introductory course</td>
</tr>
<tr>
<td>Knight</td>
<td>Purchase of equipment to give students new experience</td>
</tr>
<tr>
<td>Clemens</td>
<td>Purchase of hardware and software to give students new experience</td>
</tr>
<tr>
<td>Henderson</td>
<td>Purchase of equipment to give students new experience</td>
</tr>
<tr>
<td>Bender</td>
<td>Conversion of class materials to electronic format</td>
</tr>
<tr>
<td>Lawson</td>
<td>Creation of a laboratory for student use</td>
</tr>
<tr>
<td>Crawford</td>
<td>Purchase of equipment to give students new experience and to improve marketability</td>
</tr>
<tr>
<td>Middleton</td>
<td>Purchase of equipment to improve student interaction in class</td>
</tr>
<tr>
<td>Thompson</td>
<td>Purchase of equipment to give students new experience and enhance learning</td>
</tr>
<tr>
<td>Moore</td>
<td>Purchase of new equipment to update outdated equipment and to give students new experiences and to improve marketability</td>
</tr>
<tr>
<td>Somers</td>
<td>Creation of an online software application</td>
</tr>
</tbody>
</table>

*Figure 5.* Stated goals of LTG funding requests.

In terms of evaluating their own teaching, evaluating their students, evaluating pedagogical interventions, or in other ways? What did participants think the purpose of an evaluation should be? I asked several questions during the interviews specifically to get a better idea about participants’ thoughts regarding evaluation.

An analysis of the interviews with the goal of determining participants’ general beliefs about evaluation resulted in four primary themes. These themes related to participants’ beliefs about the importance of evaluation, the use of evaluation to provide feedback and facilitate improvement, the use of evaluation to gauge the effectiveness of an evaluand, and participants’ propensity to engage in informal rather than structured evaluation activities (see Figure 6). The sections below discuss these themes in more detail.
Theme 1: Importance of Evaluation

The most prevalent theme emerging from the data involved participants’ attitudes regarding the importance of evaluation in teaching and learning. Although each participant seemed to view evaluation in a different way, every one noted that he or she considered evaluation to be an important part of the teaching and learning process.

Phillips stated that evaluations are “very essential” in his classroom, adding, “That’s what tests are all about. That’s an evaluation.” Moore noted that providing feedback to his students is an “essential part” of his job as a professor. Clemens also believed that evaluation plays an important role in her classroom:
Well, obviously evaluating students is an important part. And obviously, we try to do various kinds of things to evaluate teaching in order to ensure that our teaching is as good as it can be, given the resources that we have and the whole context that we’re in.

The examples above illustrate that the participants not only view evaluation as a means to assess their students, but also to reflect on and improve their own teaching practices.

When asked for his opinion on the importance of evaluation in teaching and learning, Henderson replied affirmatively, stating, “Yeah, almost by definition.” He went on to describe how he views evaluation as a constant and dynamic process in his classroom.

Somers, the only participant who was not an instructor, had various opinions regarding the importance of evaluation in educational settings. She first referred to the importance of end-of-course evaluations in informing professors of how good or poor their teaching strategies were during the semester. She continued by discussing the evaluation of information, or information literacy:

A student or anyone who’s learning needs to evaluate the information they’re getting. They need to have some kind of feeling of whether this is good information or not good information and how valid is the source that the information’s coming from.

Each participant viewed the role of evaluation somewhat differently. Some viewed it as a means of determining students’ success at meeting goals, while others viewed it as a means of gathering feedback to improve their teaching. Despite these different perceptions of evaluation’s roles, all of the participants indicated that they
believe evaluation to be an important part of teaching and learning. Some of the specific roles that participants believed evaluations should have are described in the following sections.

Theme 2: Provide Feedback and Facilitate Improvement

Many participants believed that evaluations should provide feedback. Participants also noted that the feedback provided by evaluations should be utilized to make improvements. Several of the participants specifically mentioned the feedback from end-of-course evaluations. When asked what came to mind when he thought of the word “evaluation,” Phillips said that he thinks of student evaluations for his class, adding that he “can look at them and think about it and see the comments.” He then described how he might use these comments from students:

It’s a feedback mechanism so that you can take the feedback from the evaluation and plow it back into the development front-end and hopefully make things better. And that’s what we use our class evaluations for, so at the next class time, you know, we’ve got some idea of what students are thinking, or what, what our audience is thinking, and so we make it, try to adapt to those changes, suggestions.

Bender suggested that evaluations can be used for much more than collecting students’ comments. However, she noted that the end result of all the feedback provided by an evaluation should be to determine how effective the evaluand has been and to provide a holistic view of the situation under consideration:

Evaluating what you’re actually…what I’m doing, what they’re doing, um, what the materials I’m giving them are doing, you know, all different aspects of it.
What, how much time they’re spending, all kinds of how you’re figuring out if something is getting you from one point to another.

When asked about the purpose of an evaluation, Clemens noted that an evaluation should be used “to try to get a sense of, you know, how and why and what might be better about that effort.” Middleton commented, “I’ve always used the student evaluations to improve my teaching process.” Somers stated, “Well, the…first answer would be feedback, and I think that’s, that’s probably the biggest thing.” Responding to the same question, Crawford had faculty evaluations in mind:

The reason you should be doing it is to give feedback to the people who are on the front lines doing the teaching and be able to tell them, “What you’re doing sucks” versus “What you’re doing is effective and worth doing.” …I don’t mind doing evaluation work if I know that it’s gonna help us do a better job.

Some participants saw evaluation as a means of providing feedback to their students. Moore noted, “Giving feedback to students is an essential part of what we do. And that’s part of evaluating.” Thompson stated that an evaluation should “provide feedback to the person who is being taught, whether or not they learned.” On the reverse side, he also noted, “[An evaluation] provides me an indication whether or not they learned what they need to learn. So it’s a very important factor.”

**Theme 3: Gauge Effectiveness**

Many participants viewed evaluations as a method of determining an evaluand’s effectiveness, success, or worth. The evaluands that participants referred to varied and included such things as a teaching pedagogy, a health intervention, and a piece of technology.
When asked what the purpose of an evaluation should be, Middleton stated that it is “to objectively find out if it’s working or not working, and if so, why or why not.” When asked the same question, Henderson’s response was simple: “Effectiveness. To gauge effectiveness.” Bender’s perception of the purpose of an evaluation was similar: “I guess, in the sense of a class, you want an evaluation to see if the methods that you’re using are effective.” Lawson answered the question of what the purpose of an evaluation should be by stating that “evaluation should be used to make an assessment about the worth of a project.”

Clemens also viewed the purpose of an evaluation as determining the level of success something has achieved. She mentioned this in two ways. She first discussed it using her area of research as an example; she then extended her comment to an educational context:

In [field of study deleted], when you try to do a campaign to, some kind of intervention to improve somebody’s, or a group of people’s, health practices, you try in some sense to assess whether or not that campaign really contributed to them increasing, and so you’re evaluating the success of the campaign. And similarly, I assume, in educational efforts, one tries to assess whether one’s intervention is successful.

Clemens was one of the few participants who reported that she had previously been involved in conducting evaluations of funded projects.

Moore viewed evaluation in terms of his students: “It’s looking at students’ performance and seeing whether they’re achieving the goals that I set out for them or that
they set out for themselves.” He went on to describe how he believes evaluation relates to the art classes that he teaches:

For me, what I want to do with students is have students discover their language and their voice. So for me, they can talk about whatever they want to talk about with their art world. Art is not for talking about art. It’s for talking about life experience and bringing it to the medium of art to find an expression for it.

Somers’s response to the question of evaluation’s role in teaching and learning illustrates the intricate relationship between evaluation as a means of getting feedback and as a means of making improvements:

Evaluation is important because when a teacher teaches, the evaluation, that form that’s asked of the students to fill out at the end of the semester, is important because the teacher needs the feedback to know how effective…that professor was in imparting the information he was trying to impart.

Theme 4: Evaluation as Informal Process

Another theme that emerged from the data was the prevalence of informal evaluation techniques. Several participants made comments regarding how they perform informal evaluations to determine the efficacy of their teaching, the attitudes of their students, or the success of a pedagogical intervention. Some participants made reference to anecdotal information being used to evaluate their students or their projects. This section presents comments from the participants relating to their informal class evaluations.

Phillips indicated that instructors naturally evaluate their classes on a continuous basis, stating, “We can all tell whether something’s no good right away, or we can always
tell when something is pretty good.” After I explained the difference between formative and summative evaluation to Phillips, he noted that professors often use formative evaluation in their classes, even if they don’t know exactly what it’s called:

Formative, is, that’s how we think normally anyway. Even though we don’t have, you know, a special name for it and stand outside the box and look in and say, “Hey, we’re doing the formative,” we just do that because it’s sort of natural to us.

According to Phillips, professors intuitively evaluate what is going on in their classes and make adjustments accordingly.

Knight’s application stated that he would perform an analysis of surveys conducted of students to determine what they learned using the funded equipment. Knight explained that he did not actually give students surveys, but instead gathered information from students after the completion of projects using the funded equipment:

We, yeah, we have a debrief – we call it a critique – at the end of each one of these, and students have input, and faculty have input, and staff has input. And all of that is, it’s not formalized, but it’s passed on through the, through the progressive teaching of new people coming in to use the…equipment provided in the grant.

When asked what happens to the information gathered at these sessions, Knight explained, “It’s passed on pretty much word of mouth from student to student and from faculty to student. It’s an informal thing.”

Clemens described how she required each of her students to present two speeches in class, one using the software and hardware funding through the LTG program and one
not using it. Afterwards, she asked the students if learning the software was worth the experience of doing it and if they would recommend that it remain a part of future classes. Explaining how this occurred, she stated, “But we did that, you know, very informally. We didn’t do it by giving them a written thing to check off.” She used a similar technique with her graduate teaching assistants, asking them for their feedback regarding the project. Clemens also remarked that the course in which her project is used may be reconfigured:

   In that case, we’ll probably do some evaluation of, you know, what goes into the course and what doesn’t, and then that will imply, you know, some kind of assessment of what’s going on here, but I don’t know that there will be a formal [evaluation].

   Clemens added that she did not remember ever having a comment about the funded software on her end-of-course evaluations. She suggested that this may be because she does “kind of an oral discussion assessment of the course” with her students, and that this may cause the students to “feel like they got that off their chests.”

   Henderson also described some of the informal ways in which he informally evaluated both his department’s overall success, as well as the success of the project he implemented with the LTG funding he received:

   But while I don’t have much more than exit interviews, anecdotal industry experience, the experience of alumni who call us back, I know this is effective. I mean, I don’t have the slightest doubt because all of those things tell me that.

   Much like Phillips, Henderson noted his belief that professors can often intuitively evaluate what is happening in their classes: “I think a good teacher reads a
class during the class and says, ‘They’re not getting this. Screw that next lesson. Let’s
go over this again.’” Henderson further discussed the ability of a professor to informally
gauge the effectiveness of an intervention. Discussing the hypothetical goal of getting
students more involved in a classroom, he commented, “If they trigger 15 percent of the
kids in class to do better, and they can see it, again, they may be anecdotal, but that’s
incredibly important to them, and it’s incredibly important pure educationally; it is.”

Lawson also indicated that some of his proposed evaluation activities were done
informally. His grant application states that faculty and teaching assistants would be
asked to report on the benefits and drawbacks of using his laboratory. He said that this
was done informally. When asked if he thinks that the laboratory has helped students to
better learn material, he answered, “My gut tells me yeah.” I asked Lawson if his
students commented on the laboratory in their end-of-course evaluations. He described
how he instead gathered information informally from students in class:

They commented on that in the classroom. So in other words, their verbal
feedback. So I don’t have written comments from them, you know, to that effect.
So since they commented on it in class, I didn’t seek to record it, say, midterm or
end-of-session.

Lawson stated that his project “still needs to have a better form of assessment.”

Crawford stressed the importance of communication with both current students
and alumni of his department. Regarding how he knew his project has been a success, he
stated, “We know [former students have] benefited from it, because they tell us.” He also
noted how valuable the alumni who remain in the field can be in providing feedback
related to what is being taught in his department: “We will have to watch and rely on our
alumni and other people that are out there working to tell us, ‘You know, what you really need to be teaching these kids is not this, but this.’”

Crawford acknowledged that his evidence is not the result of formal research. He admitted, “We have no statistical, statistically valid test that we could show you, or results that we could show you, that would allow someone with a statistics background to go, ‘You’re right. You are doing a good job.’”

Middleton relied strongly on informal means of evaluating her project. When I asked Middleton if she could tell that students were learning better in the classes in which her project was used, she replied affirmatively:

It’s a subjective answer, but yes, because I get the students two years later…and I felt they were extremely capable in handling the cases that they saw…and I’d like to attribute it to the fact that it was hopefully because of my teaching.

Middleton mentioned her teaching several times. She seemed to believe that her teaching experiences had provided her with the ability to sufficiently evaluate her pedagogical practices and the learning of her students in informal ways:

I knew how I was gonna assess student learning outcome[s] just based on my experience with teaching students before and not using it versus teaching them with it and how they would perform in the clinic, and that was pretty subjective. I’m very intuitive….I’ve gotten [two] awards based on teaching. And so, I felt comfortable that I would evaluate this and improve it based on just the feedback I got from the students.

Middleton relied a great deal on informal data collection to evaluate her project. When asked if she performed several of the evaluative activities mentioned in her grant
application, she replied, “Basically, I did all that, but it was all verbally done….There’s nothing, no documentation.” She later added, “But all those things were done; but it was, shall we say, informal.”

Thompson was yet another participant who relied at least partially on informal means of evaluating his project. When asked if he collected comments from students who used his project, he replied, “Nothing systematic.” However, he also stated that he and a colleague observed students performing laboratory exercises and noticed that those students were more involved than students typically were when doing them. When asked if the project helped students to score better, he said, “I hope so. Again, I don’t have evidence to support it, but I hope so.”

Somers also indicated that she relied on, or would rely on in the future, informal means of evaluating the success of her project. Although her project had not yet come to fruition, she stated that several of the evaluation tasks detailed in her grant application were done informally. For instance, according to the application, a certain process was to be “tested by staff and faculty.” Somers addressed this by stating, “Well, I guess informally, it all, it happened informally. Um, just, you know, discussions.”

Most of the participants in this study relied at least partially – and sometimes exclusively – on informal methods of evaluating their funded projects. These informal evaluation techniques included chatting with or questioning students, relying on gut feelings, “reading” a class, and making observations during class. As reported later in this chapter, these techniques of evaluation sometimes supplemented more formal techniques that were proposed in the grant applications and sometimes replaced them altogether.
Typical Classroom Evaluation Practices

One goal of this study was to determine how instructors typically determine the effectiveness of what occurs in their classrooms. Participants in this study were asked what type of evaluation they typically do in their classes. Participants interpreted this question in different ways. Some reported how they assesses their students’ learning, while others reported how they evaluated their teaching and class as a whole. This section reports themes that emerged from the participants’ responses to this question.

Evaluation of Students

The primary methods by which participants said they typically evaluate their students were tests, papers, project critiques, and grades. Thompson stated that he uses “almost exclusively tests at both undergraduate and graduate” levels. Knight stated that he uses “both written and oral critiques that are…subsidized by a grade that’s applied to the project that comes from a multi-point checklist that I have that they’re aware of called a list of expectations.” Middleton stated that she has used tests, including midterms and finals, in her classes.

Clemens explained that her method of evaluating her students depends on the class. Students in some classes are evaluated via papers and tests, while those in other classes are required to give speeches that are graded. Lawson also reported basing his evaluation techniques on the type of class. For larger undergraduate classes, he stated he might use tests with “multiple choice questions, maybe because they’re efficient.” However, this was not his sole method of evaluating students:

But I also like to know whether they can put together a whole complete sentence, so I also ask short answer questions that get at sort of factual material so I can
have, either have them reflect something I’ve stated in lecture in paraphrased format, or some innumerable set of things that I think is important for them to know about. And occasionally, I ask a more free-ranging type of question about which opinions are relevant, just also see if they can put together a logic set of sentences that convey an understanding, regardless of the bent of that understanding.

Lawson noted that he typically evaluates his graduate students by having them write papers or proposals.

When asked what type of evaluation she typically does in her classes, Bender provided the following response:

I would say measurement of a certain kind of content knowledge, measurement of abilities to solve problems to a small degree, and then some attitude kind of measurements, in terms of surveys and questionnaires that we might give the students through the semester.

Although Bender noted the types of things she likes to measure, she did not describe the specific formats she uses to collect this information.

Crawford stated that he gives tests in his classes to evaluate students. He added that his department administers an exit exam to its students to determine how much they know. In the capstone course that he conducts, students work on a “big synthesis project” in which they are expected to use information learned throughout their undergraduate program.

Moore’s response to how he evaluates his students’ work was unique. He disliked assigning numerical grades and preferred to provide students with written feedback on
their work. His assessment of their work is generally somewhat subjective. He provided a lengthy description of his method of assessment:

Well, yeah. It’s, it’s more subjective, which is part of why I don’t like the number system. It’s so hard to say, “Well, this student’s work is a 92, and this student’s is an 88.” I mean, what differentiates those two? So, it’s a combination of effort, how well I can perceive that they’re trying to find out what they want to make and trying to learn the tools and use the tools to make it happen. And, yeah, like it becomes sort of a comparison to how successful other students have been in, at whatever stage they’re at in the program, in terms of using the language of art-making to evaluate. There’s no sort of, yeah, maybe in a beginning class there’s some sort of written test where they, there’s a right answer and a wrong answer. But by the time they’re into even the middle section of the course, there’s very little right or wrong. It’s more about a subjective evaluation of how well they’re, how hard they’re working and how well they’re learning the tools to express what they want to express.

