SERVICE LEARNING AND CAREER DEVELOPMENT: A CASE STUDY IN LIBRARY AND INFORMATION SCIENCE

BY

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DISSERTATION

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ABSTRACT

The study presented in this dissertation investigates different impacts of the service-learning experience in relation to careers and career development in a graduate professional field.

This retrospective case study focuses on a specific Library and Information Science (LIS) course LIS 315/451 Introduction to Networked Information Systems (INIS) – a graduate-level course with a significant service-learning component taught at the Graduate School of Library and Information Science (GSLIS) in the University of Illinois at Urbana-Champaign (UIUC) since 2000. Students work in teams to develop and install computer networks to meet the needs of various community-based organizations, in both the Champaign-Urbana and East St. Louis areas of Illinois.

The participants of the study include 211 respondents out of 230 eligible students who were enrolled in the INIS course during 11 semesters between Fall 2000 and Spring 2006. They participated in a Web survey consisting of 20 questions (11 close-ended and 9 open-ended).

While looking into the major student outcomes of the course including: increasing technological skills, changing the way the respondents think about LIS professions, enhancing the ability to work with community organizations and members, and enhancing skills in leadership, communication and teamwork, a major goal of this research is to investigate how all these factors along with the other impacts of service learning including personal, social and learning outcomes relate to the subsequent careers of the students.

The major research questions of the study are:

How does a service learning experience in the INIS course contribute to careers/career development of the students?
Do they relate their experience in the course, what they learned in the course to their ultimate careers?

Based on the results of the study the following skills, abilities and attitudes represent a complex of a variety of skills which contribute to career development of the graduates: *technological skills* - 94.32% (199), *teamwork* - 79.15 % (167), *communication* - 72.03% (152), *working with community organizations and members* - 61.6% (130), *leadership skills* - 52.1% (110) and *thinking about the LIS Profession* - 61.14% (129).

The study also suggests that critical thinking and problem solving skills have had a great impact on the careers of many students. For many students the service component of the course gave it “a focus and urgency”. The major course project empowered them as professionals and gave them a chance to test the values and concepts of the LIS field in a real world environment. The course changed the vision of the profession for many students and provided them with different perspectives regarding the major issues and values of the profession.

Graduates who completed the INIS course are employed in all types of libraries (academic, public, school, special) as well as other sectors. The course had a variety of impacts on the careers and career development of students as reported in their detailed responses to the open-ended questions of the survey. Some students changed their career choice decisions, some changed their careers, and others changed certain aspects within their careers. In most of the cases the skills gained as a direct impact of the course have been used by the graduates at their workplaces. In some instances graduates got the jobs because of the skills and abilities gained as a result of taking the course.

This study is a major contribution to the study of service learning in a graduate professional field not only in terms of the focus on career impacts but also in terms of the scale. The significance of this study is also in its ability to provide a clear description of what the students actually experienced during service-learning programs. Through this study the students received the opportunity to talk about their experiences in retrospect. One of the
strengths of the study is the opportunity to look at those retrospective results: dealing with different cohorts of students who had a common experience in the INIS course at different times, trying to find certain patterns.

One of the accomplishments of the study is refining the model of service-learning impacts. Various models of service learning, including the model presented by Eyler at al. (2001), define career impact as a separate category. The results here show that career impact cannot be isolated from personal outcomes of service learning, such as personal efficacy, ability to work well with others, leadership and communication skills, or from social impacts such as commitment to service, or learning outcomes, such as ability to apply what has been learned in the real world, problem solving and critical thinking. These outcomes are all integral to career development.
In
Memory of My Late Father Dr. Israfil Nazarov

To My Mentor, to My Brother, and to My Mother
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I am deeply indebted to a number of special people who made my journey into academia culminating with this dissertation the most enjoyable experience in my life. They shared with me not only their knowledge and expertise but provided generous support, time, attention, energy, encouragement and faith. I learned from them not only how to become a better scholar, researcher and teacher but most of all a better person. Only thanks to their direct involvement in my academic career throughout the whole program was I able to successfully start, implement and conclude this dissertation project. This dissertation reflects the incredible dedication that my committee members: Dr. Ann Bishop, Dr. Leigh Estabrook, Dr. Chip Bruce and the Chair, Dr. Linda Smith have provided to me. I would like to thank them individually.

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"The service-learning movement seems to be a “natural” for library and information science education. The approach offers a methodology for improving students’ learning of course content, a chance to bring LIS unique sensibilities to bear on the solution of community problems, a vehicle for wider communication with other departments on campuses, and an opportunity to make solid contributions to a growing national movement...”

(Yontz & McCook, 2003)

BACKGROUND

Seven years ago when I started my PhD studies in Library and Information Science (LIS) as an international student from one of the developing countries at the school ranked number one in the nation at one of the leading public land-grant universities in the Midwest, I did not have any idea about the concept of service learning and its role in the American system of higher education. I also was not familiar with John Dewey’s philosophy of education. While I had a previous background of volunteer service both back in my home country and in the US working with diverse communities on various projects, it never occurred to me that the same model is used extensively in higher education. This was not part of educational practice when I was studying in my home country. Nevertheless, the notion of working directly with people in communities and environments different from one’s own and making a difference in people’s lives was something that has always given me a feeling of great satisfaction.

In the Fall of 2001 I decided to take a course LIS 315 Introduction to Networked Information Systems (INIS). A friend of mine who took the course highly recommended it to me, citing two key aspects of the course:

- gaining technical skills through hands-on learning and getting confident with technology;
- working directly with the community members and participating in projects having a direct impact on their lives.
These opportunities seemed quite attractive to me, and I decided to take the risk and sign up for the course. The INIS course has been taught in the Graduate School of Library and Information Science (GSLIS) at the University of Illinois at Urbana-Champaign (UIUC) with a significant service-learning component since 2000. Students work in teams to develop and install computer networks to meet the needs of various community-based organizations, in both the Champaign-Urbana and East St. Louis areas of Illinois. (For additional information about the course see Appendices A-D).

At the time when I was taking the course I did not realize that this decision will set up a path to my future research and eventually my dissertation. But I knew that it was something that engaged my heart and my mind. It took five years of different experiences in the areas of Social Informatics (“the interdisciplinary study of the design, uses and consequences of information technologies that takes into account their interaction with institutional and cultural contexts” (Kling, 1999)) and Community Informatics (“the application of information and communications technologies (ICTs) to enable community processes and the achievement of community objectives” (Gurstein, 2003)), working with various projects and thinking about the impact of ICTs on the lives of people from different walks of life, before I realized that a foundation for this kind of engagement was set up by the INIS course. I also realized that a whole infrastructure around the course (GSLIS as well as other campus units), which was in place before the course started and with other new parts that emerged later, helped to make this course a valuable experience for the students. More details about the infrastructure will be provided in Chapter 1 along with detailed information about the course and its structure. I also came to the discovery that service learning as a field is really “grounded in passion for service” and I realized that this field really “engenders so much passion in practitioners” (Eyler, 2002), as demonstrated by the instructor of the INIS course.

While some could argue that the INIS course does not fall under a classical description of a service-learning course, because it is rather a technical course with hands-on experience, I would say that this course is indeed service learning based on its structure and nature.
Whether the INIS course is classified as a classical service-learning course or as a technical course with a service-learning component, research focused on its service-learning aspects and especially their impact in retrospect is worthwhile. The academic world needs to know that there are service-learning courses which are unique: in terms of the structure including content and format of the course itself as well as the impacts on students. The so-called “magic” of the course is the sense of accomplishment that students carry throughout the course and cherish by the time they are done. Their presentations on the results of the final projects when they talk about their lessons learned is an expression of that accomplishment, success and something very different that they acquired and that they will carry with them for a long time. While service learning is reported in the literature to have positive personal, social, learning and career development outcomes (Eyler et al., 2001), the present retrospective study of the students who have been enrolled in the course during 11 semesters between Fall 2000 and Spring 2006 looks into the further career development of the students. The results of this research can contribute not only to the library and information science (LIS), but also to a broader understanding and awareness of service learning as a part of professional education.

For the purposes of the present study it does not really matter how we label the INIS course: “classical service learning” or “technical course with a service-learning component”. The fact is that the course included a service-learning component and the students had an extensive service-learning experience as a part of it. The most important part now is to see whether it makes any difference to the students’ careers, the story which is embedded in this dissertation work.

Recent study on the same course under the title “Service learning in postsecondary technology education: educational promises and challenges in student values development” as a part of Junghyun An’s PhD research in the College of Education at UIUC also looks at the INIS course as a service-learning course in terms of “its situated contexts, the rationales behind the service integration, and the actual patterns of teaching and learning”. This is how the researcher (An, 2007) describes the major objectives of her research:
“In my exploration of the INIS case, I do not simply intend to determine whether a case of service integration is a success or a failure or to generalize the benefits and weaknesses of service learning in technology education at large. Rather, I try to take a holistic approach to evaluate this service-learning course in terms of its situated contexts, the rationales behind the service integration, and the actual patterns of teaching and learning that occur. It is because the purpose of my study is not to advocate or oppose the prevalent adoption of service-learning pedagogy, but rather to find out the conditions and key concepts for creating alternative technology education through community service experience. That is, the focus of this situated evaluation of the INIS case is on an in-depth understanding of “a mechanism for capturing the desirable dynamic interplay between teachers, students, and community educators”.

The author started her data collection as the classroom observer in the Spring semester of 2004, and conducted her primary research in the Fall 2004. Her main data collection methods were participant class observation, collection of artifacts, pre- and post-course student surveys, and formal and informal in-depth interviews. The participants of the study included 20 students, the instructor and the director of Prairienet. While capturing only one semester (Fall 2004) of the INIS course in the above described research as opposed to eleven semesters (see Table 1) covered in the present work, the data collected as a part of An’s research captured a lot of specific details in regards to the course which were not covered in the present study.