So for Moore, the method of assessing students by testing for factual knowledge typically is not applicable. Moore did, however, acknowledge that his written evaluations of students’ work also have a “number assigned to it or a letter grade assigned to it to fit into that academic structure of numbers and grades.”

Evaluation of Class and Teaching

A majority of the participants mentioned end-of-course evaluations as a means of evaluating their classes. Phillips, Middleton, Clemens, and Crawford mentioned that they use these types of evaluations. Middleton stated that she uses them to improve her
teaching. Crawford noted that his departmental end-of-course evaluations change frequently: “So we’re constantly refining our student evaluations to try to ask questions that tell us something about how we’re doing, rather than just tell us something about, you know, popularity or things like that.”

Knight noted how he pays particular attention to the written comments on these end-of-course evaluations:

I pay attention more closely to the written comments that are done rather than the Scantron question answers. Those are, those are essential…. But the comments they make usually lead me to look at different ways of teaching or to changing some things that I’m teaching in a certain way to improve the ability for them to learn.

Henderson also noted that he pays more attention to the written comments than to the numerical results from the evaluations: “I don’t read the number stuff….What I want are the comments, and I read those in great depth.” He shared what he tells his students before giving them the evaluations to fill out: ‘‘Here’s your chance, and I want to know realistically what’s right and wrong, what we need to change, what we’re doing right and wrong as a program, what I’m doing right and wrong as an individual.’’ He continued by noting that he and his colleagues take the written comments very seriously and make changes to their teaching and their classes accordingly.

Lawson also stated that he collects information from students at the end of his courses. He noted that he asks different questions of undergraduate and graduate students. He tends to ask undergraduates what they enjoyed most and least about the
class and what they would have liked to cover more. The graduate students are asked to provide more input on the text and articles used in the class.

Summary

Participants in this study were asked to describe the type of evaluation they typically do in their classes. A summary of these findings can be found in Figure 7. Participants reported that they have relied on tests, papers, critiques, and grades to evaluate their students. The primary method of evaluating their teaching or their classes as a whole was through the use of end-of-course evaluations, with some participants stressing the importance of the written comments on these forms.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Classroom Evaluation Practices Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillips</td>
<td>[None mentioned]</td>
</tr>
<tr>
<td>Knight</td>
<td>Written and oral critiques; grades based on rubric</td>
</tr>
<tr>
<td>Clemens</td>
<td>Course evaluations; tests; speeches; group participation; papers</td>
</tr>
<tr>
<td>Henderson</td>
<td>Daily news quizzes</td>
</tr>
<tr>
<td>Bender</td>
<td>Measurement of content knowledge and problem-solving abilities; measurement of attitudes (via surveys and questionnaires); mid-semester survey; end-of-course “summative assessments of the class attitude”</td>
</tr>
<tr>
<td>Lawson</td>
<td>Multiple-choice, short answer, and open-ended test questions; papers; proposals; end-of-course evaluations;</td>
</tr>
<tr>
<td>Crawford</td>
<td>End-of-course evaluations; class exams; exit exams</td>
</tr>
<tr>
<td>Middleton</td>
<td>Tests (midterm and final); end-of-course evaluations</td>
</tr>
<tr>
<td>Thompson</td>
<td>Tests</td>
</tr>
<tr>
<td>Moore</td>
<td>Perception of students’ efforts; tests (for beginning classes); subjective evaluation of student work; written feedback for students; intermediary and classroom critiques of student work</td>
</tr>
<tr>
<td>Somers</td>
<td>[None mentioned]</td>
</tr>
</tbody>
</table>

Figure 7. Typical classroom evaluation practices.
Project Evaluation Plans

This section describes the evaluation plans that participants proposed in their grant applications. Prior to this discussion, I describe relevant parts of the grant application template as a backdrop to understanding what participants wrote in their proposals.

Formatting instructions for the LTG program are available online. The Web site offers little information regarding how applicants should propose to evaluate their projects. The suggested format for grant applications does include a section on “Learning Outcomes.” This section simply lists three bullet points to guide applicants in what to include in this section:

- learning outcomes and how resources will be used to achieve these outcomes,
- methods for evaluating the project and learning outcomes (subsequent reports on successful grants will be judged in part on the evaluation criteria presented in the proposal), and
- potential applications in other academic areas.

The online information also includes a list of six “Proposal Evaluation Criteria.” The funding agency states that these six criteria are used in determining which applications are approved, with the first criterion being weighted most heavily and the sixth criterion being weighted the least. The criteria are as follows:

1. purpose and quality of the project, including relevance to priorities of the unit and the University;
2. extent to which students will interact directly with the proposed learning technologies;
3. anticipated overall impact on program, including number or proportion of students affected;

4. potential application to other academic areas;

5. budget justification and clarity; and

6. commitment and support of the requesting unit for the project, including cost sharing.

This section describes the ways in which recipients of LTG funding proposed in their applications to evaluate their projects. This information nearly exclusively represents what participants wrote in the “Learning Outcomes” section, specifically in addressing the second bullet point (“methods for evaluating the project and learning outcomes”). The descriptions of some participants’ proposed evaluation plans are shorter than those of other participants. This is due to the fact that the sections on learning outcomes varied greatly in length from one application to the next. The size of the description provided in this section generally reflects the size of that section in the grant proposal. The grant application did not provide a suggested length for this section of the grant proposal.

Phillips

Phillips’s section on learning outcomes was five sentences long, three of which described the topics about which his students would be learning in the class that his LTG funding made possible. One sentence described the proposed format of the course. The final sentence noted that students would be graded on the typical A through F grading scale and that students would provide end-of-course evaluations on the professor’s
instruction and the course content. Phillips did not state specifically how he would measure the degree of success achieved by this new class.

Knight

Knight listed four “yardsticks” for measuring the success of his project. These measures included the number of students involved in project productions as a result of the funded project, the “qualitative level” of the students’ productions, the number of other students and university community members who were involved or impacted by the funded project, and the degree to which the project contributed to the welfare, understanding, and knowledge of the university and community.

Knight noted in this section that the criteria he set forth would be evaluated both quantitatively and qualitatively. The quantitative methods include counting the number of students who use the equipment and the number of programs produced with the equipment during the course of a year. The qualitative methods include subjectively assessing the quality and impact of the programs produced using the equipment and, “most importantly,” analyzing surveys given to students involved in these productions to determine what they have learned from using the equipment funded by the project.

Clemens

Clemens’s section on learning outcomes did not specifically address how she planned to determine the success of her project. Rather, she noted what the anticipated outcome of the project would be for students – what they would learn as a result of the funded project. She followed this description with a list of six subcomponents, both cognitive and attitudinal, of what she hoped students would gain from their use of the
equipment funded through the grant. Clemens’s learning outcomes section also described how the instructors and the students in the class would use the equipment.

Henderson

Henderson included in his grant application two sections related to learning outcomes. In the first section, he described what he typically expects to teach the students in his department and the broad skills in which he expects his students to be competent. In the second section, he described a “built in industry evaluation system” that is used in his department. This system relies on the interaction of the students with actual executives and staff in his field. Henderson’s grant application also stated that “students will be asked to specifically appraise the value of instruction…in the course-concluding student evaluations.” The application also stated that “the department will conduct annual surveys of [professionals in the field], particularly those in [state deleted], and alumni to assess the value of this project.”

Bender

In her section on learning outcomes, Bender stated that her project would provide students with “preparative materials for laboratory that are far superior to the existing [course materials], at a substantially lower cost.” She proposed evaluating the quality of the [electronic course materials] in two phases. The first phase involved an experimental model in which the performance of students using the traditional [course materials] would be compared to the performance of students using the [electronic course materials]. This phase would also include attitudinal surveys measuring students’ course experiences and instructors’ perceptions of student performance. The second phase of
the testing would “be repeated for the addition of streaming video introductions and
Web-CT [sic] testing with a larger student sample size.”

Lawson

Lawson wrote in his grant proposal that the learning outcomes resulting from his
project would include “a deeper understanding of course concepts as a result of more
active participation in and/or development of computer-aided assessment and learning
activities.” His application also stated that the use of computer-based progress
monitoring would be able to provide continual feedback to students and “interactively
train” rather than “strain & drain” them.

Lawson’s application also notes that his project would provide faculty with much
richer sources of information about students’ knowledge structures: “A wealth of
information would be available about students who take quizzes, examinations and/or
surveys through the lab. Such information could suggest ways to alter or enhance
instruction of important concepts.” Regarding ways to evaluate the effectiveness of the
lab, the proposal indicated that faculty and teaching assistants would be asked to report
on benefits and drawbacks of using the laboratory. Although he did not address it in his
learning outcomes section, Lawson did mention another method of project evaluation in
his project timeline. In the timeline, he noted that he would “request feedback from all
lab users regarding perceived usefulness as well as problems and suggestions for
improvement.”

Crawford

Crawford began his learning outcomes section by stating that the primary goals of
his funded project were to provide training to students for computer-assisted field studies
and to provide students using the equipment with valuable experiences to make them more marketable in their future careers. He noted that the industries that most commonly employ his department’s graduates use on a daily basis the technologies that the funding would provide for his department.

Crawford described two ways in which the success of his project would be assessed. The first method was by examining and grading the products that students create through the use of the funded equipment. For the second method, he wrote that he would “survey current and former students to assess their opinion of the pedagogy” and “assess the effectiveness of this approach in enhancing career paths.”

Middleton

Of the eleven grant applications reviewed for this study, Middleton’s section on learning outcomes was one of the longest. She wrote in her proposal that “the goals of the proposed project are to be met by developing interactive…programs with the following specific objectives.” She then enumerated these five objectives. The first three objectives described the creation of three series of questions and possible answers to help students prepare for class, to facilitate assessment of students’ understanding of lecture material after class, and to use during case examinations “to stimulate total class participation and promote problem-solving skills.” The fourth objective was to incorporate these programs into the school’s curriculum. The fifth objective listed was to evaluate the impact of these programs on student learning.

Middleton described both formative and summative methods for evaluating her funded project. She stated that the project would be evaluated by four groups of people: the project collaborators, content experts within her school, students and graduate
professionals in the target populations, and instructional designers. Each of these groups of people would be asked, according to the grant application, for suggestions for improving the instruction. She also stated that data would be collected using observations, interviews, and questionnaires with rating scales. The application also indicated that Middleton and her three collaborators would “hold regularly scheduled meetings to discuss progress and problems, and demonstrate their programs to other [faculty].”

Middleton continued by describing in more detail the roles of the groups of people mentioned above in evaluating the efficacy of her project. Content experts and faculty would help to determine if the data in the programs are accurate and current, to assess the information for clarity of vocabulary and proper context, and to assess the appropriateness of the material presented by the program. The application indicated that a group of 8 to 20 students and four to six graduates would participate in a small-group evaluation to locate errors in the project’s instructional materials. They would perform structured activities and then complete a questionnaire. The final component of the formative evaluation described in the learning outcomes section involved instructional designers, who would “examine the program for its utility as well as its adherence to the principles of sound instructional design.”

The summative evaluation that Middleton described would be conducted after the project has been used in all four classes. She wrote that students would be given a pretest before the technology-enhanced portion of the course commenced, as well as a posttest after the program’s implementation. Final exam scores of the technology-enhanced class would be compared to the final exam scores of previous classes in which the traditional
method of teaching was used. This pretest-posttest evaluation would “help determine the worth of this teaching tool and if its adoption would enhance student problem-solving skills, improve student class participation and knowledge retention, and improve instructor performance in other courses.”

Thompson

The learning outcomes section in Thompson’s grant application described how the funded project would serve as a resource for students in his department. The application stated that “students who exit the undergraduate program will have received both hands-on experience in…data collection and measurement and will have an understanding of the value of multi-disciplinary research approaches.” For graduate students, the laboratory would be used to foster interaction among students specializing in specific areas of study. It would also be useful in training them how to use similar systems as a research tool in research laboratories where they may find future employment.

Thompson described two methods that he planned to use to evaluate his project. The first method involved having graduate students perform each laboratory exercise and provide written and oral feedback. This feedback would be used to refine lesson presentation approaches. According to the application, students would “be given a list of the objectives of the lab and then asked a series of questions” about the achievement of objectives, the value of the laboratory experience, and suggestions of improvement.

The second method of evaluation was to compare end-of-course evaluations completed by students who used the funded laboratory to evaluations completed by students from the previous year who did not use the laboratory. As a final method of
assessing the effectiveness of the project, Thompson indicated that he would incorporate questions regarding the value of the laboratory experience into the department’s exit interview questionnaires.

*Moo*re

Moore wrote in his grant application that the equipment the funding would provide “will radically change the potential of the work being produced” in his department and that “the outcome of the new equipment will be evident in the work being produced.” He indicated that discussion-based critiques are a normal part of studio classes in his field and that the new possibilities introduced by the equipment would become an integral part of these classroom discussions.

Moore also stated in his application that students finishing both undergraduate and graduate degrees have public exhibitions of their work in campus museums. He noted that these exhibitions would provide further opportunity to evaluate the products of the equipment funded by the LTG program.

*Somers*

Somers provided a concise description of how her funded project would be evaluated. She wrote that “the process will be tested by staff and faculty for selecting material and cataloging different media formats.” A “task force” made up of students, faculty, staff, and professionals would “review the draft plan when it is developed for alumni and continuing education sessions, direct mailings, advertising on the web and through e-mail to [her school’s] alumni.” Finally, she indicated that she would announce the project and offer instruction to its potential users.
Summary

Participants’ plans for evaluating their projects varied considerably. They offered a wide variety of evaluative activities, from grading students’ artifacts and having their artwork put on exhibit to soliciting input from instructional designers and performing experimental designs based on student grades. The proposed evaluations also varied in complexity. One participant did not state in her application how she would evaluate learning outcomes, while other participants detailed specific formative and summative activities that would take place.

Evaluation Activities Performed

As discussed previously, applicants of the LTG program are asked to include in their applications a section on anticipated learning outcomes of the project for which they request funding. Most of the applicants for this study described the anticipated learning outcomes of their students, as well as the ways in which they would determine the effectiveness of their funded projects in achieving the project goals or these learning outcomes. This section describes how closely the applicants followed the project evaluation plans that they proposed in their applications.

Phillips

Phillips did perform the two methods of evaluation that he set forth in his grant application. He stated that providing students with an A through F grade for the class is “standard Computer Science procedure,” as is having students complete end-of-course evaluations.
Knight

One of Knight’s methods of determining the success of his project involved counting things – how many students were able to experience “hands on” digital production and how many projects were produced. When asked about these numbers during the interview, he estimated that “about 60 or 70…probably more like 80 or more” students have gained this experience because of the funded project and that “more than 8 to 10” programs or program segments have been produced. He appeared to be satisfied with both of these numbers.

Knight stated that his project has involved an appreciable number of other students and members of the university community. This was evident in his explanation of how the programming produced by the students has contributed “to the welfare, understanding, and knowledge of the University and greater community” (text from grant application). He described several programs produced by the students.

There were also some subjective components to Knight’s proposed evaluation. When asked about the qualitative level of the students’ productions, he stated that “it’s been surprisingly high” and added, “The students themselves have really surprised me with the professionalism that they’ve shown, not being professionals.” Although I did not inquire specifically about his “subjective assessment of the impact of these programs,” he did state that the funded project has “contributed to, in some ways, to some understanding…of the university and the community.”

Knight’s proposal also indicated that his evaluation would involve analyzing surveys of students regarding what they have learned from working on the project. When asked about this part of the evaluation, Knight said that the students were not given
surveys. He explained that after each program, there is a debrief, or a “critique,” involving students, faculty, and staff. Knight described this process as “anecdotal” and noted that while the information from these critiques is not formalized, it is “passed on…through the progressive teaching of new people” who use the equipment provided by the grant.

*Clemens*

Clemens’s grant application did not include any ways in which the project would be evaluated. However, she and her teaching assistants did ask the students if the students “thought it was a useful thing for them to do,” and the students replied affirmatively. She also noted that she and the teaching assistants have watched the students use the software in class and that students have provided feedback regarding the teaching of the software. This feedback has resulted in changes to how the software has been taught in subsequent classes. Clemens also asked the teaching assistants for feedback regarding the teaching of the software in the classes to ascertain how well the process was going, if there were any problems that needed to be addressed, and whether they would be willing to continue using the equipment in future classes that they taught.

*Henderson*

Henderson, according to his grant application, planned to conduct annual surveys of alumni and professionals in his field to assess the value of his project. When questioned about this, he replied, “No. Uh uh. I forgot I said that.” He described how he had had professionals come into his department to provide feedback on different aspects of his department, noting that this has “not been a full formalized process” and that “that’s actually a damn good idea.” He had also planned to ask students to specifically
appraise the value of instruction in the end-of-course evaluations. He stated that students have indeed done this, although not in the most recent semesters.

*Bender*

Bender’s grant application presented a two-phase evaluation plan. The first phase of her plan involved an experimental model comparing the performance of students who used the traditional course materials to the performance of students using the electronic version of the course materials. Bender decided to alter this plan and provided the electronic version to all of the students. She described how this change in the evaluation plan worked out:

What we ended up doing was, for the summer, we gave it to everyone and we used it as a formative assessment, just to make improvements to the [course materials]. We, we got a lot of more opportunity for them to give us written feedback, um, throughout the summer – in the middle of the summer and at the end of the summer – because we were still in the process of working on it. And so we wanted to be able to use what they said as suggestions for improvement, and it really did help. Like, we learned that they had difficulties technically, with opening it and with things like that that we wouldn’t have known. And we also got a hint of some problems that we were gonna have. I mean, that it’s really helped us design the final study.

The second phase of Bender’s plan involved repeating on a larger scale the testing of phase one. This phase would also involve the addition of streaming video. This phase of the evaluation was altered based on the results of the first phase of evaluation that Bender conducted:
In the second phase, we did a lot more than that. We didn’t add the streaming video. We added some other technological components, and we changed it from what we had originally proposed because of what we got in the sort of original, the phase one evaluation, and decided that we really wanted to see if there was a difference in terms of how the students did in the class using these materials, because they really didn’t seem to be using them well.

Bender was fortunate in that she was put in contact with a graduate student taking a class in program evaluation who needed a project to evaluate for her class. This graduate student performed a literature review on topics relevant to the evaluation, conducted focus group interviews involving approximately 45 or 50 students who were using the [electronic course materials], and provided Bender with a written evaluation report detailing the findings of the evaluation.

Lawson

The sole method of project evaluation that Lawson mentioned in his learning outcomes section of the grant application was asking faculty and teaching assistants to report on benefits and drawbacks of using the laboratory. When asked if this took place, Lawson replied, “Yeah. I’ve done it informally….I would say that, you know, the faculty find it great to be able to go in there and make use of the equipment and have presentations with their classes.”

Lawson also included in his project timeline that he would request feedback from all of the users of the laboratory regarding how useful they think the laboratory is, what problems they have experienced, and what suggestions they may have for its
improvement. In explaining why this did not occur, Lawson stated that “the equipment issues had not been resolved at that point, in terms of the timetable.”

**Crawford**

Crawford noted two ways in which his project would be assessed. The first method involved examining and grading products produced by the students using the equipment funded by the LTG program. This was done as a normal part of the class. The second method indicated by the grant application involved surveying current and former students. Crawford addressed how this method typically occurs:

Yes, we do that in our evaluations out there, because we do have a, you know, a teaching evaluation, and there are specific questions that refer directly to their experience of learning how to do this….We poll them and we track them after they leave here as best we can.

He did not provide any additional information on how the students are polled or how many former students have been contacted and surveyed regarding how the ability to use this type of equipment has made them more marketable or enhanced their career paths.

**Middleton**

Middleton’s application listed several methods for evaluating her funded project. I read aloud from her proposal her plans to obtain information from the four project collaborators, students and graduate professionals, content experts, and instructional designers regarding suggestions for improvement. I also reminded her that her proposal called for data to be collected using observations, interviews, and questionnaires with rating scales. She replied, “Basically, I did all that, but it was all verbally done….All those things were done, but it was, shall we say, informal.” She noted that she received
feedback from faculty members who began using the equipment after she did and from students who filled out end-of-course evaluations. When asked about the graduate professionals, she replied that the equipment “was used in continuing education courses, and so that would be part of the evaluation process.” She noted that she did not have an instructional designer perform any type of a formal evaluation of the project. When asked if the professors all informally evaluated the project, she replied, “I’m sure, because they used it in their classes….It’s become very, very popular.” She also noted that she has “never had any negative comments about it at all….All positive.”

None of the specific things that Middleton’s application stated would be asked of the faculty and content experts (e.g., data accuracy and currency, clarity of vocabulary, proper context) occurred. A group of 8 to 20 students and five to six graduates were supposed to participate in small group evaluations to locate errors in the instructional materials, but that also did not occur. Similarly, those groups did not perform any structured activities or complete any questionnaires, as the grant applications stated would occur. Middleton stated that no instructional designer examined the program for its utility and adherence to sound instructional design principles. She did say that she received feedback from students and from the graduate professionals who worked with the continuing education courses. Regarding the interviews her application called for, she noted, “There were no formal interviews. There might be just verbal communications, one on one, but nothing that was formal or written down.”

Middleton’s application also called for a summative evaluation of the project. Neither the pretest nor the posttest was given to the students to help determine the efficacy of the project. When asked if she compared the final exam scores of classes in
which the project was implemented with the final exam scores of previous classes using the traditional method, she replied, “The grades were better, but I didn’t do any kind of…a statistical evaluation or anything like that.”

Thompson

Thompson’s grant application indicated that graduate students would perform each laboratory exercise and provide both written and oral feedback to facilitate the refinement of lesson presentation approaches. Four teaching assistants who taught six sections of the class provided information on their use of the equipment. Thompson described what occurred regarding this evaluation component:

In the laboratories, typically you have a number of graduate students who are assigned to teaching various sections. And so we had feedback from using…a scale of measurement and also an open-ended series of questions from those who were using the [laboratory] equipment, which is essentially what we got from the grant, and had them tell us whether or not it met their needs in providing students with a vehicle to learn about the topics covered in that particular section. So it was a form we gave to all of the instructors that have worked here for two semesters.

Thompson indicated that the information provided by these teaching assistants changed the way in which the materials were presented on the computer, resulting in a more efficient use of the equipment.

Thompson also planned to compare the evaluation comments of students who used the newly funded equipment to those of students from previous semesters who had not used the equipment. When asked about this method of evaluation, he replied, “Can’t
recall. Might have. It’s probably in some dusty file somewhere stacked, you know, stored away. But I can’t recall specifically doing that, no.”

The final method of evaluating the project mentioned in the grant application was to incorporate questions about the laboratory experience into the department’s exit interview questionnaires. Thompson did not do this, although he stated that another professor may have.

Moore

In his grant application, Moore wrote that “discussion-based critiques are a regular part of every [department deleted] studio class” and that the possibilities presented by the new equipment would become part of these critiques. In his interview, Moore affirmed that these critiques are indeed a regular part of every class he teaches; most of the time the critiques occur in a group setting, although one-on-one critiques also occur. He did not explicitly indicate whether the equipment has been discussed during these critiques.

Moore also planned to use public exhibitions as a way to judge the effectiveness of the new equipment funded by the LTG program. Although the artwork is not officially judged at these exhibitions, it has theoretically been deemed of sufficient quality by the students’ professors and committees to allow students to graduate. Referring to students working on their master’s degrees, Moore stated, “If their work is not coming together for the thesis show, they’re gonna be directed away from that. Rarely, if ever, does that happen.”
When asked if staff and faculty helped her to test the process for selecting material for the online library and cataloguing various media formats, Somers stated, “It happened informally. Um, just, you know, discussions….” When asked what the discussions involved, Somers explained:

About what materials should be included, what, um, how I can go about obtaining that information and the material if I didn’t have it. Um, lots of discussion about different cataloging, what, what do people need to know, what kind of terms are they gonna be looking for in the material, and, you know, because [professionals in her field] don’t always think the same way as users, so I tried to keep that in mind.

Her application stated that a “task force” of students, faculty, staff, and professionals would review a draft plan after its development. When asked about this, Somers replied, “Oh, gah…we never did any of that.”

When asked if she had not performed an evaluation at this point because her project had not come to fruition, Somers replied affirmatively. She continued, however, by discussing the report she had attempted to write to the granting agency:

In a way, I have done an evaluation, because we did write up something that I was attempting to send to LTG as the follow-up letter. So it would have been, you know, a sort of an evaluation up to this point. Not an evaluation of the completed project, but an evaluation up to this point.
Summary

Just as the proposed evaluation activities varied across participants, the activities that were actually performed also varied. Most participants did not perform all of the evaluative activities they proposed in their grant applications. Participants’ most common methods of evaluating their projects included gathering informal feedback from students, teaching assistants, and faculty; conducting end-of-course evaluations; and grading artifacts created by students.

Impact of Evaluation Requirement

Each of the participants in this research study applied for funding from the LTG program. The grant application specifically asked that each applicant include a section on how they would determine the learning outcomes of the project. One goal of this study was to determine what, if any, impact writing this section had on participants’ evaluative activities. This section presents the data addressing this question. The responses are generally ordered such that participants who claimed that writing the section had no or minimal effect are discussed first. The responses of participants who believed that writing the section did influence their actions are discussed thereafter.

Phillips stated that writing the section did not impact what he did, noting that providing students with grades and conducting end-of-semester course evaluations is “standard [department deleted] procedure.” When asked about the impact of writing this section, Moore remarked, “I think I would have done the same things.” He went on to explain how evaluating students and having them present their work publicly are typical activities for his class and department:
Those sorts of issues are on my mind every time I’m working with the students, is how well are they going to present their ideas using this medium, and I’m always looking at critiques and the thesis shows as the checkpoints to see whether or not they’re on the path to that.

For him, this type of student evaluation is an integral part of his teaching style.

Thompson noted that had he not been required to write that section, he “would have done it the same way, regardless.” He explained that he had already purchased one learning module and that he “had worked this through already before applying for the grant.” Similarly, Knight stated that writing the section did not impact his actions because he and other faculty had “already decided…what we were gonna do and how we were gonna evaluate what we had done before we got going with the grant.” Middleton noted that her actions were also not influenced by what she wrote in the grant.

Crawford stated that he has always evaluated his students’ projects during the field study, so the grant section on assessing learning outcomes did not change his actions. He elaborated: “We’d still be doing exactly what we’re doing. It’s just that we wouldn’t be doing it with all our nice new equipment that we really like.” Another participant, when asked what impact the requirement of writing the section had, stated, “It didn’t, because I didn’t evaluate it really.” This participant later added that “nothing formal” was done.

Henderson indicated that writing this section had no impact on how he evaluated his project:

No, I don’t think it did. It made me think about it, but it didn’t really make me change anything….Evaluation is not something that, “Oh my God, I’m going to
have to account for this…it would change what I do.” Pretty much, we live that way.

Somers, whose project had not yet been completed, noted that “it would be meaningful if I revisited this section before I tried to do the evaluation….But in reality, I would probably never get around to it.” When asked to hypothesize if she would have planned to evaluate her project in some way if she had not been required to write the section, she replied, “Probably, not, no.”

Clemens acknowledged that writing this section may have impacted her actions. She stated, “It probably made me think about it more” and adding, “I might not have asked the students, ‘Did this work for you?’….if I hadn’t been thinking about that.”

Although each participant was required to include a section in the grant application addressing how he or she would assess learning outcomes, this requirement appears to have made little difference in participants’ actual evaluative behaviors (see Figure 8). Most participants stated that having to include a section on evaluation in their grant proposals had no impact on what they did to evaluate their projects.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Impact of Writing Evaluation Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhillipsKnightCrawfordMiddletonThompsonMooreSomers</td>
<td>No impact</td>
</tr>
<tr>
<td>Clemens</td>
<td>“Probably made me think about it more.” May have led to getting student feedback.</td>
</tr>
<tr>
<td>Henderson</td>
<td>“It made me think about it, but it didn’t really make me change anything.”</td>
</tr>
<tr>
<td>Bender</td>
<td>Helped her focus on purpose of project.</td>
</tr>
</tbody>
</table>

Figure 8. Impact of writing evaluation component of grant applications.
As noted in previous sections of this chapter, some participants indicated in their grant applications that they would perform thorough evaluations of their projects. Other participants did not indicate that they would perform such thorough evaluations. I asked the participants what actions they took to evaluate the efficacy of their projects. These results were provided in the previous section.

One of the primary purposes of this research study involved discovering the reasons why some participants did not follow through with the evaluation procedures described in their grant applications. This section describes these reasons. The data for this section were derived in two ways. I asked the participants during the interviews if they had any constraints in evaluating their projects, and if so, to describe these constraints. I have included many of their direct responses to these questions in this section. Also, many participants made comments throughout their interviews that indicated, either directly or indirectly, constraints that they had or may have had in evaluating their projects. These data are also included in this section.

Time

Time was one of the most common constraints mentioned by the participants in this study. A majority of the participants described time as having an impact on their own evaluations – or lack thereof.

When asked directly what the biggest constraint was in evaluating her project, Clemens replied, “Time, always a constraint, major constraint.” Middleton echoed this sentiment, simply stating, “Lack of time.” Thompson agreed, stating, “As an instructor,
you’ve got enough to do without having to create an…evaluation of a new piece of equipment.”

Henderson explicitly described the time constraint professors face, particularly those who receive LTG funding:

Honestly, the people who do these grants, and me included, I don’t want to say they’re more progressive faculty, but that’s the truth. And what happens is, by definition, they’re very busy people. Adding a whole ’nother layer of crap for them to do – not even me, I’m thinking of other people – is, strikes me as not necessarily productive.

Middleton responded similarly. She explained why her evaluation ended up being more informal than her proposal suggested it would be:

I’m, we’re busy. We spend half the time in clinics, half our, six months of the year, we’re teaching the students in clinics. And we’re teaching the students in class. And we’re doing research. And we’re writing. And we’re presenting continuing education. And all this is extraneous stuff. So, while it would be very nice to have it on paper to prove, shall we say, that it enhanced teaching, it takes more time.

Bender described all the things that had to be done in order to gather information from the students in her labs. These tasks included going into each lab and explaining her research project, distributing and collecting consent forms and surveys, tabulating her data, and meeting every week with her teaching assistants. She explained why she chose to perform these time-consuming tasks: “If I hadn’t had to write it up, there’s no way I would spend a week of my life going every two hours and…I mean, it’s horrible.”
Bender also viewed this time constraint as being related to not having enough people to help her, stating that “manpower was really, really a problem.”

Although Moore did not list time as a constraint for his own project evaluation, he did note that for faculty members in other departments, conducting an evaluation may require a different level of time and effort:

But I could imagine some other department that had to do several weeks of tests to figure out whether or not, just to fulfill this efficacy section of this grant, I don’t wanna put an evaluation on that myself. I could see the hesitation of a faculty member doing that.

During his interview, Crawford spent some time describing his thoughts about the required evaluation of faculty members by their peers. While this is not directly related to the evaluation of grant-funded projects, it does indicate the general time constraint described by other participants:

No one has…ever shown me that there’s some sort of efficient, time-efficient way for all these faculty members to be evaluated by some other person or group of faculty members. I mean, we’re all, we’re all teaching a lot and doing research and everything else, and for someone to come in and say, “I need you to evaluate one of your colleagues,” I don’t know where the, I don’t know where the time in the day [is].

In summary, most of the participants in this study acknowledged that time was a constraint to their evaluation activities. They noted the various other responsibilities of a professor, such as writing, research, and teaching. With these obligations, there seemed to be little time remaining to perform evaluations of their funded projects.
Knowledge and Skills

The interview protocol included two questions in particular that were related to participants’ levels of competency and confidence in two areas. Evaluators in the field of education frequently attempt to measure students’ learning. This is often accomplished through statistical means, such as comparing the scores of students both before and after an educational intervention in introduced. For this reason, I asked participants to describe their backgrounds in statistics. It should be noted that I asked this question regardless of the use of or the appropriateness of using statistics in the evaluation of each participant’s LTG-funded project.

Participants were also asked about their backgrounds in evaluation, particularly project or program evaluation, to determine if they had knowledge about or had received any training in conducting evaluations. This background could include evaluation courses taken in college, evaluation seminars or workshops, in situ learning, or self-directed learning.

Evaluation backgrounds. Each participant was asked about his or her background in evaluation. This question was sometimes left open-ended; other times, participants were asked specifically if they had ever taken any classes in or received any training regarding program or project evaluation. A majority of the participants reported having little or no formal background in evaluation. This section reports participants’ descriptions of their evaluation background and competencies, and the following section addresses how some participants viewed their lack of evaluation knowledge as a constraint to evaluating their projects.
When asked about her background in project evaluation, Middleton said that she had “none at all” and that “it’s just based on, it’s just my own experience.” Knight stated, “No formal training, no. And the only projects that I…evaluate are the ones I assign to my students.” He admitted that his level of expertise as an evaluator of students is “amateur.”

Moore noted that he had written up summaries for year-end reports, but that he had no background in conducting evaluations, adding, “I would say that I’m not as versed as some other people in the [deleted] Department about program evaluation.” When asked how he felt about his abilities as an evaluator of his students, however, he was more confident:

Um, you know, pretty good. You know, I try to really focus on listening, as half of what I do as a teacher, to figure out what the students want to make their art about, and, um, I write written evaluations, sometimes quite lengthy, for bigger projects that they’re working on…again, as an indication that just assigning a number doesn’t mean much to me as an evaluator.

Somers stated that she had not had “any seminars or anything having to do with evaluation.” Despite this lack of formal evaluation training, she seemed to feel confident in her abilities to evaluate: “I feel good about myself as an evaluator….if I take the time to concentrate on the question or situation.”

Henderson indicated that he had not had a course in project evaluation. However, describing a project in which he was involved, he noted that his evaluation of the project was based on how quickly the project “broke even” financially.
Describing her ability as an evaluator, Bender stated, “I would say I was kind of a novice evaluator. It’s certainly not my expertise.” When asked if she had ever studied how to evaluate things, she stated said she had not. She then described what she had done to minimally educate herself on methods of evaluation:

I would say I have absolutely no formal background, no classwork in assessment or evaluation. I’ve had no interviewing classes, none of that stuff. What I’ve done is looked to see if there are existing things that other faculty at either, you know, Ed Psych or teaching, um, departments, have created as evaluations, either as surveys that you can give or even, you know, instruments to measure learning goals or learning gains or any of those other things. So I don’t have any formal background, but I’ve certainly used what other people have done.

When asked about the evaluation of her students by creating tests and quizzes, Bender agreed that she had done that. She then stated that “it’s not that much different” than formal evaluation and addressed the issue of students’ attitudes versus students’ learning:

The getting into attitudes and looking at change is something that we don’t do enough of in classes. We don’t usually figure out what they came in with and try to measure what the gain was. We just see whether or not they can master some content at the end. So we’re not really looking at a perfect evaluation, or even a really thorough evaluation of what we’re doing in class.

Crawford stated that he had no background in evaluation, adding that he considers himself a “pretty average” project evaluator. Much of his conversation dealt with peer evaluation. He stated that several faculty members in his department have gone on
“weekend retreats to evaluate or to look at how to do peer evaluation.” He noted that the issue of faculty evaluation is a polarizing topic in his department: “Some faculty believe that student evaluations are an absolutely perfect way of assessing teaching performance, and others can’t stand it.”