This dissertation includes five chapters. Chapter 1 introduces key concepts and theories underlying the work; Chapter 2 reviews relevant literature on the history of service learning, research in service learning, and service learning in library and information science; Chapter 3 outlines the methodology used in completing the study; Chapter 4 contains a detailed analysis of the data gathered through surveys; and Chapter 5 provides a conclusion summarizing findings and suggesting directions for future research.
CHAPTER 1 INTRODUCTION

This introductory chapter starts a brief description of service learning and how it differs from the other types of experiential education. Different definitions of service learning are introduced. The connection between Library and Information Science (LIS) as a field deeply rooted in serving different communities and service learning is described. A theoretical framework of service learning including John Dewey’s philosophy of education and David Kolb’s experiential learning theory are discussed. Statement of the problem and the research questions of the study are presented preceded by a detailed description of the research setting including the course description, GSLIS, Prairienet, and other infrastructure. The chapter concludes with a discussion of the role of the researcher as an insider and an outsider.

1.1 Service Learning

Service learning originated from an American democratic tradition of community service and has developed as an important teaching and learning methodology in American secondary and higher education since the 1980s. Service learning is defined as both a method and philosophy of experiential learning through which participants expand their knowledge of society, develop critical thinking, commitments, values, and skills needed for effective citizenship, and contribute in meaningful ways to addressing social problems (Eby, 2000).

Kendall (1990) describes service learning as a program, philosophy and pedagogy. As a program, service learning includes fulfilling certain tasks for meeting community needs. As a philosophy, service learning provides human growth, social vision, an approach to the community, and a way of knowing. As pedagogy it is grounded in experience as a basis for learning when student learning is combined with service to community.

Service learning is rooted in the teaching of John Dewey, who asserted that the most effective learning pedagogy for students was “one that encouraged students to test their
knowledge through application and experience by integrating theory with practice” (Bringle, 1997). The whole idea of service learning is to create partnerships between the students and the community organizations and members as a part of a curriculum, and to develop certain skills and abilities as part of this partnership. It is learning that takes place in real-life environments involving a process during which the real needs of people are served, which supports student learning and empowers them with knowledge and skills.

Service learning is defined as an educational methodology which combines community service with academic learning objectives, preparation for community work, and deliberate reflection (Campus Compact, 2001). Service learning is viewed as a credit-bearing educational experience in which students participate in an organized service activity that meets identified community needs and reflect on the service activity in such a way as to gain further understanding of the course content, a broader appreciation of a discipline, and an enhanced sense of civic responsibility (Hatcher & Bringle, 1997).

Based on the nature of service learning, reflection and reciprocity are the major concepts in service learning. As a part of any service-learning experience within an academic course, students have a chance to reflect on how their service experiences are connected with the concepts taught in the class through journals, notes, write-ups, and reflection papers. This reflection is usually based on how the students perceive their experiences, drawing on their own feelings and assumptions. Reflection can take many forms: individual and group, oral and written, directly related to discipline-based course material or not. Opportunities to receive feedback from the people being served as well as from peers and program leaders should be provided (Riddle, 2003; Honnet & Poulsen, 1989; Jacoby, 1996). Reciprocity in service learning takes place between the people who serve and the people who are being served. As a part of reciprocity both parties are learners and help each other to determine what is learned. Both parties teach, and both learn (Kendall, 1990). Reciprocal learning reflects the sense of getting and giving back knowledge and education, when students become the participants and learn reciprocally both in the classroom and through community engagement (Sigmon, 1979; Eyler & Giles, 1999).
Given the different characteristic features of service learning, multiple definitions of service learning have emerged and been reported in the literature. The next section will provide a brief overview of those definitions.

1.2 Service Learning Defined

“Service learning is a form of experiential education, deeply rooted in cognitive and developmental psychology, pragmatic philosophy, and democratic theory. It shares a common intellectual history with organizational development and participatory action research. Service learning has no singular or simple definition. It is informed by a range of intellectual traditions and values systems, many of which seem to contradict or compete with one another. Service learning theory begins with the assumption that experience is the foundation for learning; and various forms of community service are employed as the experiential basis for learning.”

(Morton & Troppe, 1996)

Modern definitions of service learning can trace their roots into the history of American democracy and higher education. While the history of the practice of service learning dates back to the mid-seventeenth and late eighteenth centuries, when the founders of Harvard and Yale, and the creators of the University of Georgia and Thomas Jefferson’s University of Virginia understood the role of service to community and practical learning (Zieren & Stoddard, 2004), the term service learning was first used in 1964. (See Section 2.1 and Appendix E for a historical overview of service learning).

The first definition of service learning described as “a combination of the performance of useful service for society and the disciplined interpretation of that experience for an increase in knowledge and in understanding one’s self” appeared in 1964 in connection with community service programs developed by the Oak Ridge Associated Universities in Tennessee, later expanded to fifteen states under the auspices of the Southern Regional Education Board. A goal of the program was to involve students in social and economic development related internships (Wutzdorff & Giles, 1997). Service learning as a concept and as a term grew out of the work of Robert Sigmon and William Ramsey in the Southern
Regional Education Board in 1967. “Coining the term “service-learning” was a major step towards providing conceptual clarity” (Giles & Eyler, 1994; Denton, 1997).

In 1989, the Principles of Good Practice for Combining Service and Learning were created as a result of a two-year effort of the representatives of more than seventy-five national and regional organizations committed to community service and experiential education. They sought to articulate what they learned and discovered to be the best practices for combining community service with student learning at the historic Wingspread conference. (See a copy of the Principles in Appendix F).

There have been multiple attempts to come to a universal definition of service learning for the last 15 years. Between 147 and 200 terms have been reported in the literature describing definitions and approaches used within a general framework of linking service and learning and casting service learning as an experience, a program, a pedagogy and a philosophy (Sigmon, 1994; Kendall, 1990; Furco, 2003). While all the major definitions of service learning are based on the key statement in the preamble to the Wingspread principles: “Service, combined with learning, adds value to each and transforms both” (Boyte & Hollander, 1999), it is extremely challenging to come up with a universal definition of service learning. This challenge is directly associated with a wide range and diversity of the service-learning practices including the goals, content, design, activities, duration and outcomes. According to Miller (1994) community service-learning experiences vary widely along such potentially important dimensions as length and intensity of the experience, population/settings worked within, student responsibilities, nature and frequency of discussions, demographics of the students, evaluation of the experience (credit/non credit based), nature of placement (voluntary or not), quality of placement, and faculty commitment. As the author states: “All of these make it imperative that one be very careful in evaluating results of “community service learning” studies, particularly when comparing findings across studies.”

Most of the definitions reported in the service-learning literature are tailored to the specific service-related experiences or practices described. While those definitions contain certain
generic parts describing the role of service and learning in the academic setting, in most of the cases they contain quite diverse features of a particular case. All service-learning activities involve a complex interaction of students, service activities, curricular content and learning outcomes, but the results are highly idiosyncratic, situational experiences with a minimal predictability (Furco, 2003). The lack of universality in definition of service learning brings challenges and limitations to service-learning research as well.

Several examples of different definitions of service learning are provided in this section. While certain elements of those definitions might apply to the study described in this dissertation, they do not necessarily reflect the course in full in terms of its contents, format, goals, or impacts. These definitions provide a general idea of how service learning is defined by different authors based on the different types of experience and settings of service learning as well as reflect on recent trends in the field.

More recent descriptions of service learning have focused on depicting it as pedagogy. Jacoby (1996) describes service learning as “education that is grounded in experience as a basis of learning and on the centrality and intentionality of reflection designed to enable learning to occur.”

Trying to bring together different components of service learning (community service, academic and civic learning), Howard (2001) offers a useful model for defining a service-learning course as distinct from traditional academic courses consisting of three key components:

- **Relevant and Meaningful Community Service**
  involving opportunities for students to contribute to projects for the common good or provide assistance in an underserved community

- **Enhanced Academic Learning**
  connecting the subject matter of the academic course with the community service activity; reinforcing the subject matter of the course through service
• **Purposeful Civic Learning**
  directly and intentionally preparing students for active participation in
  a diverse, democratic society.

A comprehensive definition of service learning within the scope of the LIS curriculum is
provided by Witbooi (2004) who describes it as:

“Service learning is the application of theory and practice by students
to solve real life problems of communities in an organized activity in a
course at an institute of higher education that will reward them with
academic credits for services rendered whilst enhancing their own
learning”.

Barbara Jacoby’s definition captures most of the salient characteristics of service learning
(Riddle, 2003):

“Service learning is a form of experiential education in which students
engage in activities that address human and community needs together
with structured opportunities intentionally designed to promote student
learning and development. Reflection and reciprocity are key factors of
service learning” (Jacoby, 1996).

A direct impact of a service-learning experience on career development was articulated in
one of the first descriptions of service learning as a community-based internship experience
in which students explored careers in nonprofit agencies (Hamilton, 1989). Arguing that
service learning can be especially effective as a tool in schools of library and information
science, Nancy Becker (2000) suggests designing courses to provide students not only with
an understanding of traditions, theory, and research underpinning LIS, but also with the
experiences and skills that will prepare them to become practitioners of tomorrow. With
service learning students not only serve, they learn and serve.

Service learning fosters the development of personal and interpersonal knowledge, and
provides the basis for effective teamwork. “It encourages the students to be more self-
reflective about who they are, what they value, and the reasons for their values. It
promotes the development of interpersonal and communication skills related to effective and cooperative problem solving” (Bonar et al., 1996).