Thompson also stated that he had no formal background in project or program evaluation. When asked how he felt about himself as an evaluator, he provided this response:

In classroom settings? That’s why you give tests. You know, tests are a method of evaluating student progress, and I try to, and I have for years, attempted to develop the best evaluation tools possible to identify those individuals that have acquired the information and how much. So they get A, B, C, Ds, and Fs.

Thompson noted that he teaches other courses dealing in which “there’s a component…that deals with the measurement of abilities, prediction of those abilities in performance of individuals in particular areas of training.” He then went on to describe some work he had done in a “human performance laboratory” for the military:

I worked in a human performance laboratory….They have thousands of people that come in who are all provided with tests. Those tests provide them with information about the basic abilities of the enlistees. Based on that information, you identify what areas they may best learn particular skills, whether it’s dishwashing or becoming a military policeman or being a bomber pilot. And then based on those information, you make selections of individuals for training. Following the training, you evaluate how they performed the task, whether they were successful or not successful, and how successful they were. And so, in that
sense, I have some background in the way that you evaluate individuals in those, in that context.

So although Thompson had never had any formal training in evaluation, he did have some experience in evaluating individuals’ performances at various tasks.

Clemens also stated that she had never received any type of formal training regarding evaluation. She revealed low self-efficacy as an evaluator, stating, “I’m not very skilled. I mean, I kinda have the basic concept and can call in help if I need to do it, but I have no claim to skill…or to expertise in that area.”

Clemens did, however, note that she has had evaluation experience within the context of her research. Her research had required her to “design a particular message using certain kinds of theoretical specifications for that message, and then, doing either focus groups or surveys or interviews to see how people respond to them.” When asked where she learned to conduct these types of evaluations, she replied that she had learned these skills in research teams.

Lawson was the only participant who acknowledged having taken a course in program evaluation. He had taken this class during graduate school. He added, “Most of my expertise lies in [field deleted] measurement and assessment” and again mentioned his strong background in statistics. When asked if he had any program evaluation expertise, he elaborated:

Well, you know, I don’t know that I’d couch it as being program evaluation expertise, but I would say that I know quite a bit about both methodology and also how the real world operates outside of an academic setting, in terms of my experience, and so I recognize that there are practical issues that are faced. Now,
in terms of expertise, you know, I can refer to a program evaluation book, I guess, and find out, you know, kind of, what’s what. Glass, I think, would probably be the last book that I probably looked at that dealt with program evaluation. That was some time ago.

*Evaluation knowledge as a constraint.* Throughout the interviews, several participants made comments regarding their inability to plan and execute appropriate evaluation plans for their funded projects. Their generally low self-efficacy with respect to their evaluative capabilities is not surprising, based on their backgrounds in evaluation described in the previous section. This section describes what participants had to say about how their lack of knowledge regarding evaluation techniques may have hampered their project evaluations.

Henderson acknowledged his lack of evaluation knowledge: “To create a model that’s built to evaluate is, first, I wouldn’t have the competence to do that, realistically.” Referring to the section she had to write in the grant application on evaluating learning outcomes, Somers commented, “Well, I think that, you know, I just really didn’t understand, I didn’t understand how you would evaluate such a thing, except by a questionnaire.”

When asked if lack of skill was a constraint to her evaluation, Middleton replied affirmatively. She later elaborated on this issue:

Quite frankly, a lot of people are like me. They really don’t know how to do it. I can write down what I’m gonna do, but that doesn’t mean I understand anything I’m saying….That’s the bottom line. Because I wrote down all those things…the truth is, I really don’t know how to do that. I wouldn’t know the right questions
to write on the pre- and post-evaluation. I really don’t know. It’s easy to say I’m
gonna do that, but I wouldn’t know how to do it. That’s the bottom line.

Throughout the interview, Bender commented several times about her lack of
evaluation knowledge. She touched on the complexity of conducting evaluations and
how she would appreciate having the assistance of someone with expertise in planning
and executing her evaluation:

I wish I knew somebody who was an expert who could just come in and develop a
plan for me, you know, and say, “This is what you need to do.” There’s a lot of
basic questions that you have to ask, sort of soul-searching – like, “What is the
element that I’m looking for to see if there’s an improvement? What do I really
want this to do?” – that anybody could do. But then some of the fine-tuning, like
selecting how do you measure a change in an attitude, or how do you measure
how much extra learning has gone on. You know, and there’s whole departments
that work on that sort of thing. So I wish I had that knowledge, but I don’t.

After the conclusion of the evaluation for her project, Bender sat in on a class
about methods of education research. She noted that what she learned in his class would
have been helpful as she was planning and conducting her project evaluation and stated
that she “would probably have approached” the professor for help. She commented, once
again, on the difficulty of conducting evaluations in an educational setting, even for
educators:

You really need a lot more expertise than most of us have in terms of evaluating
materials, and even educational evaluations, even though we’re educators, we
don’t really do that kind of thing, unless you’re from the College of Ed or Ed Psych or something.

Bender did benefit from the help of others in her evaluation – a graduate student in the Department of Instructional Technology taking a class in evaluation and a colleague in the Department of Statistics. Bender also commented on the difficulty and complexity of the Institutional Review Board process, which ensures that no human subjects are harmed by their participation in research:

I mean, if I knew what I was doing, I could have written up the IRB in, you know, a day or two and sent it in and it would have been fine. But I really didn’t know, you know, what I was doing.

Lawson noted that despite his knowledge of statistics, he was still unsure of how best to evaluate the efficacy of his project:

It’s hard for me to think of how do I put together an evaluation from a student perspective on that particular thing without, you know, just, some general questions like we have for evaluating teaching that students respond to.

When asked if he thought it would have been appropriate to look at grade distributions of students before and after the project’s implementation, Lawson offered the following thoughts:

Yeah. You know, that might be relevant, I would say, for an undergraduate class, where the contents of the courses are probably not changing drastically from year to year, so that might be a relevant consideration there. But in, with a graduate class, material changes more rapidly and I’m not sure that an evaluation of grade distributions there is relevant.
He continued by stating that there is merit to an experimental-type model of evaluation for his project, but also that “there’s so many confounds that are involved in that, that makes it challenging.”

Statistics. Several of the participants in this study claimed to have little background or knowledge in statistics. This section describes the participants’ comments regarding their backgrounds in statistics, their competency with statistics research, and their general attitudes toward statistics. Some participants noted that their lack of statistics knowledge was a constraint to the evaluation of their project. Exemplary comments regarding this theme are also included in this section.

When asked if they had a background in statistics, some participants, like Moore, Phillips, and Knight, stated that they did not. Knight added that his only background in statistics “is that old line that, you know, there are lies, there are damn lies, and there are statistics.” Henderson noted that although he had taken – and enjoyed – some courses in statistics in graduate school, he does not use them now. Somers laughingly stated, “Statistics is a dirty word for me.” Middleton said that she took a statistics class while in college. Although she said that statistics “are not very heavy” in her research, when statistical methods were necessary, she “had someone else to do it.”

Bender stated that she had a “tiny” background in statistics. When asked if she could perform a t-test, she said, “I’d have to ask someone.” Her evaluation plan did require statistical methods, however. Regarding these statistical requirements of her proposed evaluation, she commented, “Oh, the statistics, I could never have done.” She explained how she got around her lack of statistical knowledge and did not allow this constraint to diminish her evaluation:
That’s why I had a collaborator. A friend of mine is a statistician, and I had her analyze the data and tell me, you know, I’d say, “This is what I want to know. Is there some correlation between this and this, and is it a significant correlation?” and she would do it for me because…I don’t know anything about it. I know zero.

In describing what could have happened had she not had someone to perform the statistical comparisons, Bender stated, “I would have just been, like, ‘Yeah, it’s fine. It’s working great.’”

Other participants described themselves as being somewhat more than minimally familiar with the field of statistics. Crawford said that he “took maybe two statistics classes in grad school” and that he wasn’t “any better than anyone else.” When asked if he used statistics in his current research, he replied affirmatively and provided a short explanation: “Sure, you collect a large data set…and that’s what you use to prop up or knock down your hypothesis, one way or the other.” Like Bender, Crawford also noted that he sometimes relies on colleagues who are more knowledgeable than he is regarding statistics.

Clemens said that she had taken a few statistics classes when she was in graduate school. She began taking them “as a tool,” but eventually she “just did it because it was fun.” She related that approximately ten years ago, she get into her current area of research, which requires the use of statistical tools. Clemens described the autodidactic approach that she used at that point and how she also took advantage of a more knowledgeable colleague in her department:
I just bought statistics books and sat down and learned. And again, this person I was working with was very helpful because she was really good at statistics, so I would take my little book knowledge and say, “OK, I’ve got this data set and I think this is what I’m supposed to do,” and, you know, she’d say, “No.”

[laughed] So it’s kinda of mentoring.

Thompson described his background in statistics as being “moderate.” He then elaborated on his abilities:

I understand how it’s supposed to work. I can work my way through most of the general models. I’m not a whiz, but I can, I understand the kinds of methods that are used in my area, which are typically analysis of variance, regression models, prediction models, things like that.

Lawson was the only participant who described himself as having a “strong statistical background.” In his graduate program, one of his two specialization areas was quantitative methodology, and he currently teaches “many statistically-oriented or pure statistics courses” in his department.

Summary. Knowledge and skills in certain areas were a constraint to several of the participants in this study. Most of the participants claimed to have little or no formal training in evaluation techniques, and many commented on how they lacked the competency to plan and execute an appropriate evaluation for their projects. Similarly, several participants noted their lack of knowledge and competency in statistics, which may have constrained the evaluation activities in some cases.
Other Constraints

While the constraints discussed in the preceding sections were the primary ones that emerged from the data in this study, numerous other constraints were mentioned by the participants. While these constraints did not occur across enough cases to be considered strong themes, they are nonetheless worth mentioning. This section addresses some of the other constraints to project evaluation mentioned by the participants in this study.

Return on investment. Several participants made comments reflecting a belief that performing a formal evaluation of their projects would not be worth the effort. Referencing her project, Clemens noted, “The cost of doing the evaluation probably would outweigh the benefits you would get from a formal evaluation.” She added the concession that this case is “not true, obviously, of all projects.”

Henderson also discussed how, for him, an evaluation may not always be worth the effort required to conduct it:

If you do a whole bunch of evaluation criteria on the back end, it’s very easy to be, to hit the not-worth-it stage. And some of mine have been significant money grants, but an awful lot of them are like $10,000, $25,000, $18,000. I wouldn’t even bother with a grant for that much money if they had much more criteria.

Somers also commented of how performing an evaluation for her project would not be worth the trouble. She explained, “Because that’d be trouble, time, effort, and…I really wouldn’t see what the reward would be.”

Need. Some of the participants in this study indicated that they believed it was unnecessary to perform a formal evaluation of their projects. Regarding the class that
was funded by the LTG program, Phillips commented, “I don’t think we actually need any kind of formal evaluation thing, because if it’s not going well, you can tell and they can tell, and so we talk about it and kind of get it back on track.” Middleton felt similarly, stating, “I didn’t feel I needed to do it, because I could tell I was doing it just…based on the feedback from the students.” Although Somers indicated that she thought performing an evaluation is important, she added, “I don’t think…that a written version of evaluation is that important to the person who is doing the project.”

*Lack of access to students.* Two participants noted that the inevitable process of students finishing classes or graduating from and leaving their departments can be a constraint to project evaluation. Henderson commented that he would find it useful to ask students about the long-term impact of his project once they leave college and begin their careers. Crawford also noted this issue, commenting that he and his colleagues try to keep in touch with departmental alumni, especially those working in the field of geology, to find out how well the department is preparing its students for their careers. He noted that this is often a difficult task.

*Falsified intentions and lack of accountability.* Two participants admitted writing their learning outcomes sections based on what they thought the granting agency might like to see. I asked one of these participants for an opinion regarding writing this section. The response was as follows:

They ask for learning outcomes and how resources will be used to achieve these outcomes….I felt like I knew what was expected by this question, and so I filled in the blanks, in effect. I used the terminology I thought was expected.
For verification, I asked the participant, “You told them what you thought they wanted to hear?” and the response was simply, “Yeah.”

Another participant told a similar story regarding the learning outcomes section: “I can’t remember what I wrote down. I think I wrote a bunch of stuff that sounded impressive, thinking in the back of my mind that I probably wasn’t really gonna do it.” This participant continued by explaining the rationale behind this choice: “I hate to say it. I know about other people who had grants and they were never evaluated. They didn’t have to do anything to prove they evaluated it. I knew it was just part of it.”

This participant also told me about a colleague who had received a grant from the same funding agency who used approximately $2,000 to buy furniture having nothing to do with the grant. The participant suggested that the people on the granting agency do a poor job tracking the uses of the grant monies they provide and rhetorically asked why, knowing that, a recipient would worry about evaluating his or her project. When I asked this same participant if the requirement of writing the section on learning outcomes is adequate, the response reflected the participant’s perception of the lack of recipient accountability: “It’s only good enough if it’s gonna be enforced. Otherwise, it’s just a bunch of babble bullshit. Isn’t it?”

_Miscellaneous._ Several participants mentioned constraints that were not mentioned by many, or any, other participants. Knight explained why he and his colleagues did not perform a task that may have been helpful to students by stating, “We’re all lazy and just don’t like to do that kind of thing.” Clemens indicated that she thought interest is sometimes a factor, commenting, “I suspect that when people get these grants, they’ll do as much evaluation as they’re interested in.” Another faculty member
planned to leave the university and noted that this was one reason she did not perform many of the evaluation activities listed in her grant proposal.

No Constraints

When specifically asked about constraints to evaluating their projects, three participants reported experiencing no constraints. These participants were Moore, Knight, and Phillips, all of whom were funded for projects that basically offered their students opportunities that were previously unavailable. Phillips introduced a new class and Moore introduced new equipment for his students to use in the creation of their artwork. Knight’s project involved giving students an opportunity to develop skills they would likely use in their careers. Although they answered this particular question in this manner, all three of these participants mentioned issues elsewhere in their interviews that could be considered constraints to their or other faculty’s project evaluations.

Moore reported that he was not constrained in any way in the evaluation of his project. He partially attributed this to his field, indicating that evaluating student artwork is a normal part of his job as a professor and that his grant did not lend itself well to a more experimental model of evaluation. As the only participant from the humanities, he offered a somewhat unique perspective on the evaluation of his project:

For the art world, where our evaluations are subjective from the very beginning, that there is no additional work, basically. So for me to write a summary of how effective this project is, I can sit down at my computer right now, and if I don’t have one, I could write one in fifteen minutes, hit “Send” on my email button, and they would have their summary. So for me, it’s no problem.
When asked about constraints other than time – that is, money, skill, and interest – Moore also reported that none were constraints for him.

Knight said that there were no constraints to his project evaluation. He believed that the evaluation of his project fit in with his typical evaluation procedures. When asked if there were anything that would have helped him to better evaluate his project, he replied, “No. It falls right into standard practice evaluation that we do anyway in the teaching of the College.”

Phillips also reported no constraints to conducting his evaluation. However, as indicated earlier, the evaluation that he planned of his project fit in with “standard [department deleted] procedures.”

Summary

Based on their comments, participants in this study faced three primary constraints to conducting evaluations. These constraints are a lack of time, a lack of statistical knowledge, and a lack of evaluation expertise. In addition to these three constraints, several others were mentioned, including insufficient return on investment, perceived lack of need for evaluation, and lack of access to students. Some participants noted that there were no constraints to their project evaluations.

Evaluation Documentation

The granting agency that oversees the LTG program requests that participants submit reports on the progress of their projects. The LTG Web site currently includes the following text: “Awarded projects must be documented. Progress reports for two-year projects and final reports for all projects must be submitted no later than January 15 of the year following implementation of the project.” Presumably, these reports would
include evaluative information related to the assessment of learning outcomes required by the grant, but this is not explicitly stated as a requirement. Participants in this study were asked if they submitted documentation to the granting agency. This section presents the themes developed from participants’ responses.

*Documentation Submitted*

Although the applications for LTG funding stated that grant recipients were required to submit final reports on their projects, few participants did so. The majority of the participants in this study admitted submitting no documentation to the granting agency. Henderson, Bender, Lawson, Middleton, Thompson, and Somers all categorically stated that they did not submit any type of report. Crawford said that he did not submit any type of report, but suggested that his co-principal investigator may have. Somers noted that she did “write up something” that she “was attempting to send to LTG as the follow-up letter.” However, she never sent this letter to anyone.

Knight reported submitting photographs of his equipment in use to the granting agency, along with “some notes” describing what he and his colleagues had done with the equipment. Clemens initially stated that she did not submit a report; however, she decided that she did submit one, but she could not remember what she included in it. Moore recalled writing a summary, but he was unable to locate a copy of it.

*Explanations for Lack of Documentation Submission*

Participants provided a variety of explanations for why they did not submit the documentation requested by the granting agency. The primary reason was that they were unaware of any expectation to submit a report or were unfamiliar with the expectations for such a report.
Knight was aware that a follow-up report was requested. After mentioning the photographs that he submitted to the granting agency, he stated, “I’m not sure what else they required, if any, because…they didn’t inform me of what was needed in the report.” Bender explained her failure to submit a report by stating, “I was never requested to send anything, and I never had any kind of deadlines or anything.” She did say, however, that a friend of hers was an employee of the granting agency and that she “kept [the employee] current on the project and told her what was going on.”

Lawson actually composed a letter to submit, but he never sent it. He offered two explanations. He first offered this explanation: “I guess it was unclear at the time who I should send it to.” He later stated that he didn’t send it because he was still waiting for a technical issue to become resolved. However, even after the problem was fixed, he did not submit the letter.

Middleton stated that she did not submit a report because she was “never asked for any kind of follow-up report or anything.” When asked if she thought that the funding agency should ask grant recipients to submit some type of progress report, she replied, “Well, if they want to see what’s happening to their money, I think they should.” Thompson also noted that the granting agency “didn’t ask for one.”

Somers stated that she “certainly wanted to and meant to” submit a report to the granting agency. She explained why it did not occur: “I didn’t know exactly how to go about doing it. In a way, it would have been easier if I had a form to fill out.” She further explained that she “really didn’t know what to say” in such a report.
Summary

Most of the participants in this study did not submit any form of documentation to the granting agency, although some composed letters they intended to send. Two participants claimed they submitted reports; however, they were unable to find copies of the documentation and either did not state or could not recall what was included in the reports. The primary reason that participants did not submit reports is that they were unaware of the expectation to do so. Participants were also unsure of what to include in the reports.

Participants’ Recommendations

Participants in this study described many difficulties they faced in evaluating their funded projects (see Constraints to Evaluation, p. 125). Near the end of each interview, I gave the participant an opportunity to make suggestions as to how the LTG program could be improved. Most participants offered ideas that they believed would enhance the program. This section provides the themes that emerged both from participants’ responses to this opportunity and the suggestions they made throughout their interviews.

Provide More Support

The most common theme that emerged from participants’ suggestions was that the granting agency should provide more support to awardees, particularly regarding the evaluation of their projects. The participants mentioned several possible forms of support. Lawson suggested the creation of a written document to guide grant recipients: “Maybe they could prepare…a document that might contain evaluation ideas…to kind of more broadly look at what are some of the things that a person might actually consider for evaluating a project.”
Bender, who benefited from having a student in an evaluation class assess aspects of her project, noted that other recipients might also benefit from such expertise:

I think having access to, either someone who was an evaluator who could talk to recipients, help them – you know, like this assistant program – if they, it would make their projects better in the end. It would be better evaluated.

Bender also mentioned that it was helpful to have someone else interview her students because as the instructor of record for her laboratory sections, she was unable to conduct interviews.

Thompson believed that funding recipients should not have to develop evaluation plans for their projects and suggested that the granting agency provide more support:

I think as part of the project, again, they should link you up with someone who is a project evaluator, have them do that as part of their, part of the grant, in a sense. OK, I don’t think it should fall on the – and I could probably do one – but I don’t think it should fall on the back of the person using the equipment to develop a sophisticated evaluation procedure, because there are a variety of ways of evaluating outcomes. So if you have somebody that is specialized in that area, why not have that linked into the grant so that the grant agency can get the questions answered and the people that are doing the evaluation can be trained in being evaluators.

Thompson seemed to believe that having someone at the granting agency evaluate funded projects would be beneficial to both the recipients and the agency itself.

Lawson suggested that the granting agency facilitate discussion among funding recipients about their experiences:
It would be a good idea just, you know, to have a one or two hour session where people just sort of get together and we kind of roundtable it and talk about what sort of things that they thought were both good and bad about their experience. He added that including previous grant recipients to the discussion would be beneficial because they could share their insights on the program.

Middleton acknowledged that subjectivity can influence instructors’ evaluations of their own projects. She suggested that someone from the granting agency should perform evaluations of LTG-funded projects, noting that an external evaluation may be more objective than one performed by the developer and user of the project.

Somers had a different type of suggestion for how the granting agency could support the awardees. Discussing the final report that grant recipients are requested to submit at the end of the funding period, she recommended the use of a template and suggested a unique format for project evaluations:

*I think that could be like a three-part evaluation, and I do think a template of some type would be really helpful. And the reason I said three-part is like, you know, you could do it once when you get, when, first when you get the funds, and then do it again, you know, six months or a year later and say, “This is where we are now and this is what we’re doing,” and then another year later, say, ” This, this is how we’ve continued on the project and this is how it’s grown.” To me, that would be a lot more meaningful than just some vague idea of a report I’m supposed to write that nobody ever really follows up on.*
Require More Accountability

Three participants suggested that the granting agency should hold recipients more accountable for their projects. Bender seemed especially concerned about this issue:

I mean, really, you could have people that were, like, serially sending these things in and getting a huge amount of money and never, never finding out if it did any good….I mean, there should at least be a black mark next to your name, like, “OK, this person did not use this for anything. This never happened. The project never went through. Why are we giving [them more money]?”

Middleton also suggested that the granting agency should pay more attention to what is occurring with the projects it funds. While she was quick to state that she believed “the program is excellent,” she also posed the question, “Do the funders really know what the fundees are doing?” She added, “But there really, as far as I know, at least when I got this project, there’s no accountability whatsoever.” Somers also suggested that the granting agency be more proactive in requiring awardees to perform and submit reports of their projects.

Improve Communication

Some participants noted that the granting agency could improve its level of communication with grant awardees. When asked how the LTG program could be improved, Henderson stated, “I think they could help communicate more.” Bender also questioned the level of communication of the agency, stating, “If they want more evaluation, they should tell us that, because I certainly didn’t get that clue.”
Fund Equipment Upgrades

Two participants in this study recommended that the LTG program fund equipment upgrades. Thompson stated his position in the following way:

If you’re gonna have technology, you have to be aware that this technology has a shelf time, and how about follow-up for changes in hardware and software over time, continued support, if you, again, can demonstrate that this is helping undergraduates, it’s promoting research – and we’ve done both of that, both of those here. You know, is there a way of continuing a line of financial support for upgrades?

Moore, who teaches courses involving a variety of digital equipment, seemed disappointed that the granting agency does not fund upgrades for equipment. He described the problem he experienced in trying to keep up with current technology, noting, “Most of the equipment that we’ve bought off this technology grant is now out of date, and we’ve just bought a new printer to replace the state-of-the-art printer that we bought three years ago with this grant money.”

Summary

The participants in this study offered various suggestions for improving the LTG program. The most common recommendation was for the granting agency to provide more support to awardees, especially with regard to conducting project evaluations. Other recommendations included improving communication with awardees, requiring a greater level of accountability, and funding equipment upgrades.
Chapter Summary

This chapter provided descriptions of themes that emerged from an analysis of the data in this research study. The chapter began with a description of the method of analysis I used to determine these themes. I then provided brief biographical sketches of the participants in the study, as well as the projects for which they were funded. Next I described participants’ general beliefs about evaluation and how they have evaluated their classroom practices in the past. I then described how participants proposed to evaluate their projects, if funded, and what evaluative actions they actually implemented. I next described the impact of writing the section on assessing learning outcomes in the grant application and a description of the various constraints that may have prohibited the participants from fully or appropriately implementing their proposed or ideal evaluation activities. The chapter concluded with discussions of the project documentation that was requested by the granting agency and participants’ recommendations for improving the LTG program.
CHAPTER 5

CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

The goal of this chapter is to present the conclusions of this study. After doing so, I discuss them as they relate to the literature presented in Chapter 2. Next, I provide recommendations for improving the LTG program responsible for funding the projects examined for this study. Finally, I suggest ideas for further research that emerged during the course of this study. As a reminder to the reader, I present abbreviated answers to the study’s research questions in Figure 9, along with references to where related evidence about each question can be found in the narrative.

Conclusions

The themes that emerged from an analysis of the data were presented in Chapter 4, along with evidence to support these themes. In this section I present the conclusions generated from this analysis.

1. Participants believed that evaluation is an important part of the teaching and learning process.

2. Participants’ primary means of evaluating their students in the past involved giving tests, providing critiques, assigning papers, and grading student work.

3. Few participants had any formal background in project evaluation.

4. Participants knew little about evaluation methodology.

5. Participants had various beliefs about the purpose an evaluation should serve.
<table>
<thead>
<tr>
<th>Research Question</th>
<th>Short Answer</th>
<th>Narrative Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do postsecondary instructors funded for technology integration perceive the</td>
<td>Important to teaching and learning; used to provide feedback, make improvements, and gauge effectiveness; can be done</td>
<td>General Beliefs About Evaluation, p. 84</td>
</tr>
<tr>
<td>process of project evaluation?</td>
<td>informally</td>
<td></td>
</tr>
<tr>
<td>What are participants’ general beliefs regarding evaluation?</td>
<td>Students: tests, papers, project critiques, grades; class: end-of-course evaluations</td>
<td>Typical Classroom Evaluation Practices, p. 98</td>
</tr>
<tr>
<td>How have participants previously evaluated their classroom practices?</td>
<td>Not at all for most; made some think a little more</td>
<td>Impact of Evaluation Requirement, p. 122</td>
</tr>
<tr>
<td>How do participants believe the evaluation requirement of the grant program</td>
<td>Various ways and degrees: grading student work, end-of-course evaluations, informal feedback, experimental design,</td>
<td>Project Evaluation Plans, p. 103</td>
</tr>
<tr>
<td>influenced their evaluation plan and activities?</td>
<td>pretest-posttest, discussion-based critiques, etc.</td>
<td></td>
</tr>
<tr>
<td>How do these instructors evaluate the impact of their technology integrations?</td>
<td>Significantly; tendency to overlook formal proposed activities and rely on informal evaluation techniques, grading,</td>
<td>Evaluation Activities Performed, p. 112</td>
</tr>
<tr>
<td></td>
<td>and end-of-course evaluations</td>
<td></td>
</tr>
<tr>
<td>How do participants propose to evaluate their projects when requesting funding?</td>
<td>Lack of time and lack of expertise in evaluation techniques; also: low ROI, felt it was unnecessary, lack of access</td>
<td>Constraints to Evaluation, p. 125</td>
</tr>
<tr>
<td>How do actual evaluations differ from planned evaluations?</td>
<td>to students, no original intention to evaluate, lack of accountability</td>
<td></td>
</tr>
<tr>
<td>For participants who do not follow their evaluation plans, what are their</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reasons?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What constraints do instructors face when conducting evaluations?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 9.* Abbreviated answers to research questions.
6. The most common purposes mentioned were to provide feedback, to facilitate making improvements, and to gauge the effectiveness of the evaluand.

7. Participants’ proposed evaluation techniques varied greatly.

8. The most common techniques mentioned in the grant proposals were conducting surveys, eliciting feedback from those involved (e.g., students, teaching assistants, faculty), and conducting pre- and post-implementation comparisons (of grades and attitudes).

9. Most participants did not fully enact the evaluation activities they proposed in their grant applications.

10. The most common evaluative actions taken were soliciting feedback from those involved, often informally or through end-of-course evaluations.

11. The requirement of writing the section on “assessing learning outcomes” in their grant proposals had little impact on the evaluative actions taken by the recipients.

12. Participants described numerous constraints related to the evaluation of their projects.

13. The most commonly mentioned constraints were lack of time and knowledge.

14. None the participants in this study recalled submitting the final reports requested by the funding agency.

15. Participants made several suggestions for how the LTG program could be improved.

16. Suggestions included providing more support to recipients, improving communication channels, and requiring more accountability from recipients.
Discussion and Implications

In this section I describe the findings of this study, discussing them as they relate to the literature that informed this research. I will also provide my personal analysis on the findings and what they mean.

Evaluation Paradigms and Models Used by Participants

I presented a variety of evaluation paradigms in Chapter 2 (see p. 31). The four evaluation paradigms fell generally into the categories of quantitative, qualitative, critical theory, and mixed methods (Reeves, 1997). While some of the proposed evaluation plans developed by the participants in this study seem to fall clearly under a particular paradigm or model, this task is more difficult for others plans. It seems unlikely that many, or perhaps any, of the participants developed their evaluation plans with a particular model or paradigm in mind. The participants interviewed for this study might be considered to be “pre-paradigmatic” in their thinking regarding evaluation. Nevertheless, their plans still represent some of the aspects of each paradigm and model discussed in Chapter 2.

The literature indicates that the analytic-empirical-positivist-quantitative paradigm is the one most often used within education. Three of the evaluation plans in this study – those written by Bender, Middleton, and Thompson – included experimental evaluation components that are a primary characteristic of this paradigm. These participants’ evaluation plans suggest that they believed student learning could be measured and that the success of their projects could be determined through some type of numerical comparison of scores. However, each of these participants also included qualitative evaluation components, such as soliciting feedback from students and faculty.
As a result, I consider these three participants’ evaluation plans to fall under the eclectic-mixed methods-pragmatic evaluation paradigm. It should be noted, however, that while Bender actually carried out some form of her proposed experimental design, Middleton and Thompson did not (or did not remember doing so), relying instead on their intuition and feedback from students and faculty. This poses the question of which paradigm Middleton’s and Thompson’s evaluation plans actually fell under.

Other participants’ evaluation plans could be considered as belonging primarily to the constructivist-hermeneutic-interpretivist-qualitative paradigm. Participants whose evaluation plans or evaluation behaviors relied heavily on informal feedback may belong here, as they seem to consider individuals as the primary instruments of evaluation. However, one characteristic of this paradigm is the rejection of mathematical modeling and analysis. None of these participants utilized any type of mathematical analysis of their project. Moore clearly stated that he was unhappy assigning numerical grades to students’ work and that he felt much more comfortable providing constructive feedback regarding their work. Clemens, however, had used statistics in her research before, indicating that she did not summarily reject the utility of mathematics in evaluation. Rather, she simply believed that it was not necessary in the case of her project.

Moore’s evaluation plan may also represent the art criticism, or connoisseurship, model of evaluation, which falls under the critical theory-neomarxist-postmodern-praxis paradigm. He often spoke of how he wanted his students to use the equipment funded by the grant to “discover their language and their voice.” While this aspect of Moore’s teaching and evaluation philosophy does suggest this model, other aspects of the model
certainly do not apply to him, such as the desire to expose hidden agendas and the aspects of social activism.

Chapter 2 presented five evaluation models that the literature suggests have been used in educational settings: quasi-experimental comparative, objectives-based, goal-free, illuminative, and integrative (Bullock & Ory, 2000; Draper et al., 1996). The evaluation plans considered for this study exhibit aspects of most of these five models. The evaluation plans proposed by Bender, Middleton, and Thompson all exhibit aspects of the quasi-experimental model because they seek to compare mathematically measurable variables.

It is difficult to determine if any of the evaluation plans fell under the objectives-based model. While several participants mentioned tests as a typical form of evaluation used in their classrooms, none of them described using tests as a measure of the success of their projects. While Phillips and Crawford did note that they would grade student work, they did not plan to use the pre- and post-instruction measures that are common to objectives-based evaluation methods. However, they did have expectations for student work and presumably considered these expectations when assigning grades and providing feedback to their students.

The evaluation plans considered for this study also exhibit certain characteristics of the illuminative and integrative models of evaluation. The illuminative model looks at a project holistically (e.g., its rationale, evolution, achievements, difficulties, context) and seeks to “illuminate” the components of a program that are relevant to participants in a particular setting. This qualitative-based model does not provide substantive information regarding the achievement of certain learning outcomes. This can be said of several
evaluation plans in this study, particularly the ones relying heavily on student feedback and intuition. However, none of the evaluation plans in this study were sufficiently intensive or thorough to be considered as representing the illuminative model.

The goal of integrative evaluation is to improve teaching and learning by modifying the ways that computer-assisted learning applications are integrated into learning contexts. While none of the evaluations in this study are purely integrative in nature, the aspect of grant recipients trying to use materials and activities in such a way as to better support student learning does reflect the basic tenet of this model of evaluation.

**Purposes for Evaluating**

Literature suggests multiple reasons that instructors may choose to perform evaluations of technological innovations that they introduce into their classrooms. One reason is because the evaluations are mandated (Karelis, 1996; “Scientifically based,” 2003). Although the LTG application required a section on assessing student learning outcomes and the granting agency stated that awardees are required to submit a final report on their projects, it did not appear that awardees are held accountable to these requirements. One participant rhetorically asked why an instructor would want to evaluate a project knowing that the granting agency will not follow up on it.

The literature also suggests that educational products should be evaluated for the purposes of evaluand improvement (Char & Hawkins, as cited in Maslowski & Visscher, 1999; Clarke, 1999; Flagg, 1990; Laurillard, 2002) and pedagogy strengthening (Charp, 1998). Several participants in this study noted that a primary reason for conducting evaluations of their projects or their classes in general was to make improvements (see
Theme 2: Provide Feedback and Facilitate Improvement, p. 89). Again, however, this goal cannot be realized if evaluations are not conducted.

In a study conducted by Gibbs, Graves, and Bernas (2001), instructional technology experts were asked to rate the importance of various evaluation criteria for technology-based instructional materials. The most highly rated category was “evidence of effectiveness.” This corresponds to the findings of this study – somewhat. While participants reported that determining effectiveness was a primary goal of conducting evaluations (see Theme 3: Gauge Effectiveness, p. 90), their own project evaluations (or lack thereof) often did not reflect this stated belief (see Evaluation Activities Performed, p. 112).

Constraints to Evaluation in This Study

The literature suggests that there are several possible reasons that instructors do not perform evaluations of their instructional innovations (see Constraints to Evaluation, p. 125). The primary constraints indicated by the literature were time, money, expertise, data, and administrative accountability. Of these potential constraints, time and expertise were the primary ones mentioned by the participants in this study, with money being the only one not specifically mentioned as a constraint. Perhaps this is because having more money would not have increased the instructors’ knowledge of how to properly evaluate their projects or provided them with more time to conduct the evaluations.

Time. Literature suggests that lack of time is a primary constraint to project evaluation for professors (Alexander, 1999, 2001; Draper et al., 1996; Maslowski & Visscher, 1999; Shephard, 2003). The findings of this study strongly support the
literature. Many participants in this study cited a lack of time as a primary constraining factor in their evaluations (see Time, p. 125).