In the recent definition suggested by Ball & Schilling (2006) in their work at Indiana University-Purdue University with Library Automation course students, service learning is described as academically challenging, incorporating experiential, inquiry-based, and problem-based opportunities. The authors further describe the skills developed in service learning:

“Skills such as the abilities to synthesize information, problem-solve creatively and rationally, participate constructively in teams, communicate effectively, think critically, make well-reasoned decisions, and negotiate and compromise gracefully are developed in service learning.”

This definition contains some of the attributes that could be applied to a description of the service-learning experience in the INIS course and especially some of the impacts that I will be looking into, but so do the other definitions. Instead of accepting a certain definition or developing my own as a working one for the purposes of this study, I provide this general overview of the elements of different definitions.

According to Weigert (1998), six elements characterize service learning and differentiate it from the other forms of experiential education. Three of these elements focus on the community: (1) the service is meaningful to the community; (2) the service meets a need or goal; and (3) the community defines the need or goal. The other three elements focus on the campus: (1) the service flows from and into course objectives; (2) assignments requiring reflection integrate the service with course objectives; and (3) the assignment is assessed and evaluated.

The next section will provide a short overview of the other forms of experiential education.
1.3 Service Learning and Other Types of Experiential Education: How Do They Differ?

“Service Learning programs are distinguished from other approaches to experiential education by their intention to equally benefit the provider and the recipient of the service as well as to ensure equal focus on both the service being provided and the learning that is occurring.”

(Furco, 1996)

While service learning shares similarities with other types of experiential learning such as internships, field education, volunteer activities, etc., it has certain distinct features. To represent the distinctions among various types of service programs, a diagram based on Sigmon’s (1994) “reciprocal learning” principles and his typology has been created (See Figure 1). The position of each service program on a continuum is determined by its primary beneficiary and the overall balance between service and learning in experiential education programs.

Volunteerism

The engagement of students in activities where the primary emphasis is on the service being provided and the primary intended beneficiary is clearly the service recipient.
Community Service

The engagement of students in activities that primarily focus on the service being provided as well as the benefits the service activities have on the recipients. The students receive some benefits by learning more about how their service makes a difference in the lives of the service recipients. Community Service differs somewhat from volunteerism, however, in that it often provides more structure and student commitment.

While there are lots of common features between service learning and community service, and community service is actually a part of service learning, the specific differences between them are as follows:

- community service is not typically rooted in an academic course or explicitly connected to academic study;
- emphasis is more on benefits to the service recipients and/or the community rather than on benefits to the students;
- community service often implies altruism and charity as opposed to addressing or researching systemic issues and social change;
- community involvement in determining needs addressed is often minimal or non-existent;
- does not always allow for intentional and meaningful reflection.

Internship

The engagement of students in service activities primarily for the purpose of providing students with hands-on experiences, that enhance their learning or understanding of issues relevant to a particular area of study. Internships may involve monetary compensation, may or may not address unmet community needs, and usually place minimal emphasis on students providing service to the site or agency.
Field Experience

This involves co-curricular service opportunities that are related, but are not fully integrated, with students’ formal academic studies. Students perform the service as part of a program that is designed primarily to enhance students’ understanding of a field of study, while also providing substantial emphasis on the service being provided.

Training, Internships and Field Experience are often confused with service learning. Often times these provide students with co-curricular service opportunities that are in some way connected but not fully incorporated into academic course content. Also, the activity falls on the other end of the service and learning typology, in that the primary beneficiary is the student as opposed to the service recipient.

The following is a summary of the features distinguishing training, internships and field experience from pure service learning:

- emphasis on student development of technical skills and knowledge, or professional socialization, as the primary objective; benefit to the community, if an objective at all, is secondary;
- emphasis is on student learning rather than reciprocal learning;
- little or no structured opportunity for students to critically reflect on experiences;
- not typically rooted in an academic course or explicitly connected to academic study;
- community involvement in determining needs addressed is often minimal or nonexistent (Furco, 1996).
1.4 Theoretical Framework of Service Learning

Dewey’s educative experience model based on principles of continuity and interaction as well as Kolb’s Experiential Learning Theory based on the Experiential Learning Cycle provide a foundation for service learning.

1.4.1 John Dewey’s Philosophy of Experience

While John Dewey never wrote directly about service learning, the idea that community service should be used in education as a means of instruction can be traced to his theory of progressive education described in his more than fifty published books and articles. Dewey is seen as the father of today’s community service and service-learning movements (Boyte, 2003). Dewey’s understanding of the nature of knowledge and society and his philosophy of education provide theoretical roots for service learning. His pragmatist theory of knowledge was central to his theory of education (Dewey, 1938, 1916).

1.4.1.1 Dewey’s Critique of Traditional Educational Theory

Dewey’s philosophy of education came out of his analysis that the history of philosophy was plagued by artificial dualisms that prevented the evolution of education for democratic society (Kezar & Rhoads, 2001). Dewey developed a theory of democratic instrumental education which is completely opposite to Plato’s idealist philosophy. Dewey conceptualized his work as a critique of the philosophy and methods of “Old Education”, when “learning was a class matter,” and “a high priesthood of learning…guarded the truth and …doled it out to the masses under severe restrictions” (Dewey, 1990; Harkavy & Benson, 1998). Dewey viewed existing American schools as dominated by highly dysfunctional, aristocratic models based on didactic methods of education when the students are lectured about the material to be memorized with some reinforcement through repetition. For Dewey genuine learning occurs only when people focus their attention, energies, and abilities on solving genuine dilemmas and perplexities and when they reflect on their experience which increases their capacity for future intelligent thought and action. According to Dewey, intelligence develops as a result of reflective action and experience.
(Speck & Hoppe, 2004; Harkavy & Benson, 1998). For Dewey, any acquisition of knowledge should be related to concrete situations and that’s what makes an active, progressive education. For Dewey all knowledge both academic and practical is considered a social knowledge, the product of the interplay of experience, testing, experiment, observation, reflection and conversation. Building on the premises of the social and practical nature of knowledge, Dewey developed a dynamic vision of democracy and education for democracy. Dewey (1938) argued for an “education of, by and for experience”. Education should be seen and practiced as a transformative process, a dynamic engagement with the world, its problems, and its work (Boyte, 2003). Dewey (1938) argued: “There was always something which really needed to be done, and a real necessity that each member of the household should do his own part faithfully in cooperation with others.”

Dewey’s theory does not only offer general theoretical support for service learning but it also has implications for the form that the education should be taking. Dewey suggests that service-learning should take the form of education in community organizing and community building (Speck & Hoppe, 2004).

1.4.1.2 Dewey’s Core Principles of Educative Experience

Dewey (1933, 1938) proposed the following two core principles of educative experience as the key elements of a theory of knowing in service learning based on the principles of experience, inquiry, and reflection:

- **Principle of Continuity**- all experience occurs along a continuum called the experiential continuum. Experiences are built on the previous ones and need to be directed to the ends of growth and development;

- **Principle of Interaction**- the lateral dimension of experience where the internal and objective aspects of experience interact to form a situation.
Dewey advanced the view that active student involvement in learning was an essential element in effective education (1938). Through experiential learning students are challenged to discover relationships among ideas for themselves. The community should be considered as an integral part of educational experiences and what is learned at school should be taken beyond its bounds for the purposes of advancement of both a student and society (Dewey, 1916).

One of the strengths of service learning is that it produces “educative experience” (Dewey, 1938); it engages students in a worthwhile activity which stimulates intellectual curiosity (Eyler, 2000). In order for the experience/projects to be educative four criteria need to be met (Dewey, 1933):

1. Must generate interest;
2. Must be worthwhile intrinsically;
3. Must present problems that awaken new curiosity and create a demand for information;
4. Must cover a considerable time span and be capable of fostering development over time.

Application of these criteria involves linking the principles of continuity and interaction, the process of problemization and inquiry, and phases of the reflective thought which can be directly applied to service learning.

Giles and Eyler (1994) suggest nine areas for service-learning theory development and testing based on Dewey’s theory as the areas for further thinking and linking theory, research, and practice in service learning:

1. The continuity of experience;
2. The principle of interaction;
3. Inquiry;
4. Reflective activity;
5. Truly educative projects;
6. Concrete and abstract knowledge;
7. The great community;
8. Citizenship;

1.4.2 David Kolb: Experiential Learning Theory (ELT)

Experiential Learning Theory developed by David Kolb and drawn from the work of John Dewey, Kurt Lewin and Jean Piaget, is a part of the theoretical framework of service learning as well. Kolb defines learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, 1984).

Kolb also developed the most established model of experiential learning called Experiential Learning Cycle (ELC). In his model the process begins with an experience ("concrete experience"), followed by reflection ("reflective observation"). The reflection is then assimilated into a theory ("abstract conceptualization") and finally these new (or reformulated) hypotheses are tested in new situations ("active experimentation"). ELC is a recurring cycle within which the learner tests new concepts and modifies them as a result of reflection and conceptualization (Kolb et al., 1974). The experiential learning model pursues a framework for examining and strengthening the critical linkages among education, work, and personal development. In experiential learning, a learner doesn’t learn only from activity in the classroom and from the teacher; the student takes the information learned in the class and tests it in real-life situations. That’s how a transformation of information into new knowledge takes place.