**Expertise.** Literature on the evaluation of learning innovations indicates that university professors are not knowledgeable in formal evaluation methodologies (Alexander, 1999, 2001; Hayden & Speedy, 1995). An analysis of the often simplistic activities proposed by most of the participants in their grant applications lends credence to this claim. This is not meant to reflect negatively on the grant recipients. It simply reflects the reality that, as Kennedy stated, “It is unwarranted (and perhaps optimistic) to expect practitioners whose research interests fall outside the field of education to become self-taught experts in the evaluation of educational technology” (p. 188).

Participants in this study often planned to rely heavily on end-of-course evaluations and informal feedback from students, teaching assistants, or faculty to evaluate their projects. While these types of data collection techniques can certainly provide valuable data, it is unlikely that they will provide empirical evidence regarding how an intervention – technological or otherwise – is impacting student learning. This propensity to rely on measures of student attitudes rather than measures of student learning is a common mistake made by instructor-evaluators (Devlin & James, 2003).

**Need for evaluation.** Some of the participants expressed their belief that there simply was not a pressing need for an evaluation of their projects. Therefore, they may have considered the simplistic evaluation techniques that they implemented to be both appropriate and sufficient. Many of the projects seemed to have been requested not so that students would score better or develop a greater or deeper understanding of a topic,
but rather simply so that the students would gain an experience they would otherwise not have.

If the goal of a funded project is simply to allow a student to gain an experience, then perhaps a formal evaluation is, as some participants suggested, unnecessary. However, if the intended goal of the project is to increase student learning, simply requesting verbal student feedback and relying on end-of-course evaluations are not appropriate evaluation strategies. In short, the type and complexity of a project’s evaluation should reflect the goal of the project.

Lack of accountability. Laurillard (1993) states that educational technologies are often well funded for their development, only to have their implementation and evaluation ignored. Some participants in this study suggested that this may be the case with the LTG program. This is not to say that all, or even most, recipients of LTG funding fail to evaluate their projects, nor that the granting agency does not value evaluation. Participants’ comments, however, do suggest – and in some cases, clearly state – that the granting agency in charge of the LTG program does not hold grant awardees accountable for evaluating the projects for which they have been funded. This warrants asking the questions of how much importance the funding agency actually places on ensuring that funded projects are evaluated and whether it has any evidence regarding the success of the program in enhancing students’ learning.

Social context of the professoriate. As indicated by several of the participants in this study, professors are busy people. Their duties often include teaching courses, assessing student work, conducting and publishing research, writing grants, advising students, and serving on various types of committees. With all of these responsibilities, it
is possible that professors may view their job as a “game of survival” in which they must perform a delicate balancing act, deciding on a daily basis how to most effectively ration their limited work hours to achieve a seemingly endless list of responsibilities and expectations. This process likely reflects a professor’s priorities; while a professor may believe that an educational innovation should be evaluated to determine its impact of student learning, it is possible that his or her other responsibilities are simply greater priorities and that conducting a project evaluation simply never rises close enough to the top of the list to actually get done. The professor may regret this outcome, but must acknowledge the reality of the social context in which he or she exists.

*Confusion of Terms*

As noted in Chapter 2, the terms evaluation and assessment are not synonymous. Evaluators often stress that objects are evaluated, while people and their learning are assessed. When asked about their beliefs and activities regarding evaluation, many participants in this study responded as if they were being asked about assessment. For instance, participants often mentioned tests as a method of evaluating their classroom practices. In reality, it is likely that they used tests as a method of assessing student learning rather than as a means of evaluating their classes or their innovations as a whole.

*Recommendations for Practice*

The findings from this study indicate that while the recipients of LTG funding often did perform some type of evaluation for their projects, these evaluations were generally simplistic in nature. The various constraints to evaluation described in Chapter 4 provide at least a partial explanation. Whatever the reasons, recipients tended to
propose simple or inadequate project evaluations and oftentimes failed to carry out the actions they did propose.

Based on the data from this study, I have developed a model for improving programs such as the LTG program called Galloway’s Model for Improving Educational Funding Programs. This model has three primary components that result from my analysis of participants’ comments regarding how the LTG program could be improved (see Participants’ Recommendations, p. 146), consideration of the ideas that emerged from a general analysis of the interview data, and reflection upon the conclusions to the study (see p. 152). The three general components of the model are as follows:

1. Support structure
2. Accountability procedure
3. Continuous improvement plan.

This general model can be tailored to a specific funding program. With respect to the LTG program, these model components lead to the following three recommendations for the granting agency:

1. Provide more support to grant applicants and recipients.
2. Create a structure for making grant awardees more accountable for both conducting the evaluations they propose and submitting requested reports to the granting agency.
3. Create a means through which the LTG program can be regularly evaluated and improved.

These recommendations will be discussed in more detail below, along with possible strategies for implementing them.
Provide More Support

The first recommendation is to provide more support to grant applicants and recipients. Strategies for doing this include the following:

- Create a downloadable brochure or pamphlet providing grant applicants with basic information on project evaluation and place it on the granting agency Web site. The document should include a listing of possible project goals matched with descriptions of potential evaluation methods that are appropriate to these goals.
- Ensure that someone within the granting agency has a degree of expertise in project evaluation.
- Grant “conditional approval” to projects considered as having educational merit but inadequate evaluation plans in relation to their project goals. Allow these applicants to address the weaknesses of their evaluation plans and resubmit within a given timeframe.
- Provide access to one or more individuals with expertise in areas where grant applicants and recipients may need assistance, such as project evaluation, statistics, qualitative data collection techniques (e.g., interviews, focus groups), and creating surveys to accurately measure topics or variables of interest.
- Develop a relationship with departments on campus that offer classes in evaluation, such as Educational Psychology and Instructional Technology. Utilize the services of students in these classes who need projects or programs to evaluate for coursework.
Increase Grantee Accountability

The second recommendation for the granting agency is to create a structure for making grant awardees more accountable for both conducting the evaluations they propose and submitting requested reports to the granting agency. Possible strategies for implementing this recommendation are below, with negative consequences arranged from mild to more severe:

- Provide a description of acceptable formats for project updates and the final report on the project. Provide a template for those recipients who may need more support in developing these documents.
- Create and provide recipients with a schedule detailing when updates on projects are due, including the final evaluation report. Set up a listserv of grant recipients to facilitate reminding them of these deadlines.
- Enforce deadlines.
- Create a list of increasingly severe consequences for failure to meet deadlines. Inform grant recipients, department heads, and college deans of these. Possible consequences could include the following: (a) providing written notification to funding recipients (and subsequently their department heads and college deans) informing them of the failure to meet required deadlines, (b) denying second-year funding for 2-year projects failing to meet first-year deadlines, and (c) limiting the number of projects that a department may have funded through the program in subsequent years.
- Disallow recipients failing to meet deadlines from receiving additional funding from the program.
Create Mechanism for Program Improvement

The third recommendation is to creation of a means through which the LTG program can be regularly evaluated and improved. Possible strategies for achieving this recommendation are the following:

- Create an “LTG Improvement Committee” whose purpose is to find methods of improving the grant program and to implement these improvements.
- Regularly ask grant recipients for suggestions on program improvement. This could be done either on an individual basis or at a gathering, or focus group, of multiple awardees.

The goal of the LTG program, according to its Web site, is “to enhance teaching and learning…through the innovative use of media and information technology.” Chapter 2 presented several reasons why instructors should evaluate their classroom practices. Evaluation, on some level, must take place in order to determine if a project has “enhanced” teaching and learning and if the specified goals of individual projects have been attained. Instructors’ perceptions of a project’s success may be colored by their hopes and the effort they put into the innovation. Even when projects appear to be successful and students provide positive feedback, there may be issues below the surface that require further investigation.

The above recommendations are based on the Model for Improving Educational Funding Programs that I have developed. The implementation of these recommendations may facilitate the design and execution of appropriate and successful project evaluations, thereby providing an indication of the overall success of the LTG program.
Recommendations for Further Study

The purpose of this study was to investigate and describe how recipients of a university-funded grant program for technology integration perceived and carried out the evaluation process regarding their funded projects. While this study provided answers to the specific research questions posed by the researcher, many questions remain. It is possible that the LTG program, as well as similar programs, would benefit from additional research. This section will provide recommendations for further study.

All of the participants in this study had an opportunity to perform some type of evaluation of their projects, even if the projects had not reached the phase of full implementation. Many of the participants were asked to remember details of what they did to evaluate their projects several years ago. Not surprisingly, some participants had trouble remembering evaluative activities that they performed. Research following participants throughout the course of their project implementation could provide insights into what the recipients are thinking and actually doing during this time. This may also allow the researcher access to project documentation that may be misplaced or thrown away over the course of the next few years.

This study did not seek to specifically explore participants’ teaching philosophies. Additional research could address this issue in more depth and explore the connections between participants’ teaching philosophies and their evaluative beliefs and activities.

This study focused on the recipients of funding from the LTG program. Further research could focus on the LTG program itself, as well as the members of the granting agency. The study could explore questions such as the following: How does the granting agency determine which projects get funded? How has the granting program evolved
since its inception? What level of importance do the members of the granting agency place on ensuring that funded projects are properly evaluated? How is the success of the LTG program determined? Answers to these questions could provide valuable insight into the program.

Although I reported the professorial rank of each participant in this study, along with a brief overview of each participant’s publication history, I did not seek to explore the connection between these factors and evaluation activities. It is possible that such a connection exists, with assistant and associate professors performing evaluations in order to transform them into publications to help achieve promotion or tenure.

This study could easily be replicated, particularly if the granting agency required grant awardees to participate in some type of interview to discuss aspects of the program or their specific project. While the participants in this study represented various academic disciplines and their projects were quite different from one another, it is unclear how generalizable the findings of this study are to the recipients in general. Replication of the study would either support the current findings, lending credence to the recommendations provided above, or cast doubt on them, paving the way for other suggestions for program improvement.

A replication of this study might also benefit from the use of surveys to gather information from a greater number of participants than could easily be interviewed. Recipients of LTG funding who are not interviewed could be given surveys to provide information to the researcher. On these surveys, recipients might be asked to describe their knowledge of or background in evaluation practices, to list the ways in which they evaluated their projects, or to state whether they would take advantage of opportunities to
meet with individuals with subject matter expertise in evaluation. This information could be analyzed in conjunction with data provided through interviews and document analysis.

Replication of this study would also be beneficial if the LTG program were to implement some of the recommendations provided above. The findings of the replicated study could then be compared to my findings to determine if the program changes made any difference in recipients’ evaluation behaviors.

Further study of the LTG program might also focus on grant recipients’ confusion of evaluation and assessment. If participants misinterpret questions and provide responses that reflect perceptions and activities regarding student assessment rather than classroom or project evaluation, they could be informed of how evaluators differentiate these terms and asked follow-up questions in order to redirect their responses to more specifically focus on evaluation.

A final suggestion for further study relates to the actual success of the projects funded by the LTG program. This study did not seek to explore whether funded projects were actually successful in improving student learning or achieving the other goals that were stated for them. I, much like many of the participants in this study, do have not the expertise in evaluation to make such determinations. However, for someone with such expertise, determining the success of the individual projects funded by the LTG program would provide valuable information on the program as a whole.

Conclusion

The purpose of this study was to investigate and describe how recipients of a university-funded grant program for technology integration perceived and carried out the evaluation process regarding their funded projects. The findings of the study are
somewhat contradictory. While the participants firmly stated that they believe evaluation is an important part of the teaching and learning process, they often failed to carry out the evaluation procedures they proposed for the technological innovations introduced into their classes. This discrepancy may be attributed to a number of reasons, including a lack of time of the part of the instructor-evaluator, a lack of knowledge about how to conduct an appropriate evaluation, and the belief that “gut feelings” and informal gathering of data provide sufficient information to assess the value and success of a classroom innovation. Perhaps instructors equate positive student feedback, as reported by end-of-course evaluations, as the most important indicator of an innovation’s success. Or perhaps instructors just know that no one will come around to ask them if they took the time and effort to perform an evaluation.

Technology has the potential to transform and improve our educational system, motivating reluctant learners and providing new and challenging opportunities for advanced students. As universities continue to fund technological innovations for their classrooms, they must be vigilant about evaluating the impact of these innovations to better understand what effect they have on teaching and learning.

The findings of this research study reflect the beliefs and activities of eleven recipients of funding from a grant program at one university. It is important to realize that while the Learning Technologies Grants program was simply a vehicle for this study, its findings may be representative of other larger and smaller technology-based granting programs. As this document began by stating, the primary purpose of any institute of higher education is to facilitate learning. Evaluations that are both well-designed and well-executed can answer the question of whether the goals of these grant programs are
being achieved – but only when funding recipients take the time and effort to conduct them.
REFERENCES


Appendix A: Interview Checklist

- Thank them for participation
- Have them sign consent forms
- Set up plug-in recorder
- Attach mic for digital recorder
- Turn on digital recorder’s mic on the cord
- Turn on each recorder
- Describe my purpose → read my Interview Prologue as an example
  - not to judge them or the success of the project
  - (1) their attitudes toward evaluation
    - (2) factors that influence their evaluation of the project
- Ask questions from Interview Protocol sheet → explain that some questions may sound odd, but please try to answer them anyway
- Turn off recorders
- Turn off digital mic
Appendix B: Interview Protocol

Background Information

1. When I say the word “evaluation,” what does it mean to you?
2. What is your background in evaluation? (Classes? Workshops?)
3. What is your background in statistics?
4. What should be the purpose on any evaluation?
5. How do you feel about yourself as an evaluator?
6. What type of evaluation do you typically do in your classes?
7. Have you ever had any type of funded project before - something similar to the LTG? If so, how did you evaluate it?
8. When you applied for the LTG, you had to include a section on how you would look at the learning outcomes. What did you think about that part?

The Project

1. Can you describe for me your project?
2. Why did you apply for the grant for this project?
3. What was the goal of the project - what did you want it to accomplish?
4. What would be the best way, do you think, of measuring the success of this goal?
5. Do you think it accomplished that goal?
6. Are you still using the project in your course(s)? Why or why not?

Evaluation of the Project

1. The grant application required you to state how you would determine learning outcomes for the projects. What did you say you’d do?
2. What did you think about this requirement?
3. How did this requirement affect how you evaluated the project? (Would you have done the exact same thing if this section had been omitted from the grant application?)
4. Do you think this requirement is adequate?
5. Tell me about conducting your evaluation - take me through the process.
6. Did you get any baseline data before your students started using the project? Why or why not?
7. Did you report any findings to the funding agency? Why or why not?
8. What were your biggest constraints in evaluating this project? (Data? Budget? Time? Skill? Interest?)
9. If you needed help in conducting an evaluation, where would you go to get it?
10. Did you take field notes to help evaluate? Get comments from students? Videotape anything?
11. Did you consider hiring a professional evaluator, or requesting money to hire one?
12. How have you used the evaluation data that you’ve collected?
13. Do you plan to conduct any more evaluation for this project? Why or why not?
14. If so, what do you intend to do?
15. Do you know the difference between formative and summative evaluation?
16. Which do you think is more important in evaluating your project?
17. Did you try to triangulate your findings? If so, how?
18. How do student’s attitudes fit into an evaluation of the success of your project?
19. Do you care of students like the project, as long as it helps them learn?
Appendix C: Interview Prologue

Interview Prologue

It seems like more and more money is being spent on technology each year. What interests me is how the providers and recipients of this money determine what impact it’s having on student learning.

For instance, if a Forestry professor received a $100,000 grant to create a website and a digital library to help students identify and classify trees and leaves, I’d be curious as to whether or not – and how – he determines if the project aids in student learning. I’m also curious about what factors facilitate or hamper his evaluation.

So today, I want to talk to you about your attitudes toward evaluation and, more specifically, about the project you were funded for. I want to be very clear in that I’m not here to “check up” on you or to “judge” either your project or your evaluation of it. I just want to see what is, in fact, happening as far as evaluation goes with respect to LTG grants.
Appendix D: Informed Consent Form

CONSENT FORM

I, ________________________, agree to participate in a research study titled “A Study of How University Faculty Evaluate Projects Funded by the Learning Technologies Grants Program,” conducted by Chad Galloway from the Department of Instructional Technology at the University of Georgia (706-372-6478) under the direction of Dr. Mary Ann Fitzgerald, Department of Instructional Technology, University of Georgia (706-542-4030). I understand that my participation is voluntary. I can stop taking part without giving any reason, and without penalty. I can ask to have all of the information about me returned to me, removed from the research records, or destroyed.

The reason for this study is to determine (1) how instructors who received a Learning Technologies Grant (LTG) perceive the process of project evaluation, and (2) how these instructors evaluate the impact of their innovations.

If I volunteer to take part in this study, I will be asked to do the following things:

1) Answer questions during an interview about the project for which I received a Learning Technologies Grant. (The interview should last no longer than 90 minutes.)
2) During this interview, answer questions about all evaluation efforts for my LTG-funded project.
3) During this interview, discuss my beliefs and opinions about evaluation, which may include discussing how I have evaluated previous projects in which I have been involved.
4) Participate in a second interview (maximum of one hour) if the researcher determines that it will be helpful to his research.
5) Provide available materials having to do with my LTG-funded project, particularly materials related to its evaluation (evaluation reports, published articles, etc.).

Through a discussion of my evaluation practices and beliefs about evaluation, I will have an opportunity to consider how I have used the practice of evaluation to improve my classes in the past, as well as how I may use it to improve my future classes. I will also have the opportunity to discuss evaluation strategies with the researcher, which may lead to more successful evaluations of current or future projects I may be involved with.