1.5 Library and Information Science and Service Learning: Connections

Library and Information Science (LIS) as a service-providing field by its origins and nature seems to be a perfect match with service learning. The idea of service in LIS is not a new one as students are constantly learning by experience rather than through abstract
discussions (Witbooi, 2004). Service learning is strikingly congruent with librarianship’s longstanding commitment to improving the lives of citizens within communities (Yontz & McCook, 2003), and librarians were among the professionals who viewed their work as public craft throughout the 20th century (Boyte, 2000). Service-based education has been a part of LIS curricula since the origin of formal programs for librarian education. When Melvil Dewey designed the curriculum for the first School of Library Economy at Columbia in 1886, he acknowledged that lectures and reading alone will not achieve the best results in training for librarianship without the study of various libraries in successful operation and actual work in a library (Roy, 2001). Librarianship has been and will always be a service-oriented profession trying to meet the information needs of diverse users (Ranganathan, 1931; Shera, 1968) and as practice encompasses the scope and the sweep of many social movements (McCook, 2000). Library education experiments in community service and outreach began with the High John Project in the 1960s, which allowed students in a Maryland library program to gain direct experience in serving a low-income community. The project called attention to the need for library students to learn from close-up perspectives about the importance of outreach to multicultural communities (Cuban & Hayes, 2001). Nancy Kranich, the 2000 ALA president, whose ALA campaign slogan was “Libraries: The Cornerstone of Democracy”, contributed to highlighting the central pedagogical value of service learning. Loriene Roy, the present President of the ALA, the author of a number of publications on service learning in LIS has organized the “Supporting LIS Education Through Practice” task force to assist LIS students in acquiring practical experience and distributing results of these experiences to other students and prospective employers.

1.6 Impact of Service Learning on Career Development

Most studies on students’ outcomes of service learning reported in the literature have concentrated on personal, social, cognitive and learning outcomes. Not much has been reported on career development. Career development (“Service learning contributes to career development”) was mentioned along with personal, social and learning outcomes in “At a Glance,” a report on results of findings of service-learning research in higher
education in 1993-2000 (Eyler et al., 2001). Involvement in career planning and exploration is mentioned among the factors contributing to social development of students as a result of experiential programs (Conrad & Hedin, 1982). According to Brown (1998) service learning fosters preemployment skills and job readiness, and as such, is an excellent focus for vocational education. Nevertheless, research on service learning and professional development is extremely limited, especially in professional fields at the graduate level.

Three volumes on Recent Dissertations Related to Service and Service Learning (Shumer et al., 1999; Shumer & Treacy, 2001; Norvell, 2004) contain a short overview of the academic studies which have been completed in American universities since 1990. More than 400 studies total are included in the first two volumes (Shumer et al., 1999; Shumer & Treacy, 2001) and in the third volume (Norvell, 2004). The volumes are based on searches completed in Dissertation Abstracts searching the following terms: service-learning, experiential education, experiential learning, community service, civic education and national service. Approximately 17 dissertations contained career direction, career choices, career exploration, career development/goal setting, career awareness, career preparation and career planning as one of the directions of their studies but they were concentrated either at high school or undergraduate education level. Not a single work was identified at the graduate level.

The only study found on the impact of service learning on professional development is in the physical therapy field. Reynolds (2005) conducted the study on the impact of service learning experiences within community organizations on development of the core competencies of physical therapists (Reynolds, 2005). The purpose of the study was to discover the educational outcomes and benefits that students (physical therapists) realize through participation in a service –learning-based course. The similarities of this study to the one described in this thesis is that it was retrospective (students who got their degrees in 1996-1999 participated in the study a few years later) and the community that they worked with (underserved, disadvantaged and cross-cultural population) was similar to the community that the students in the INIS class were working with. Both studies used grounded theory, but unlike the INIS course the data sources in Reynolds’ study included
textual reports written by participants, participant observer data, memos and diagrams generated throughout the analysis, as well as the quantitative data from the Physical Therapist Clinical Performance Instrument (CPI) for the complete cycle of one class. The results of the study suggest that service-learning experiences within community organizations enhanced opportunities for physical therapists to develop and demonstrate the required competencies that were more limited in a traditional clinical education.

As indicated in this section the research on career-associated impact of service learning is extremely limited not only in graduate professional fields but in general.

1.7 Research Setting

1.7.1 The Graduate School of Library and Information Science (GSLIS) at the University of Illinois at Urbana Champaign (UIUC): Service Learning Traditions and Activities

GSLIS at UIUC is one of the world’s renowned library schools rated number one in North America for a number of consecutive years. As one of the oldest LIS schools in the country, it contributed to development of the methods used in the field of library and information science today. The faculty and students have strong background in understanding libraries and the broader context of modern information systems and services. Graduates of the program have expertise in using the latest technology and methods for reference, research, information organization, and other professional tasks. Relevant to the research presented in this study, the mission of the School includes providing a graduate education in research and practice in LIS, research in both traditional and digital libraries and in different settings outside of libraries, and service to the citizens of Illinois. The major objectives of the School as indicated in the Program Presentation to the ALA Committee on the Accreditation in 2004:
“We equip students with the theories and practices of library and information science (LIS) through the study of the foundations, principles, and ideas of the discipline, and the status and expectations of the profession. Our program objectives include teaching graduates to anticipate social and technological changes, and promote change to advance the profession; fostering critical thinking about literature and research in LIS and related fields; encouraging commitment to high standards of practice, conduct, responsibility, and service; and preparing for evaluation and development of services. Graduates of the master’s program are qualified to pursue careers as beginning librarians and information scientists in the information industry.”

For more than 100 years, GSLIS has prepared students for careers as leaders in information professions and research. Recent MLS graduates work in different types of libraries and other organizations, including consulting firms, library vendors, and technology companies. The graduates work for Yale University Library; Microsoft; the Chicago Public Library; Abbott Laboratories; National Library of Medicine; North Carolina State University Libraries; NASA; Coca-Cola; the Memphis-Shelby County (Tennessee) Public Library; the Ohio Legislative Services Commission; the Illinois Supreme Court Library; Illinois State Library; and the Library of Congress.

The School has a long-standing tradition of service learning since the time it was founded in the 1890’s. Based on a few writings on the history of LIS, Roy (2001) provides an overview of the origin of the service-learning “tradition” at GSLIS: Beginning in 1907, students at the Illinois Library School at the University of Illinois were encouraged to embark on a month of fieldwork in public libraries across the state. For many students, their month in the public libraries of Bloomington, Decatur, Jacksonville, Joliet, or Rockford was their first experience in a library other than that at the University of Illinois. Katharine Lucinda Sharp, Director of the Illinois Library School from 1897 to 1907, predicted that the students would look back upon these early experiences as the most interesting in their careers. This tradition has been followed for many years through different service oriented activities, initiatives and courses as a part of the curriculum.
1.7.2 Prairienet

One of the major highlights of GSLIS community service oriented efforts was the founding of Prairienet in 1993. Prairienet is one of the earliest and most successful member- and donation-supported community information networks. It serves Champaign-Urbana and the surrounding East-Central Illinois community. A major mission of Prairienet is to promote equity of access to computer resources for everyone, facilitate information and resource sharing, empower individuals by teaching computer skills, and provide Internet access and strengthen community organizations by assisting them with access and the sharing of information.

Prairienet has also played an important role in the INIS class. Prairienet can be referred to as a part of the infrastructure which contributed a lot to make the INIS class a successful service-learning endeavor. In addition to being an on-site lab for the class hands-on sessions and a main provider of donated hardware as the only source of materials and resources for the class, Prairienet has been involved in selection of service-learning activities in the East St. Louis area. This is a suitable site for the kind of work conducted in the INIS class through the Digital East St. Louis project of the UIUC. So, Prairienet has been a foundation, the most important component in the whole institutional infrastructure that made INIS service learning happen and grow. Prairienet has been working in the East St. Louis area for the last nine years. Since Spring of 2000 Prairienet with the help of the students from the INIS course has created 45 public access computer labs housed at sites such as churches, housing shelters, community centers, and youth centers; and upgraded 8 of them. In addition to establishing computer labs, Prairienet has provided staff training, assistance with grant proposals, technical consulting, and wireless connectivity.

The success of Prairienet and GSLIS’s interest in expanding the community service focus in its program have been major moving forces behind the creation of a number of service-related programs and initiatives at the school which are discussed in the following sections.

The INIS instructor was also originally working for Prairienet and he describes the role of Prairienet in his essay “Reflections on the Development of Introduction to Networked
Information Systems as an Example of the Merging of Instructional Goals with Service Learning” (Appendix A).

While Prairienet was created as a separate unit at GSLIS, its activities fell into the framework of public engagement of the University as a whole and especially a unit at the School of Architecture called East St. Louis Action Research Project (ESLARP), with which Prairienet has been working in close collaboration. The next section will provide information about ESLARP.

1.7.3 ESLARP: Engagement of UIUC with the East St. Louis Area
East St. Louis Action Research Project (ESLARP) was created as a part of a neighborhood planning course, a main goal of which is to bring together the students and faculty from different campus units with the residents of East St. Louis who were in desperate need of help. It was the initiative of the School of Architecture at UIUC in response to State Representative Wyvetter H. Younge’s request to engage with the people of East St. Louis in 1987. In 1996 a Neighborhood Technical Assistance Center (NTAC) was established and stationed in East St. Louis to provide community organizations with training and technical assistance and facilitate connections with campus resources. GSLIS was one of a number of colleges and schools at UIUC including within Fine and Applied Arts, Applied Life Studies, and Social Work which started collaboration in East St. Louis and got engaged in a number of service-learning projects. For GSLIS this cooperation turned into the development and successful delivery of the INIS course.

1.7.4 How the INIS Course Fits into the Strategic Plan of UIUC and GSLIS
While service is a part of community/public engagement activities of universities, and is often included in their mission statements, there are different levels of engagement in service learning by faculty and students. As demonstrated in previous sections, in the case of UIUC, it is a priority. UIUC is increasing its emphasis on service as an integral aspect of its educational activities. The strategic plan recently adopted by a newly appointed
President brings service to the forefront of the UIUC agenda. Different schools and colleges including GSLIS also adopted their own strategic plans. The areas of the strategic plans of both UIUC and GSLIS, which make a direct connection to the service/service-learning aspect, will be highlighted.

GSLIS is among a few other units on campus to be named as a part of the Illinois Informatics Initiative, a major mission of which is “to invent the information environments of the future and educate those who will build and use them”.