A pseudonym (false name) will be given to me in any write-ups using the data I provide for this project in order to protect my identity, and any direct identifiers will be removed. The results of my participation will not be released in any individually identifiable form without my prior written consent, unless otherwise required by law. The actual title of my funded project will not be given in any write-ups. Because the list of LTG-funded projects is publicly available (both physically at the university, as well as online), it is possible that despite efforts to protect my identity, the publishing of certain data about LTG-funded projects (such as a brief description of the project or its evaluation) may
incidentally facilitate my identification. I understand this and realize that I may end my participation at any point during the project, and that, subsequently, any data I have provided will not be used in any write-up. The principal investigator of this project will be performing data analysis and will be the only person to have access to participant data.

No discomforts, stresses, or risks are foreseen for my participation in this research study. Interviews will be audiotaped. Audiotapes will be kept in secure home or office storage. All audiotapes will be erased or destroyed by December 31, 2008, at the latest. This will provide the researcher with an opportunity to revisit them for research purposes and for use in preparing other publications after graduation.

The researcher will answer any further questions about the research, now or during the course of the project, and can be reached by phone at 706-372-6478.

I understand that I am agreeing by my signature on this form to take part in this research project and understand that I will receive a signed copy of this consent form for my records.

___________________________________
Signature of Researcher          Date
372-6478, cagi@uga.edu

___________________________________
Signature of Participant          Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu
Appendix E: Sample Learning Technologies Grants Application

<table>
<thead>
<tr>
<th>FY2002 Learning Technologies Grants Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(COVER PAGE)</em></td>
</tr>
</tbody>
</table>

**Project Information**

Forestry: Area Specialty Advanced Training (FASAT) Digital Education Project

**Project Title**

Robert Izlar, Director, Center for Forest Business & Morgan Nolan, Distance Education

**Project Director**

Warnell School of Forest Resources

**Requesting Department**

<table>
<thead>
<tr>
<th>Amount Requested Year 1</th>
<th>Amount Requested Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$13,400</td>
<td>$10,500</td>
</tr>
</tbody>
</table>

**Project Director’s Signature**

**Proposal Endorsement Signatures**

Not Applicable

**Department Head**

**Dean**

Proposal Abstract (100-word maximum)

The FASAT Digital Education Project will create an online program of advanced topic distance learning modules that can be used by a diverse audience including School of Forest Resources students, county extension agents, and other government agency personnel. These modules will be offered through WebCT and will make use of streaming video and audio as well as web pages. In addition, they will offer a variety of assessments methods to the user. The diverse set of forestry professions whose information is presented in the modules helps create a program that is rich in information and expertise.
Section I. Project Description

Need/rationale

The Forestry: Area Specialty Advanced Training (FASAT) Digital Education Project is designed to create a program of advanced topic distance learning modules that can be used by a diverse audience including Warnell School of Forest Resources (WSFR) graduates and undergraduates, county extension agents, foresters and other government agency personnel.

These modules will be based on material collected at two successive FASAT training programs held annually at the WSFR. FASAT IV was held in April of 2002 and was focused on water quality education in forest resources. FASAT V will be held in April 2003 and will focus on wildlife management issues and opportunities. The FASAT program was developed in 1999 as a way to provide advanced training in forestry topics to county extension agents. During the week-long program, agents attend a variety of sessions that include lectures, activities, demonstrations and field experiences. These sessions are led by professionals from a wide range of fields including faculty from various institutions as well as representatives from government, private and non-profit organizations. This assembly of diverse presenters creates a training program that is rich in information and expertise.

The WSFR has decided to capture this expertise and provide it in a distance education format so that a larger audience can benefit from the program and the presenters’ knowledge. In early 2001, a distance education committee (B. Jackson, K. Irwin, M. Nolan, D. Williams & J. Yearwood) was formed and decided that the sessions would be captured digitally with presenters asked to provide their supplementary materials. The FASAT IV program yielded about 30 different sessions 20-30 minutes in length. The committee chose one session as a model to determine how best to assemble the material in a distance education format. The model session has been developed (Introduction to Water Quality), using streaming media as the primary delivery technology and WebCT as the interface. Now that the feasibility of the distance education format has been confirmed, the committee would like to continue with the material collected in 2002 along with new material collected in 2003. Once the materials from these two years have been made available, the evaluation results will help determine how future FASAT trainings can also be captured and reformatted for distance learning.

Relevance of the project to unit and University priorities

One mission of the Warnell School of Forest Resources, as outlined in the University of Georgia’s 2000-2010 strategic plan, is to educate and prepare students to effectively use, manage and conserve forest and natural resources. In pursuit of this, the school has identified the following objectives:

1. Integrate virtual and distance learning, new technologies, and non-traditional approaches to delivering our programs to a greater diversity of students, professionals and adult learners.

2. Develop interactive web information and educational offerings of the School’s professional continuing education courses for delivery to individuals and organizations beyond state and national borders.

In support of these objectives, the FASAT Digital Education Project will allow us to distribute advanced topic information to all of our audiences. We have chosen WebCT as
our primary interface because it is familiar to UGA students, easy to use and well-supported by the university. The use of CD/DVDs as an alternative delivery technology allows our geographically distant audiences to enjoy full access to the program regardless of technological barriers. In addition, we are incorporating a variety of assessment options into the modules so that they can also be used for developing continuing education offerings.

Specific courses benefiting from the project and number of students served

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Students</th>
<th>Semester</th>
<th>Module Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORS 1100</td>
<td>Natural Resources Conservation</td>
<td>125 UG</td>
<td>All</td>
<td>Both</td>
</tr>
<tr>
<td>FORS 3060</td>
<td>Soils &amp; Hydrology</td>
<td>120 UG</td>
<td>Sp, Fl</td>
<td>Water Quality</td>
</tr>
<tr>
<td>FORS 3300</td>
<td>Introduction to Fish &amp; Wildlife Management</td>
<td>120 UG</td>
<td>Sp</td>
<td>Both</td>
</tr>
<tr>
<td>FORS 4110/6110</td>
<td>Forest Hydrology</td>
<td>25 UG, G</td>
<td>Sp</td>
<td>Water Quality</td>
</tr>
<tr>
<td>FORS 4120/6120</td>
<td>Quantitative Methods in Hydrology</td>
<td>20 UG, G</td>
<td>Fl</td>
<td>Water Quality</td>
</tr>
<tr>
<td>FORS 4160/6160</td>
<td>Environmental Monitoring</td>
<td>15 UG, G</td>
<td>Fl</td>
<td>Both</td>
</tr>
<tr>
<td>FORS 4300/6300</td>
<td>Management of Wildlife Habitat</td>
<td>30 UG</td>
<td>Fl</td>
<td>Wildlife Management</td>
</tr>
<tr>
<td>FORS 4310/6310</td>
<td>Limnology</td>
<td>15 UG, G</td>
<td>Fl</td>
<td>Water Quality</td>
</tr>
<tr>
<td>FORS 4330/6330</td>
<td>Water Quality Management in Fisheries &amp; Aquaculture</td>
<td>10 UG, G</td>
<td>Fl</td>
<td>Water Quality</td>
</tr>
<tr>
<td>FORS 4900/6900</td>
<td>Wildlife Damage Management</td>
<td>10 UG, G</td>
<td>Sp</td>
<td>Wildlife Management</td>
</tr>
<tr>
<td>FORS 4910</td>
<td>Wildlife Management Issues</td>
<td>30 UG</td>
<td>Sp</td>
<td>Wildlife Management</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• County Extension Agent independent study (Approx. 70 agents)</td>
<td></td>
<td></td>
<td>Both</td>
</tr>
<tr>
<td></td>
<td>• County Extension Agent educational program development for presentation to county residents. (# varies)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Other agency personnel training. (# varies)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section II. Budget

List technology, facilities, and other resources requested.

This project relies heavily on capturing video and using it to create and streaming media as the primary feature of the modules. In support of this, the primary technology being requested is designed to make this process as efficient as possible. The Apple Macintosh computers will be used as the primary development tools. The desktop machine will be used to process the streaming media and for web development. The laptop will supplement this by allowing us to take it to the FASAT programs for collection of materials. We also anticipate using it when we meet with presenters to collect additional material for their modules. In addition, it will allow various members of
the project to work on different sections simultaneously. The storage drive is necessary to store the extremely large files that result from the capture and compression of video/audio.

We are also requesting server hardware in order to stream the video and audio. At this time, the university provides a streaming server on a “test” basis. Because we are unsure of the future of that server and because we anticipate needing a great deal of space for our streaming media, we believe that having our own streaming server is the best option. Our first test module required about 30 MB of space for the streaming media and we anticipate about 25 modules per FASAT program.

The distance education program at the WSFR will provide other necessary equipment, such as video cameras and software, as needed for the project during the first fiscal year. In addition, Chad Galloway is available to work on the project as the technician through 6/30/03. Morgan Nolan will also be available to work on the material for both years, and the Distance Education Committee will be available as needed. Once the second fiscal year begins, we are requesting funds for a technician to take over the work of capturing and streaming the media, as well as the web development.

### Project Budget Fiscal Year 1 (Present-6/30/03)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Total Cost</th>
<th>Requested from LTG</th>
<th>Provided by Other Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Hardware</td>
<td>1</td>
<td>2500</td>
<td>2500</td>
<td>0</td>
</tr>
<tr>
<td>RealServer Basic Software</td>
<td>1</td>
<td>free</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Technician to set up server</td>
<td>1</td>
<td>250</td>
<td>0</td>
<td>250</td>
</tr>
<tr>
<td>Video Camera, tripod, microphone</td>
<td>1</td>
<td>3000</td>
<td>0</td>
<td>3000</td>
</tr>
<tr>
<td>Digital Video Tapes (mini)</td>
<td>25</td>
<td>125</td>
<td>0</td>
<td>125</td>
</tr>
<tr>
<td>Storage Drive: VideoRaid 4/320 GB</td>
<td>1</td>
<td>2000</td>
<td>2000</td>
<td>0</td>
</tr>
<tr>
<td>Laptop: Apple Macintosh Powerbook G4</td>
<td>1</td>
<td>3400</td>
<td>3400</td>
<td>0</td>
</tr>
<tr>
<td>Desktop: Apple Macintosh G4</td>
<td>1</td>
<td>5000</td>
<td>5000</td>
<td>0</td>
</tr>
<tr>
<td>Video Editing software: Adobe Premiere,</td>
<td>1</td>
<td>450</td>
<td>0</td>
<td>450</td>
</tr>
<tr>
<td>Discreet Cleaner, RealProducer upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD &amp; DVD media</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>150</td>
</tr>
<tr>
<td>DVD Authoring Software: DVD Studio Pro</td>
<td>1</td>
<td>500</td>
<td>500</td>
<td>0</td>
</tr>
<tr>
<td>Web Development Software: Dreamweaver,</td>
<td>1</td>
<td>190</td>
<td>0</td>
<td>190</td>
</tr>
<tr>
<td>Fireworks &amp; Flash MX</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technician for Video &amp; Web Development:</td>
<td>1</td>
<td>9,000</td>
<td>0</td>
<td>9000</td>
</tr>
<tr>
<td>Chad Galloway</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Manager (Morgan Nolan)</td>
<td>1</td>
<td>10,000</td>
<td>0</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td><strong>$34,065</strong></td>
<td><strong>$13400</strong></td>
<td><strong>$23,165</strong></td>
</tr>
</tbody>
</table>

### Project Budget Fiscal Year 2 (7/03-6/04)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Total Cost</th>
<th>Requested from LTG</th>
<th>Provided by Other Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technician to maintain server</td>
<td>1</td>
<td>250</td>
<td>0</td>
<td>250</td>
</tr>
<tr>
<td>CD &amp; DVD media</td>
<td>50</td>
<td>150</td>
<td>0</td>
<td>150</td>
</tr>
<tr>
<td>Date (mm/yy)</td>
<td>Objective</td>
<td>Person(s) Responsible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
<td>-----------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 10/02        | 1. Develop formative evaluation standards  
2. Evaluate demonstration module using sample audience  
3. Make changes to format based on results  
4. Purchase equipment & organize materials  
5. Determine which of the FASAT IV sessions are appropriate for use as project modules. | 1. Nolan & Galloway  
2. Nolan & Galloway  
3. Nolan & Galloway  
4. Nolan  
5. DE Committee |
| 11/02-3/03   | • Develop approximately 4 new modules per month (approx. 25 total modules for FASAT IV). This includes:  
1. Choose audio and video clips from original session  
2. Convert video to Real format  
3. Develop web pages from materials and video/audio  
4. Develop assessment questions and activities | 1. Williams, Irwin & Jackson  
2. Galloway  
3. Nolan & Galloway  
4. DE Committee |
| 12/02        | • Once 5+ modules are online:  
1. Make completed modules available for use by WSFR students and other audiences  
2. Meet with WSFR instructors for spring courses to introduce the modules as instructional materials  
3. Collect and implement feedback from online audiences using formative evaluation questions through WebCT  
4. Choose a sample of county extension agents to test materials on CD/DVD | 1. Jackson, Irwin, & Williams  
2. Nolan & Galloway  
3. Nolan & Galloway  
4. Nolan & Galloway |
| 3/03         | 1. Prepare for FASAT V  
2. Develop a survey for FASAT attendees on the usefulness of current modules and suggestions for future modules | 1. All  
2. Nolan & Galloway |
| 4/03         | 1. Attend FASAT V and collect materials including: photos, video, presentation materials, etc.  
2. Administer survey to FASAT V attendees  
3. Hand out CD/DVDs with completed modules to agents who prefer this format | 1. All  
2. Nolan & Galloway  
3. Galloway |
<p>| 5/03-12/03   | 1. Continue to develop approximately 4 new modules per month until all completed (25-30 for FASAT VI) | 1. Technician &amp; Nolan |</p>
<table>
<thead>
<tr>
<th>7/03</th>
<th>1. Meet with WSFR instructors for fall courses to introduce the modules as instructional materials</th>
<th>1. Nolan</th>
</tr>
</thead>
</table>
| 12/03 | 1. Create new CD/DVDs with FASAT V modules and distribute to county extension agents  
2. Continue to collect feedback about modules from online audiences make changes based on feedback | 1. Technician  
2. Nolan & Technician |
| 1/04  | 1. Prepare and submit to CAIT the summative evaluation report on first two years of modules | 1. Nolan |
| 3/04  | 1. Prepare for FASAT VI                                                                                       | 1. DE Committee |
| 4/04  | 1. Attend FASAT VI and collect materials including: photos, video, presentation materials, etc.  
2. Administer survey to FASAT V attendees                                                                     | 1. DE Committee  
2. Nolan & Technician |
| 5/04+ | 1. Continue to develop 4 new modules per month                                                                  | 1. All |

**Section III. Learning Outcomes**

Learning outcomes and how resources will be used to achieve these outcomes

The FASAT Digital Education Project will enhance the learning experience for a variety of on- and off-campus audiences, including graduate and undergraduate students, county extension agents, foresters, and other government agent personnel in the fields of forestry and natural resources. This project will make available a selection of learning resources that would otherwise be limited or unavailable to students. These resources include streamed and CD-delivered videos of lectures, presentations, demonstrations, and clinical examples from which audience members can learn. Below are examples of how this project will benefit learners.

1. Marsha Black from UGA’s Environmental Health Department gave a lecture on aquatic toxicology. Our project would allow her expertise on this subject to be shared with students in several hydrology courses, as well as extension agents across the state.

2. A taped demonstration conducted at a FASAT field trip to a catfish pond could be used to educate students and extension agents on how to use specific sampling techniques, as well as how to operate new sampling technologies.

3. A video of the panel discussion involving Georgia State Senator Hugh Gillis, Representative Bob Hanner, Georgia Association of County Commissioners Ross King, and other knowledgeable panelists, could be used to educate various audience members about the legislative processes and issues involving water quality.

These materials will also give students more control of what, when, and how they learn. Finally, they will help motivate students by facilitating the integration of real-world projects, scenarios, and interviews otherwise unavailable in the typical classroom experience.

**Evaluation**

We strongly believe in the importance of the evaluation component of any effort to improve learning. A systematic method of collecting and analyzing data from such a
project is imperative to the project’s success. Project team members will evaluate the FASAT Digital Education Project both formatively and summatively.

Formative evaluation will begin immediately (10/02) when the demonstration module “Introduction to Water Quality” is presented to a selected sample audience. The formative evaluation will be focused on determining the strengths and weakness of the module and what features need to be added or removed in order to improve educational usefulness. This sample audience will include WSFR students as well as county extension agents. Evaluation of the specific modules will continue as they are made available on WebCT. Each module will include a feedback section for user comments. Instructors from the targeted courses will also be asked to provide feedback on the usefulness of the modules in their courses. Finally, county extension agents at each successive FASAT program will be asked to complete a survey concerning the available modules. If time allows, individual agents will also be interviewed. We are interested not only in how well the modules work for the agents but also in how they are using the information in the modules to create educational programs for their counties.

Results from these formative evaluation sources will be used to help guide us in creating the next set of modules for FASAT VI. In addition, a summative evaluation will be conducted at the end of the two years (June 2004). The purpose of the summative evaluation will be to assess the impact of the program by determining how well the project met the goals of offering unique advanced topic educational modules to a diverse audience. The summative evaluation will use much of the information gathered during the formative evaluation phases. As part of our summative evaluation, we will review the project with respect to the strategic goals of both the Warnell School of Forest Resources and The University of Georgia to determine if the project is continuing to help us meet those goals.

Potential applications in other academic areas

Streaming media is quickly becoming a top choice for educational delivery. New software and hardware has made it more accessible and easier to create. In addition, more computer users are obtaining internet connections that make streaming media viable for remote viewing. We feel that the development of instructional modules that are focused on streaming media is a natural progression in using the internet for learning. This is especially true for the type of material we hope to present in our modules, including demonstrations and field trips.

Our evaluations will help us determine the success of this technology in providing educational programming to our target audiences. If our project is well received and used by these audiences, it would be very easy to determine comparable ways to use it in other academic areas. As we gain expertise with this technology, we will work towards sharing our knowledge with other departments in an effort to enhance the university’s use of technology to improve teaching and learning.