One of the goals stated in the university strategic plan, to “Educate our students to be leaders in their communities, the nation and the world,” highlights civic commitment. “Illinois will become the leading public research institution that engages undergraduates in civic commitment activities and other learning experiences that connect academic content with experiential learning, providing students with improved access to signature programs in a range of areas. Over the next five years, Illinois graduates will be increasingly more able to lead and serve society.” Of course all these could be easily translated on a graduate level and the achievements of GSLIS graduates.

Within the strategic plan “Professors of Practice” would be appointed “to lead civic and community engagement scholarship and education initiatives.” Part of the university plan is “to create opportunities for civic engagement and/or community based learning within 50% of academic units.”

Social informatics is named as one of the themes in the GSLIS strategic plan including community informatics, social impacts of technologies, equitable access and social justice. All these themes are closely related to service learning. One of the goals is “to ensure excellence in graduate education” and the following description of nontraditional jobs based on the Bureau of Labor Statistics’ Occupational Outlook for 2004-2005 is provided:
“Jobs for librarians outside traditional settings will grow the fastest over the decade. Nontraditional librarian jobs include working as information brokers and working for private corporations, nonprofit organizations, and consulting firms. Many companies are turning to librarians because of their research and organizational skills and their knowledge of computer databases and library automation systems. Librarians can review vast amounts of information and analyze, evaluate, and organize it according to a company’s specific needs. Librarians also are hired by organizations to set up information on the Internet. Librarians working in these settings may be classified as systems analysts, database specialists and trainers, webmasters or web developers, or local area network (LAN) coordinators.”

The strategic plan quite extensively talks about the role of Prairienet including East St. Louis:

“Here it must be said that Prairienet has long played what is probably the campus’ most critical role in connecting informatics to community organizations and citizens across the State in order to meet specific needs and contribute to overall well being. Project-specific examples range from our wireless project for the municipality of Homer, to the forty community tech centers and innovative training programs that we’ve set up in East St. Louis (where disadvantaged young people learn IT and how to set up a small business to support those tech centers), to partnering with Habitat for Humanity, to our unique research and education collaboration with the Puerto Rican Cultural Center in the Paseo Boricua neighborhood of Chicago. No other UIUC degree program connects inclusivity and a Chicago presence the way we do, let alone addresses informatics. We are also founding partners in the Illinois Community Technology Coalition and our faculty and staff are frequently called upon as consultants for informatics in community contexts across (and beyond) Illinois.”

One of the GSLIS unit initiatives is Public Engagement and Economic Development and one of the goals within it is to “Maintain Prairienet’s record of successful community engagement, and develop new programs to more successfully integrate it in research and teaching, in GSLIS and across the campus” which provides a lot of credit to the INIS class and the role of Prairienet.

The Community Informatics Initiative (CII) described later in this chapter is a part of the GSLIS strategic initiative and re-programming Prairienet in the context of the Community Informatics Initiative and in the context of the campus-wide Illinois Informatics Initiative is
described in detail as a part of the GSLIS strategic plan.

As the previous sections show, the INIS course has developed as a part of a well-developed institutional infrastructure. The following section will provide a short overview of the course.

1.7.5 The Course: LIS 451 “Introduction to Networked Information Systems”

“Introduction to Networked Information Systems” (INIS) course with a service learning component has been taught at the Graduate School of Library and Information Science at the University of Illinois at Urbana-Champaign. It has gone from a lecture-oriented course offering quite limited hands-on experience to a course having a strong lab component, when students have a chance to gain hands-on experience in a lab setting. Along with the changes in format of the course itself, a major project of the course underwent some significant changes as well: a required virtual design of a networked information systems infrastructure was substituted by a service-learning component - an actual design and implementation of such a facility in a community setting. A community setting chosen for most projects was a low-income neighborhood in East St Louis.

The details on how the INIS course has gone through a change process from a non-service-related component course to a service-learning course are described in the essay written by the instructor under the title “Reflections on the Development of Introduction to Networked Information Systems as an Example of the Merging of Instructional Goals with Service Learning” and is provided in Appendix A. The instructor discusses the major objectives of the course and provides the details on the historical development of the course which took place at the time when Prairienet started to set up Public Access Labs throughout the local community. He describes the work of a GSLIS independent study student who took the initiative to create the documentation on how to refurbish the computers and prepare them for setting up a local area network. This documentation was later used by the INIS students, who actually became directly involved in the service-learning projects of Prairienet. Throughout the course students were able to gain sufficient technical expertise in information systems networking to be able to set up an actual network in one of the
locations in East St. Louis; several trips were made to a site to get acquainted with the community the network will serve as well as preparing an actual location where a network will be installed. The locations of the projects have been suggested by the East St. Louis Action Research Project (ESLARP) – a unit associated with the Department of Architecture, Urban Planning and Landscape Architecture at UIUC which has been working with the residents of East St. Louis on revitalization of the hard-struck urban area.

Three hundred forty students have taken the course in a service-learning format for the last six years, with subsequent different career paths. Compared to a number of service-learning courses reported in the literature, this course has some quite unique features. While the objectives of the course are to get a technical understanding of computer software and networks and learn how to become technology managers, and the readings are mostly technical materials, there is no mention about a theory of community informatics and the essence of community service or civic engagement. In addition to a class project on setting up a computer network in one of the locations in the community, the class also has a community service practical component as a part of the course and students are involved in a community service activity (which can be cleaning the park, planting plants at Habitat home, making the benches for the park, working on a local cemetery, participating in a computer recycling project with a local Teen Tech group) hand in hand with community members. More detailed information about the course is included in Appendices: The Course Syllabuses for two different semesters – Fall 2000 when the course just started with a service-learning component and Fall 2006 - the last semester covered in the study (Appendix B and Appendix D) as well as final project summaries for Fall 2000 (Appendix C).

A lot of students, who decide to take the course, first perceive it as a technical course where they can learn technology. Many of them realize the power of service learning during the process itself. As the results of this study show, service learning as pedagogy and as a method helps them to acquire the technical skills. The perception of the course as a technical course is apparently based on how it is introduced in the syllabus. Another group
of students who are motivated to take the course are the ones who might have or have not had some previous community service related experience and are attracted to the course because of its service learning format. Unlike many courses reported in service learning, INIS is a graduate level course which is open both to MLS and PhD students. Students take the course when they are already thinking about their future careers. The original motivation behind a decision to take the course is something that is explored in this study, including if that motivation had something to do with their careers.

INIS was also a part of the informal Community Inquiry (CI) track which started at GSLIS in 2002. The next section will provide a short overview of it.

1.7.6 Informal Community Inquiry (CI) Track at GSLIS
An informal Community Inquiry (CI) track was developed as part of the GSLIS curriculum in 2002. As briefly mentioned above, there have been certain “natural” conditions for GSLIS to implement service-related elements in the curriculum. An emphasis on inquiry-based learning followed by the implementation of the informal CI track in the program was based also on general trends in the profession and the background and interests of its faculty members.

1. By implementing the CI track, GSLIS addressed much broader information environments including different communities and their needs. The CI track was aimed to prepare information specialists working with different communities, meeting their various information needs and providing community based information;

2. While faculty members working on the CI track had joint appointments and were actively engaged in community service and work with diverse communities, as well as participated in a number of collaborative interdisciplinary projects on and outside the campus, a main focus was on
understanding the users representing different communities and meeting their needs;

3. Along with increasing infusion of information technology into the curricula, as a part of the CI track a main focus was on communication and collaboration technologies and how these technologies could impact those communities and make changes in their lives;

4. CI as an informal track in the GSLIS curriculum has already passed its experimentation phase. It attracted students from other subject areas to engage in a dialogue with students in LIS in a community of inquiry;

5. Inquiry-based learning as an innovative method of instruction in LIS found its place in a field where dealing with inquiries on a daily basis is a major part of one’s work;

6. The curriculum at GSLIS was continuing to expand and there were plans in the future to develop “Community Informatics” specializations as a part of the MLS degree;

7. The INIS course had already been in place, which proved to be an effective way of engaging the students in service-learning projects.

The INIS course was a part of the CI track curriculum along with a number of relevant courses which have been developed and taught at GSLIS: 450IBL Inquiry-Based Learning, 450PT Pragmatic Technology, 450SJ Social Justice, 450PAR Participatory Action Research, and 450CIS Community Information Systems. These courses, quite different from traditional LIS courses taught at library schools, have helped the students to revisit the conceptual foundations of LIS and investigate current practice related to achieving equitable, democratic, and beneficial information services for all members of society, a reflection of the major values of service learning. Success of the CI track as well as a
continuing interest of the school in community service oriented activities resulted in the initiation of the Community Informatics Initiative (CII) in 2005. The next section will describe the CII in brief.

1.7.7 Community Informatics Initiative (CII)
The Community Informatics Initiative (CII) was founded at GSLIS in 2005. Community Informatics is the field of study and practice devoted to understanding how information processes and technologies help communities achieve their goals. The main goal of the CII is to study how communication and information technologies enable community processes and the achievement of community objectives through developing the tools, methodologies, practices and theory. A main idea behind the CII initiative is to create the university/community partnerships based on a strong model of public engagement with underserved communities. Working with local neighborhoods such as East St. Louis and the Paseo Boricua community in Chicago, the ultimate objective of CII is the actual successful use of community informatics to solve community problems. The goals and objectives of the CII resonate with the service-learning activities of the INIS course. Community Informatics Corps (CIC) is a specialization within the CII which has certain elements of the service-learning philosophy and pedagogy. The CIC is briefly described in the following section.

1.7.8 Community Informatics Corps (CIC)
As a further development of the initially formed informal track of Community Inquiry (CI), a new official specialization as a part of the MLS degree was launched at GSLIS called Community Information Systems with a Community Informatics Corps (CIC) as a part of it. The aim of the Community Informatics Corps (CIC) is to recruit and mentor a cohort of Latina/o, African-American, and other students interested in the experiences of underserved groups in society who are eager for a career that gives them the opportunity to contribute to their communities. A major focus of the coursework is on social entrepreneurship and community library and information services with the INIS course as a
major elective. CIC is the first satellite version of the GSLIS Library Education Experimental Program (LEEP) online program combining Saturday and summer courses offered at the Puerto Rican Cultural Center in Chicago, online courses, and summer courses at the Urbana-Champaign campus. This year the INIS course was taught as a hybrid: the online component for the students living in the Chicago area and the hands-on lab sessions were conducted at the Batey Urbano Center, Chicago for one of the sections of the course. The Batey Urbano Center also served as a site for setting up a computer lab as a final project for the course. The other two sections of the course worked in East St. Louis for their projects.

1.8 Statement of Problem

“If the point of professional schools is to prepare students to become practicing professionals, then establishing contexts within which the practice is modeled, mentored, and critiqued can be an especially powerful way to connect the theory of the classroom with the practice of the profession”

(Elmborg et al., 2001)

The previous few sections including a detailed overview of the INIS course as a part of the whole infrastructure of GSLIS and the university as a whole along with the other parts of this chapter provided the initial information about a research setting and the course itself which is worth examining and reporting on. The overview of the status of career-related research in service learning provides a justification of the choice for this specific research. While more detailed information about prior research on student outcomes as well as the research on service learning in different disciplines with a specific accent on the field of library and information science is provided in Chapter 2, it is important to mention that most service-learning research has been conducted at K-12 and undergraduate level and mostly on short-term impacts; the little research that has been conducted at a graduate professional field also looks mostly at short-term impacts of service learning on the students.
Discussing service-learning research of the undergraduate student, Lipka (1997) stresses that there is relatively little research available to inform us about whether there is a connection between service-learning experiences and adult life, particularly in terms of persistent, long-range effects on behavior, attitudes and predispositions. There is a concern among service-learning scholars that educators do not have valid information about the relationships between service-learning experiences and adult life of their students (Eyler, 2002; Lipka, 1997). Research on service learning is needed to provide the service-learning research community with generalizable knowledge concerning theoretical models and the functional relationships found in the implementation of service learning (Worthen & Sanders, 1987).

In 2002 Janet Eyler in her keynote address to the First Annual Conference on Service Learning Research titled “Stretching to meet the challenge: Improving the quality of research to improve the quality of service learning” stated: “For a field that engenders so much passion in practitioners and that we believe transforms students by engaging their hearts as well as their minds, there is remarkably little evidence of strong impact and even less evidence about the kinds of practices that lead to the effects we desire.”

As I briefly indicated in this chapter and will also mention in the following section, the INIS course is exactly what Eyler means in her statement: it engenders the passion of not only the instructor but also the student and yes, their hearts and their minds are engaged in the process of learning and working with the community. It is that sense of accomplishment and something exemplary that they feel being a part of. And unfortunately, there is no formal evidence of any impact of the course; it has never been reported in scholarly literature. As indicated at the beginning of the dissertation, there has been another dissertation completed on the INIS course this year. The course has been taught for 10 years and it is time to present it to a wider research audience and report its impacts.
While I am interested in the major motivations of the students to take the course including:

- gaining technological skills;
- field work experience;
- reputation of the instructor;
- reputation of the course.

along with the different outcomes including:

- increasing technological skills
- changing the way the respondents think about LIS professions
- enhancing the ability to work with community organizations and members
- enhancing skills in:
  - leadership
  - communication
  - teamwork

my major interest is how all these factors along with the other impacts of the service-learning experience in the INIS class relate to the careers of the students.

The purpose of this study is to investigate different impacts of the service-learning experience as a part of the LIS 315/451 Introduction to Networked Information Systems course in relation to graduates’ careers and career development.

The overall goal of my project is to deepen understanding of the impact of service-learning experience on career development in combination with other impacts including personal, social and learning outcomes.

This study is the first retrospective study (graduates were surveyed between 1-7 years after graduation) with a substantial number of graduates (211 respondents) to explore a direct connection between service learning and career development in a graduate professional field (LIS) in North America.
1.9 Research Questions

As indicated in the previous section while as part of this study I will be looking at a number of personal, social and learning outcomes, my major interest is to see how different impacts of the service-learning experience in the INIS course relate to the careers of the students.

A major research question of my study is:

*How does a service learning experience in the INIS course contribute to careers/career development of the students?*

Within this question I am also interested in investigating:

*Do they relate their experience in the course, what they learned in the course to their ultimate careers?*

Since it is a retrospective study, I will get a chance to look at the impacts over different periods of time depending on when each cohort took the course.

1.10 Role of a Researcher as an Insider and Outsider

There are several factors according to which I can consider myself as an insider in this study. First, I took the INIS course in Fall 2001 and was able to participate fully as well as had a chance to observe the other students in my class. Participant observation enables researchers to learn about activities of the people under study in the natural setting through observing and involvement in day-to-day or routine activities (DeWalt & DeWalt, 2002; Schensul, Schensul & LeCompte, 1999). While what I did in the course fits well under this description, I consider myself a complete participant rather than a participant observer because at that time, back in 2001, I was not even aware that I would be using any observations for my future research. Being a long term participant in the course I had a few advantages: my fellow students were accustomed to my presence and no one's behavior changed because I was there. I had a chance to experience everything in full and
have a deep understanding of all the stages of the course. I was speaking the same language and my participation allowed me to develop more informal and intimate relationships with people in the class, especially the members of my team.

It is important to note that the “social capital” and the knowledge that I have accumulated as a part of my own experience in the course as well as a result of my observations, is something that I am not using as “direct” data in my research. Instead it is something that I know and that contributes to my expertise in the subject of my study. That experience has helped me to shape my research as well as to have a deep understanding of the whole dynamics of the course as well as its content and other components of it. As indicated earlier, that experience also had an impact on my perception of careers in LIS and this is one of the reasons that I am doing this study.

Shortly after I took the INIS course I received a graduate assistantship as a coordinator of Inquiry Page/iLabs, the software which has been used by the members of different communities including academic, grassroots, and public. Recently the project has been merged with Prairienet, where I had a chance to be a “passive observer” of all the lab sessions of the INIS class taking place in the building.

The other advantage that I have had for all these years while being at GSLIS was keeping in touch with the people who took the INIS course especially the ones who stayed in the area, and being aware of their well being and career developments. I also have had a chance to be in touch with the instructor during all these years, but my decision to investigate this course came to me quite recently.

Lately I have been involved in the Community Informatics Initiative (CII) and Community Informatics Corps (CIC) described in previous sections of this chapter. My participation in the meetings, working on the projects and dealing with different community groups helped me to synthesize the knowledge that resulted from my experience in the INIS course. I know that the course made a difference for me to shift my professional interests to the area of community informatics and based on my observations and informal conversations with
many students, they have the same opinion. I undertook this study to explore this relationship of service learning and career development in more depth.

Additional information and thoughts on my insider position at GSLIS and how it impacted my research is provided in the last section of Chapter 3.
CHAPTER 2 LITERATURE REVIEW

2.1 Service Learning in Higher Education: Historical Overview

The present practice of service learning goes back to a long tradition of service in higher education (Jacoby, 1996). Since the founding of Harvard College in 1636, the goals of American higher education have included the preparation of citizens for active involvement in community life (Smith, 1994). The roots of service learning can be traced to the Land Grant Act of 1862, authored by Justin S. Morrill and signed into law by Abraham Lincoln. The Land Grant Act linked higher education and the concept of service, institutionalized the civic mission of universities and inspired community engagement projects (Jacoby, 1996; Yontz & McCook, 2003). The establishment of Hull House in Chicago by Jane Addams as an idea of a college and social settlement in 1889; development of university extension programs between 1890 and 1910, and the Smith Lever Act to establish a Cooperative Extension service nationally in 1914; John Dewey and William James building the intellectual foundations of service learning in the early 1900’s with William James’ first call for a national-service program for young people and other major events have created a foundation for the creation of such organizations as the Peace Corps, Volunteers in Service to America (VISTA), and the Southern Regional Education Board which embodied the service-learning concept. (For a detailed history of service learning see Titlebaum et al., 2004. In addition, a service learning timeline can be found in Appendix E).

One of the milestones in service learning occurred in 1972 when the University Year for Action, a federal program, involved students from campuses across the country in serving their communities and a number of service learning programs originated that year. Opening of the National Center for Service Learning within the federal government in the 1970s, and formation of Campus Compact: The Project for Public and Community Service (a consortium of college and university presidents who support the educational value of service) as well as initiation of the Student Literacy Corps (SLC) by the US Department of Education in 1985 and establishment of a Special Interest Group in Service Learning within the National Society of Experiential Education (NSEE) in 1982, have served as an
indication of a growing commitment and widespread involvement in service learning throughout the nation. Two pieces of legislation, the National and Community Service Act, signed by President Bush in 1990, and the National and Community Service Trust Act of 1993, signed by President Clinton, have helped to expand service learning at all levels (Wutzdorff and Giles, 1997).

2.2 Research on Students’ Outcomes in Service Learning

There has been extensive research on service learning in the 1990s. Most studies have focused on the impact of service-learning programs on students, but it is still weak in both concept and methodology (Eyler, 2000). The literature on service learning is populated by the anecdotal evidence of the service learning outcomes and detailed descriptions of the design of the programs, but “neither comprehensive theoretical formulations that explicate the dynamics underlying service learning nor methodologically sound disciplined inquiries that document its educational benefits are common in the literature” (Sheckley & Keeton, 1997). Most of the evidence for a positive influence of service learning on students, institutions and communities has been based on direct experience. While most of the studies reported some type of positive impact on the students, they did not address the full range of issues needed to achieve an in-depth understanding of service learning and its effects. As indicated earlier, most of the service-learning research is conducted at K-12 and undergraduate level as opposed to a professional level, and the majority of these studies are assessing the impact over a short period of time, usually one semester and in most of the cases it is pre- and post-semester study. While more than 400 academic studies completed in American universities since 1990 have been reported in the recent volumes of Recent Dissertations on Service and Service-Learning Topics (Shumer et al., 1999; Shumer & Treacy, 2001; Norvell, 2004), many of those dissertations are one-shot efforts completed by practitioners who do not go on to conduct further research. Just a few researchers conducted multiple studies building on previous work (Eyler, 2002).