Section IV. Support Plan

The Warnell School of Forest Resources is committed to the further development of educational technology to meet the goals set forth in our strategic plan. To this end, the school has provided the necessary staffing and facilities to make this project a success. Once LTG funding is finished, we believe that we can continue to provide the same level of support found during the project. First, our technology fee allocation plan for the next
3 years includes allowances for the continued upgrading of software and hardware in the student computer labs. Next, we will continue to provide technology assistance and maintenance through the School’s Computer Support Department. Finally, the personnel working with the instructional technology/distance education department will continue to work with the FASAT project to develop the technology-based learning materials that are a key component in this project.
Appendix F: Learning Technologies Grants Program Guidelines Web Page

Committee for Academic and Instructional Technologies

Learning Technologies Grants
Program Guidelines

Project Examples
2005-2006 Recipients | Including Proposals

Proposal Deadline for 2006-07: September 18, 2006

Guidelines Sections

Purpose Submission
Funding Proposal Evaluation Criteria
Requirements/Restrictions Review and Awards
Format

Purpose
The purpose of the Learning Technologies Grants (LTG) program is to enhance teaching and learning at the University of Georgia through the innovative use of media and information technology. This program supports explorations of new technology and is administered by the University’s Committee for Academic and Instructional Technologies (CAIT).

Funding
Project budgets may extend over two fiscal years. Funding can be requested for:

- equipment
- software
- in-house or outside design and production services
- external consulting
- materials
- technical staff support
- facility renovation (to support proposed uses)
- faculty release time
- travel
Departments must demonstrate internal commitment to the project and to seek external matching funds. Projects requesting greater than $25,000 are required to have partial support from other resources such as departmental funds or external grants. Equipment and software matching, faculty release time, space allocation and renovation can all be considered as support. Funds can be granted both to academic departments and to other units providing educational services to students (examples: University Libraries, Student Affairs, CTL, EITS).

Requirements/Restrictions

1. Projects must focus on the innovative use of technology to enhance the educational experiences of students (undergraduate, graduate, and/or professional).
2. Funding cannot be applied to graduate assistantships or replacement of existing laboratory or classroom equipment.
3. Each project must have a project director. Project directors located in academic departments must be full-time faculty members. All directors are expected to play a significant role in project development and implementation.
4. No more than $100,000 can be requested for a one-year project or for the first year of a two-year project. Subject to availability of funds and demonstration of sufficient progress, projects can extend over two years with a maximum total award of $150,000. Projects requesting more than $25,000 are required to have partial support from other resources such as departmental funds or external grants. (**Note: Total funding available for allocation by CAIT is generally around $250,000 per year.)
5. Awarded projects must be documented. Progress reports for two-year projects and final reports for all projects must be submitted no later than January 15 of the year following implementation of the project. Projects must also be available for site visits by representatives CAIT.
6. Grant recipients will be asked to present the progress of the project at the UGA Learning Technologies Showcase in the Fall of 2007.

Projects in which students interact directly with technology will be given the highest consideration.

Routine upgrades or modernization should not be requested from this program. The appropriate source of funding for those activities is the annual allocation of Student Technology Fee revenues to the units.

Format

All proposals must be prepared using:

- layout described below, including budget format
- Microsoft Word or Corel WordPerfect
- Times or Times New Roman font, 12 point (or equivalent)
- a minimum of 1" margins
- single or double spaced

The entire document, including the cover page, must not exceed 7 pages and must conform to the following format:
Cover Page

- **Must** use cover page form
  (download the [MS Word version](#) or [Adobe Acrobat version](#))
- Cover page form includes proposal abstract
  (100-word maximum)

Section I. Project Description

General description of project including a concise description of the following:

- nature of the innovation
- need/rationale
- relevance of the project to unit and University priorities
- specific courses benefiting from the project
- number of students served including undergraduate, graduate/professional or both

Section II. Budget

- List technology, facilities, and other resources requested.
- Using the budget format below, itemize all project costs including external funding and support as well as requested funding from the LTG program.
  - Reminder: All projects requesting more than $25,000 are required to have partial support from other resources such as departmental funds or external grants.
  - For two-year projects, a separate budget should be prepared for each fiscal year (July 1–June 30).

Proposed Budget - **View a Sample**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Quantity</th>
<th>Total Cost</th>
<th>Requested from LTG</th>
<th>Provided by Other Sources</th>
</tr>
</thead>
</table>

- Budget justification narrative
- Timeline for development of the project using the following format:

Project timeline

<table>
<thead>
<tr>
<th>Date (mm/yyyy)</th>
<th>Objective</th>
<th>Person(s) Responsible</th>
</tr>
</thead>
</table>

Section III. Learning Outcomes
• learning outcomes and how resources will be used to achieve these outcomes
• methods for evaluating the project and learning outcomes
  (subsequent reports on successful grants will be judged in part on
  the evaluation criteria presented in the proposal)
• potential applications in other academic areas

Section IV. Support Plan
Staffing and resources to be used to continue the initiative following
LTG funding.

Proposals not complying with the above requirements and format will not be considered.

Submission
The application deadline for 2006-07 is Monday, September 18, 2006. Awards will be
announced and funds will be released when the review process is completed.

One hard copy of the proposal including the signed cover page should be submitted to
CAIT in care of the Center for Teaching and Learning. In addition, an electronic copy of
the proposal should also be submitted as a document attachment to a message sent by e-
mail to Dr. Sherry Closer, the CTL Liaison to CAIT, at sue@uga.edu.

Proposal Evaluation Criteria
1. Purpose and quality of the project including relevance to priorities of the unit and the
University.
2. Extent to which students will interact directly with the proposed learning
  technologies.
3. Anticipated overall impact on program including number or proportion of students
  affected.
4. Potential application to other academic areas.
5. Budget justification and clarity.
6. Commitment and support of the requesting unit for the project including cost sharing.

Review and Awards
Proposals will be reviewed by CAIT based on the listed proposal evaluation criteria. These
criteria are weighted with the highest weight assigned to proposal evaluation criteria (1)
and (2); followed by (3) and (4); with the lowest weight assigned to (5) and (6). In
addition, CAIT will take into account the nature and number of exemplary projects that can
be awarded with available funds and may offer partial funding for selected projects.

Project directors of successful proposals will be required to report annually to CAIT on
progress or completion of project. Reports should be based upon the evaluation criteria in
the original proposal. CAIT may make onsite visits to projects as part of the evaluation
process. Grant recipients will also be asked to present the progress of the project at the
Previously funded projects may be reviewed at the CTL office located in Instructional Plaza North.

CAIT Home Page

Page maintained by
Center for Teaching and Learning
The University of Georgia
(706) 342-1555
citl@uga.edu
Last update: August 1, 2006
Appendix G: Institutional Review Board (IRB) Approval

```
RESEARCHER REQUEST FORM

Request Date: 2004-09-09  Project Number: 2005-10134-0

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Dept/Phone</th>
<th>Address</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Chad A. Galloway</td>
<td>PI</td>
<td>Instructional Technology</td>
<td>Aderhold Hall +7144 542-4177</td>
<td><a href="mailto:cgallowa@coe.uga.edu">cgallowa@coe.uga.edu</a></td>
</tr>
<tr>
<td>Dr. Mary Ann Fitzgerald</td>
<td>CO</td>
<td>Instructional Technology</td>
<td>Aderhold Hall +7144 542-4030</td>
<td><a href="mailto:MPFITGER@COE.UGA.EDU">MPFITGER@COE.UGA.EDU</a></td>
</tr>
</tbody>
</table>

Title of Study: A Study of How University Faculty Evaluate Projects Funded by the Learning Technologies Grants Program.

45 CFR 46 Category: Administrative  Renew: No


NOTE: Any research conducted before the approval date or after the end data collection date shown above is not covered by IRB approval, and cannot be retroactively approved.

Number Assigned by Sponsored Programs:  Funding Agency:  Form 310 Provided: No

Attention, Principal Investigator:

You must complete and return this form before the expiration date shown above. Failure to receive a notification that it is time to renew does not relieve you of your responsibility to provide our office with a request to renew in a timely manner.

1. Changes
   For approval of changes you must complete and sign the back of this form. (Also attach a copy of any revised instruments or consent forms, with changes highlighted, where applicable.)

2. Renewals
   For an extension of the approval period you must complete and sign the back of this form.

3. Closure
   Data collection has been completed as approved by the IRB, and this file can now be closed. Federal laws & UGA policies require notification of completion of data collection.
```
### Appendix H: Coding Scheme for Units of Data

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>accomplish</strong></td>
<td>did the project accomplish its goal?</td>
</tr>
<tr>
<td><strong>active</strong></td>
<td>refers to active learning</td>
</tr>
<tr>
<td><strong>adequate</strong></td>
<td>does professor think the learning outcomes section of the grant was adequate?</td>
</tr>
<tr>
<td><strong>applied</strong></td>
<td>why did the professor apply for the grant?</td>
</tr>
<tr>
<td><strong>attention</strong></td>
<td>deals with getting and maintaining students’ attention, or keeping students engaged</td>
</tr>
<tr>
<td><strong>attitudes</strong></td>
<td>relates to students’ attitudes</td>
</tr>
<tr>
<td><strong>background</strong></td>
<td>deals with evaluation background</td>
</tr>
<tr>
<td><strong>baseline</strong></td>
<td>reflects discussion of a baseline for comparison</td>
</tr>
<tr>
<td><strong>branch</strong></td>
<td>the project leads into other things</td>
</tr>
<tr>
<td><strong>builtin</strong></td>
<td>evaluation that is built into a course</td>
</tr>
<tr>
<td><strong>career</strong></td>
<td>deals with the career path of students</td>
</tr>
<tr>
<td><strong>classroom</strong></td>
<td>reflects the type of evaluation typically done in their classes</td>
</tr>
<tr>
<td><strong>comments</strong></td>
<td>comments or input from others as evaluation</td>
</tr>
<tr>
<td><strong>common</strong></td>
<td>evaluation as a common, casual, everyday occurrence</td>
</tr>
<tr>
<td><strong>community</strong></td>
<td>impact on or involvement of community</td>
</tr>
<tr>
<td><strong>conference</strong></td>
<td>exposure at a conference</td>
</tr>
<tr>
<td><strong>confound</strong></td>
<td>reference to the difficulty of attributing the success to a particular variable</td>
</tr>
<tr>
<td><strong>constraint</strong></td>
<td>this deals with anything that may hinder proper and significant evaluation</td>
</tr>
<tr>
<td><strong>did</strong></td>
<td>what recipients either did or did not do to evaluate their projects</td>
</tr>
<tr>
<td><strong>effect</strong></td>
<td>what effect did writing the learning outcomes section have?:</td>
</tr>
<tr>
<td><strong>effort</strong></td>
<td>takes effort to evaluate</td>
</tr>
<tr>
<td><strong>employee</strong></td>
<td>deals with evaluation of employees</td>
</tr>
<tr>
<td><strong>evaluation knowledge</strong></td>
<td>reflects knowledge of evaluation methods, generally as a constraint to project evaluation</td>
</tr>
<tr>
<td><strong>expect</strong></td>
<td>deal with expectations set forth by CAIT/OISD, or recipients’ views of the expectations</td>
</tr>
<tr>
<td><strong>experimental</strong></td>
<td>deals with comparison, pre/post, experimental design, etc.</td>
</tr>
<tr>
<td><strong>faculty</strong></td>
<td>refers to getting input from the faculty for evaluating a project</td>
</tr>
<tr>
<td><strong>feedback</strong></td>
<td>evaluation as feedback for professor of student performance</td>
</tr>
<tr>
<td><strong>funding needed</strong></td>
<td>why was the funding so important to the professor?</td>
</tr>
<tr>
<td><strong>goal</strong></td>
<td>reflects the goal of the project</td>
</tr>
<tr>
<td><strong>grade</strong></td>
<td>deals with students’ grades</td>
</tr>
<tr>
<td><strong>help</strong></td>
<td>where would you go to get help?</td>
</tr>
<tr>
<td><strong>impact</strong></td>
<td>?</td>
</tr>
<tr>
<td><strong>important</strong></td>
<td>importance of evaluation in the teaching / learning process</td>
</tr>
<tr>
<td><strong>improve</strong></td>
<td>reflects the desire to improve a class or the professor’s teaching</td>
</tr>
<tr>
<td><strong>informal</strong></td>
<td>using informal means to evaluate</td>
</tr>
<tr>
<td>informal classroom evaluation</td>
<td>evaluation that occurs naturally in the classroom</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>interaction</td>
<td>interaction of professors and students</td>
</tr>
<tr>
<td>interest</td>
<td>reflects lack of interest in evaluating a project</td>
</tr>
<tr>
<td>knowledge</td>
<td>reflects a lack of knowledge as a constraint to evaluation</td>
</tr>
<tr>
<td>learning</td>
<td>reflects importance of student learning</td>
</tr>
<tr>
<td>like</td>
<td>opinions about students liking a project vs. learning that occurs</td>
</tr>
<tr>
<td>LTG</td>
<td>thoughts on the LTG program</td>
</tr>
<tr>
<td>manpower</td>
<td>reflects lack of manpower as a constraint of project evaluation</td>
</tr>
<tr>
<td>meaning</td>
<td>what does “evaluation” mean to instructors?</td>
</tr>
<tr>
<td>more</td>
<td>do you plan to conduct any more evaluation?</td>
</tr>
<tr>
<td>motivation</td>
<td>deals with motivating students</td>
</tr>
<tr>
<td>natural</td>
<td>reflects evaluation being a natural occurrence</td>
</tr>
<tr>
<td>need</td>
<td>reflects the need for evaluation, or lack thereof</td>
</tr>
<tr>
<td>negative</td>
<td>negative opinion of evaluation</td>
</tr>
<tr>
<td>new</td>
<td>reflects a project that provides students with a new class or experience</td>
</tr>
<tr>
<td>number</td>
<td>reflects success as measured by a number</td>
</tr>
<tr>
<td>observation</td>
<td>using observation as an evaluation method</td>
</tr>
<tr>
<td>obvious</td>
<td>reflects belief that classroom evaluation is obvious because one can tell what is needed</td>
</tr>
<tr>
<td>OISD</td>
<td>what OISD could do to help</td>
</tr>
<tr>
<td>opinion</td>
<td>opinion of professor on the learning outcomes section of the grant application</td>
</tr>
<tr>
<td>overemphasis</td>
<td>reflects believe that evaluation may be overemphasized or counterproductive</td>
</tr>
<tr>
<td>plan</td>
<td>what they planned to do</td>
</tr>
<tr>
<td>positive</td>
<td>positive opinion of evaluation</td>
</tr>
<tr>
<td>previous grant evaluation</td>
<td>how the professor did or did not evaluate a previous grant</td>
</tr>
<tr>
<td>previous grants</td>
<td>references any previous grants received</td>
</tr>
<tr>
<td>pro</td>
<td>consideration of hiring or using a professional evaluator</td>
</tr>
<tr>
<td>problem</td>
<td>refers to a technical problem that was experienced</td>
</tr>
<tr>
<td>project</td>
<td>description of project</td>
</tr>
<tr>
<td>publication</td>
<td>having something published</td>
</tr>
<tr>
<td>publicity</td>
<td>having your achievements publicly exposed</td>
</tr>
<tr>
<td>purpose</td>
<td>reflect what the professor says is the purpose of an evaluation</td>
</tr>
<tr>
<td>qualitative</td>
<td>qualitative methods of evaluation (field notes, video)</td>
</tr>
<tr>
<td>quality</td>
<td>reflects importance of quality in determining success</td>
</tr>
<tr>
<td>report</td>
<td>reflects the follow-up report for CAIT done (or not done) by the professor</td>
</tr>
<tr>
<td>ROI</td>
<td>reflects return on investment (of lack thereof) as a constraint to project evaluation</td>
</tr>
<tr>
<td>self</td>
<td>how does the instructor perceive himself as an evaluator?</td>
</tr>
<tr>
<td><strong>share</strong></td>
<td>sharing project benefits with others</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td><strong>standard</strong></td>
<td>standard classroom evaluation</td>
</tr>
<tr>
<td><strong>statistics</strong></td>
<td>deals with use of, knowledge of, or background in statistics</td>
</tr>
<tr>
<td><strong>still</strong></td>
<td>is the project still in use?</td>
</tr>
<tr>
<td><strong>student evaluations</strong></td>
<td>deals with end-of-course evaluations filled out by students</td>
</tr>
<tr>
<td><strong>student feedback</strong></td>
<td>information that students provide that may be used as evaluation material or to improve the class</td>
</tr>
<tr>
<td><strong>success</strong></td>
<td>what does the instructor consider important in his class?</td>
</tr>
<tr>
<td><strong>suggest</strong></td>
<td>suggestion about how to improve the LTG program</td>
</tr>
<tr>
<td><strong>survey</strong></td>
<td>use of a survey to evaluation a project</td>
</tr>
<tr>
<td><strong>teacher feedback</strong></td>
<td>getting evaluation information from people teaching a class</td>
</tr>
<tr>
<td><strong>teaching</strong></td>
<td>reflects an evaluation of one's teaching</td>
</tr>
<tr>
<td><strong>things</strong></td>
<td>different things you can evaluate</td>
</tr>
<tr>
<td><strong>time</strong></td>
<td>time as a constraint to evaluating</td>
</tr>
<tr>
<td><strong>triangulate</strong></td>
<td>refers to an effort at triangulating findings</td>
</tr>
<tr>
<td><strong>types</strong></td>
<td>formative and summative evaluation</td>
</tr>
<tr>
<td><strong>use</strong></td>
<td>how did the professor use the evaluation data?</td>
</tr>
</tbody>
</table>