Lack of proper studies assessing service-learning impact over a longer period of time, especially after the student left school, has been reported by a number of service-learning
scholars. There is not much information about sustained service-learning experiences over many years of schooling and not much longitudinal data on a long-term impact on attitudes, understanding, and behavior. There is a tremendous need for well-designed studies that follow students through school and into their adult lives in the community to inform us if there is a connection between service-learning experiences and adult life, especially in terms of persistent, long-range effects on behavior, attitudes, and predispositions (Eyler, 2002; Lipka, 1997; Giles & Eyler, 1998).

The research described in the present study takes one step further looking at the long-term impacts and connections not only with the adult lives of the graduates of the INIS course, but also their professional lives and careers.

2.2.1 Students’ Outcomes in Service Learning
Among the Top Ten Unanswered Questions in Service-Learning Research described by Giles and Eyler (1998) and based on the results of the 1991 Wingspread Conference convened by the National Society for Internships and Experiential Education (NSIEE), the most frequently asked ones are about how service learning affects students.

A publication “At a Glance: What We Know About the Effects of Service Learning on College Students, Faculty, Institutions, and Communities, 1993-2000” sponsored by the Corporation for National Service (CNS) and edited by Janet Eyler and others (2001) from Vanderbilt University summarizes findings of service-learning research in higher education from 1993-2000, including an annotated bibliography. In a section on the effects of service learning on students they describe the following types of outcomes and their effects:

A. Personal Outcomes
   - Service learning has a positive effect on student personal development such as a sense of personal efficacy, personal identity, spiritual growth, and moral development;
• Service learning has a positive effect on interpersonal development and the ability to work well with others, leadership and communication skills

B. Social Outcomes
• Service learning has a positive effect on reducing stereotypes and facilitating cultural and racial understanding;
• Service learning may subvert as well as support course goals of reducing stereotyped thinking and facilitating cultural and racial understanding;
• Service learning has a positive effect on commitment to service;
• Volunteer service in college is associated with involvement in community service after graduation.

C. Learning Outcomes
• Students or faculty report that service learning has a positive impact on students’ academic learning;
• Students or faculty report that service learning improves student ability to apply what they have learned in the “real world”;
• The impact of service learning on student academic learning as measured by course grades or GPA is mixed;
• Service learning participation has an impact on such academic outcomes as demonstrated complexity of understanding, problem analysis, critical thinking, and cognitive development;
• The impact of service learning on student cognitive moral development is mixed.

D. Career Development
• Service learning contributes to career development.
Most of the studies conducted on student outcomes indicate that service learning promotes the social, psychological, and intellectual development of students, as well as sense of personal and social responsibility (Sheckley & Keeton, 1997; Conrad & Hedin, 1980). Referring to the results of research on student impact (Waterman, 1993; Eyler and Giles, 1996; Kendrick, 1996; Ostrow, 1995; Eyler, Giles & Schmiede, 1996; Rhoads, 1997), Giles and Eyler (1998) suggest that service learning has a powerful impact on personal development, self-esteem, confidence in political and social skills and building relationships with others, social responsibility or sense of commitment to future service and academic performance. They outline the following impacts and cite related literature that has investigated these impacts:

- Increase in social responsibility, connection to the community, valuing service, endorsing systematic approach to social problems, having greater racial tolerance;
- Learning – subject matter and how much is learned;
- Cognitive benefits: complex problem analysis; social problem-solving expertise; reflective judgment or post-formal reasoning; impact on cognitive moral development;
- How students experience service: how they function and what service means to them; experience of reflection.

2.3 Research on Service Learning in Different Disciplines

Case studies as a part of service-learning research have been reported in different disciplines and subject areas either in separate scholarly articles or as a part of a single publication. Madden (2000) describes studies in psychology; horticulture; planning and landscape architecture; sociology; public health; recreation and tourism management; marketing; organizational communication; business writing; science; education; and technical writing as part of her book. Studies of service-learning outcomes were reported in political science (Markus, Howard, & King, 1993), psychology (Miller, 1994; McCluskey-Fawcett & Green, 1992), journalism (Cohen & Kinsey, 1994), and sociology (Taub, 1991; Parker-Gwin, 1996).
While most of the studies concentrated in the area of academic outcomes indicating that most of the students have significantly improved their grades (Sugar & Livosky, 1988; Markus, Howard & King, 1993), the evaluative research conducted on service-learning programs generally indicates that service learning promotes the social, psychological, and intellectual development of students (Sheckley & Keeton, 1997).

Based on the results of research in different areas, Conrad and Hedin (1981) report a heightened sense of personal and social responsibility, more active exploration of careers, enhanced self-esteem, more complex patterns of thought, and greater mastery of skills and content that are directly related to the experiences of the service-learning program participants. The results of different studies have shown that service learning improves social attitudes of participants and integration of theory and practice (Markus, Howard & King, 1993), enhances their self-esteem (Hedin, 1989), increases knowledge in the areas related to field experience (Conrad & Hedin, 1982), and increases the ability to apply concepts outside of the classroom (Miller, 1994).

2.4 Service Learning in Library and Information Science
Librarianship as a practice has been at the forefront of providing service to enhance the general welfare, but librarianship as it is being taught has focused more in recent years on technological solutions to information problems without the ideal of engaged service as a central theme (McCook, 2000). McCook (2000) is convinced that a commitment to the ideals of civic engagement must begin during library school students’ first educational experiences. Even though there are some examples of involvement in service learning and scholarship of engagement in library education, they have not been connected to the national discussion which would have brought a greater recognition to the work. Furthermore some LIS educators are engaged in service learning without knowing the term or characterizing their activities (Yontz & McCook, 2003). The authors provide a general overview of service learning and its potential for advancing LIS. Describing Participatory Action Research (PAR) and Community Informatics (CI) as two constructs deserving special attention in the discussion of service learning and empowerment of disenfranchised individuals, Mehra
(2004) calls for action in LIS education to adopt PAR models in service learning and establish a CI track within the discipline. There is a need to develop innovative programs to educate library school students about literacy and underserved populations through community service and raise the awareness of students regarding social issues and foster greater civic participation in communities. As one example, Associate Professor Paul Resnick at the School of Information at the University of Michigan coordinates the Community Information Corps (CIC), through which students learn to deal with the complex issues of community building in the “emerging new economy”. As a part of his doctoral dissertation, Mehra (2004) documented the existing trends in LIS schools across the nation based on the results of two studies: a survey of faculty of a major LIS school about incorporating service-learning activities in the courses they taught; and a content analysis of Websites of the ten top ranked LIS schools in the US to identify the potential areas where service-learning activities could be incorporated.

Applying Jacoby’s (1996) statement that “Service learning is not destined to be used in every course, but it is possible to incorporate it in any discipline” to LIS, one should say that as a service-oriented discipline with a mission of providing high quality library services, it can easily adopt service learning. Many LIS courses have some element of service learning, while practicum and internships have often been part of the curriculum. Witbooi (2004) defines service learning along with the other forms of experiential learning including fieldwork, volunteerism, internship, and community work and provides a comparison between service learning and the above mentioned forms. The author reports on an analysis of the current forms of community service at the Department of Library and Information Science at the University of the Western Cape in South Africa. The goal of the study was to compare above mentioned practices in order to determine if there is a place for service learning in the curriculum and if service learning should replace or coexist with those practices. The methodology of the study included the analysis of the published literature and thematic interviews of and a focus group of 40 librarians who expressed their views about the fieldwork module. The findings of the study show that service learning should not replace other practices and should continue to coexist with them in the curriculum.
Service learning is strikingly congruent with librarianship’s longstanding commitment to improving the lives of citizens within communities and librarians were among the professionals who viewed their work as “public craft” throughout the twentieth century (Yontz & McCook, 2003; Boyte, 2000). Riddle (2003) points out that only a few articles in the library literature discuss service learning and too little has been written on how service learning impacts the mission and services of college and university libraries. “One can examine separately the library and information science and the service learning scholarly literature and barely find a mention, not to say in-depth analytical research, of the impact of service learning on library services, information literacy, information-seeking behavior, or critical thinking as it pertains to human information processing. There is simply a research void abutting these two areas of higher education scholarship, each pursuing separate paths of pedagogical justification, virtually oblivious to the other” (Riddle, 2003).

In the conclusion to her article “Service learning in the curriculum: preparing LIS students for the next millennium,” Nancy Becker (2000) discusses the importance of service learning in facilitating the acquisition of both theoretical and practical knowledge by connecting experiential learning with the needs of a broader community. It allows LIS educators, who are often criticized for their remote understanding of the practitioner’s world, to bridge theory and practice within a construct that is fully congruent with the profession’s value system. Service learning also has the power to create meaningful and visible roles for LIS programs within the community and their parent institutions.

There have been a limited number of scholarly publications on service learning in LIS literature especially with specific descriptions of service learning efforts within LIS coursework and as a part of specific projects. This could be due to the fact that only a few library schools across the US carry out community projects as a part of their curriculum. Examples of a few of them with a brief overview are provided below (Roy, 2002; Becker, 2000; Cuban and Hayes, 2001; Roy, 2001; Witbooi, 2004; Yontz & McCook, 2003; Ball & Schilling, 2006; Sweeney, 2002; Rhodes & Davis, 2001):
• 4Directions project to create a National Virtual Museum of the American Indians at the University of Texas at Austin (UT-Austin)

Loriene Roy (2002) reports on the experience of 12 graduate students at the Graduate School of Library and Information Science (GSLIS) who designed and constructed a virtual library site for the Northwest Indian College (NWIC) teacher training program, Oksale as a part of “Library Instruction and Information Literacy” course. All students completed the prerequisite course, “Introduction to Information Resources and Services” and possessed different levels of technical expertise. For gaining a better sense of the needs of the community they were working with (Native American students in a Native American educational institution), the class studied the theories of the Native American educator Gregory Cajete. Cajete’s theory became not only a foundation for a Website but also was used as a self-assessment tool for the students in the class. The results of the study show that based on Cajete’s theory of “engendering a commitment of service rather than competition, promoting respect for individual, cultural, and biological diversity, and engaging students in a learning process that facilitates the development of their human potential through creative transformation”, it is possible to incorporate his model of indigenous learning as a part of service learning in LIS education.

• Participation in the ALA Spectrum Initiative; Preparation of Pathfinders Working Directly with Diverse Clientele; Participation in the “If I Can Read, I Can Do Anything” Project to promote reading among American Indian students at the University of Texas at Austin

Loriene Roy (2001) reports on the other examples of service learning models at GSLIS at UT-Austin. The students participated in planning the leadership institute and assisted in the longitudinal study of Spectrum scholars. As a part of a number of reference courses students worked directly with the clientele cross country including the faculty and students at tribal community colleges, teachers at Bureau of Indian Affairs schools and tribally controlled schools, and university faculty and students working with diverse audiences on preparing the pathfinders. The topics of the pathfinders included black dance
in America, Native Americans, and experiences of Latin Americans in World War II. The students presented their projects at the national conferences including ALA. Two MS students helped with a design of “If I Can Read, I Can Do Anything” reading incentive project as part of a for-credit independent study. The findings of the study suggest that service-based projects expose LIS students to non-majority cultures and provide rich educational opportunities for students to acquire and share new skills. At the same time a commitment on behalf of the faculty is needed to direct student activities and seek financial support for these kinds of projects.

- **The Jail Library Student Group (JLSG) at University of Wisconsin-Madison**

McCook (2000) provides a brief description of the project of JLSG under the guidance of Louise Robbins on providing recreational, educational and resource reading for inmates at two Madison jails and overseeing Kids Connection, which helps inmates-parents to tape-record bedtime stories for their children.

- **Library Services for Migrant and Seasonal Workers; Friends of the Talking Book Library; Literacy Grant for Three Rivers Regional Library System (TRRLS) projects at University of South Florida, Tampa**

McCook (2000) and Sweeney (2002) describe the family literacy project to develop the circle of learning for the TRRLS in Mayo with a $76,000 Family Literacy grant award. The project focused on different literacy-oriented activities such as storytelling and family reading hours. The children and parents started to use the library. As a result the library transactions increased by 148%. Because of the popularity of the project the library board considered to hire a full time coordinator for preschool programming. As a graduate student at that time, Sweeney reports the value of outreach through connection to apprenticeship in librarianship.

McCook (2000) describes **Library Services for Migrant and Seasonal Workers Project** in which students worked with the librarians serving farm workers to develop resources that
met health and immigration needs under the guidance of Marilyn Stauffer. They also participated in story hours for the kids. The course gave an opportunity to the students to connect to different community groups as well as other faculty at the university.

As a part of the Friends of the Talking Book Library project in Clearwater, Florida one of the students’ tasks was to develop a Friends group for the library and to work with different groups and get involved in publicity and outreach. (McCook, 2000)

- **Elective Library Automation Course based on Client-Consultant Relationships** at the School of Library and Information Science (SLIS) at Indiana University-Purdue University

Ball and Schilling (2006) describe how the students through participation in this course partner with libraries to complete real-world projects. Assignments and course activities reinforce fundamentals lessons in managing servers, systems technologies, and related policies and processes. The findings of the study suggest that service learning was an effective method to reinforce course material. The experience proved to be satisfying for the students in terms of advantages that they accrued including the enhancement of their marketability and refinement of essential skills too often neglected in the school and the job. The increase of the level of enthusiasm of the students was impressive with an increase of participation in class online discussions on the issues of digital divide.

- **Service-Learning Approach in Collection Development and Management, and Advanced Reference Course** at St. John’s University

Along with discussing theoretical and pedagogical foundations of service learning, Becker (2000) describes a short-term option of the service learning project when faculty worked with the students two days long to weed the school library collection in an intermediate school located in an ethnically disadvantaged section of Brooklyn. The long-term project involved development of a plan for a new information service to provide professional support for the school libraries in the boroughs of Brooklyn and Queens. The results
suggest that students acquired a lot of skills due to the service-learning nature of the course and direct communication with their communities and clientele. They learned how to formulate strategies for identifying user needs, develop marketing plans, incorporate certain evaluation techniques, etc. “The real-life context of the class was viewed not only as a compelling catalyst, but also a meaningful reward.” The class received the attention of the provost of the university and was cited as an exemplary example of service learning in the university newsletter.

- **A Case Study of a Class Project in Multimedia/User Education course** at the LIS program at the University of Iowa

Elmborg et al. (2001) describe how a service-learning pedagogy was used to develop multimedia skills, conceptual models for implementing multimedia in libraries, and culture of collaborative teaching within a group of students who were involved in a service-learning project as a part of the Multimedia/User Education course. The students developed Web sites for 11 public libraries in Iowa. The article reports the instructor’s experiences with the course design and observations of the students on their service-learning experiences. The class consisted of three components: theory, experience and reflection. The results of the study suggest that the students did not have any technical problems, but the most significant problem was communication, i.e. a lack of extensive meaningful dialogue with the partners the students were working with. Absence of state-of-the-art technology in the libraries was one of the problems as well. Students felt their experience taught them important skills and styles that would serve them well in their careers. “The service learning approach created a learning community that empowered the students and made the class the site of genuine exploration and inquiry”.

- **Instruction Writers for the User’s Guides for a Virtual Research Library** at the Hampton University

Rhodes & Davis (2001) report on collaboration between the Hampton University Library and the students in an English class in the form of a service-learning project in which the
students wrote the user guides. The instruction writing and service learning were a part of the English 218 course. Students were able to reinforce their research and writing skills by becoming instruction writers for a virtual research library. Based on the results of the project (the number of searches of the virtual library increased by more than 100%), the collaboration was a success. There were certain gaps in the information specific to the library and some writers did not consult librarians during the process of creating the user guides. Certain strategies were developed by librarians to be implemented next time when the project takes place to avoid those shortcomings.

- **Interdisciplinary Service Learning Course on Community Service and Literacy** at the University of Wisconsin-Madison

Cuban and Hayes (2001) provide case studies of five LIS students who participated in an Interdisciplinary Service Learning Course on Community Service and Literacy. The students worked with adult learners in a community literacy agency and attended the class once a week to participate in discussions and reflect upon their experiences. The findings of the study suggest that service learning experience of the LIS students through their work with community literacy agencies provided them with the first hand knowledge of the complexity of literacy provision for adult learners and gave an opportunity for intensive contact with people they might never have known if not for the course.
CHAPTER 3 METHODOLOGY

A survey methodology was used for data collection method in my research. For the purposes of my study, which looks into a specific group of students who have taken the course and have already graduated from GSLIS, a retrospective exploratory survey provided me with the opportunity to gather data from a large sample of respondents as a basis for understanding how a service learning experience may relate to the students’ subsequent outcomes and especially career development. Findings can suggest hypotheses that can be investigated in future research using other methods. Looking at the cohorts who graduated at different times will provide the opportunity to see if there is an immediate impact or an impact taking place over a period of time.

3.1 Survey Research

While there is a general belief that surveys can be a powerful and useful tool for collecting data on human characteristics, attitudes, thoughts and behavior (Doyle, 2004) and survey research methods are widely used in many disciplines, including library and information science, the reason that I selected this research method was the opportunity to reach out to a large number of distributed respondents in an accessible way using the online survey software Inquisite and all its features. Also my target audience included many librarians who are used to responding to surveys. As one of my respondents, who accidentally deleted my email with a link to the survey noted: “Librarians love surveys. I get at least 2 or 3 surveys every week.” Librarians and libraries have conducted community and library surveys for a long time for the purposes of gathering information about different aspects of libraries (Busha & Harter, 1980).

A number of options exist for conducting surveys including face-to-face, telephone, mail and the Web. “The future of surveying is far more likely to evolve towards the use of different survey modes for different studies, than it is to disappearance of older modes in favor of only one or two new ones” (Dillman, 2002). Survey research methodology seeks to tailor the data collection mode to the population and the survey problem. It is more likely for the
researchers to create a survey methodology that works best for their population than simply adopting a standard methodology recommended in survey texts (Dillman, 2000; Dillman, 2002).

3.1.1 Web-based surveys
With the increasing use of the Internet and Web for many tasks, Web-based survey use has been growing at a rapid pace (Solomon, 2001; Yun & Trumbo, 2000; Schonlau, Fricker & Elliott, 2002; Crawford, Couper & Lamias, 2001). While conducting an informal search of Yahoo, Kay and Johnson (1999) identified over 2,000 Web-based surveys in 59 areas. While not all those were serious surveys, it still shows the trend. The Internet has democratized the survey-taking process and there is speculation that Web-surveys will replace traditional methods of data collection. Today survey professionals and large organizations are not the only ones conducting surveys on the Web (Couper, 2000). According to Internet World Statistics there are over 1 billion Internet users worldwide, and over 233 million in North America including 211 million in the United States. Such rapid expansion of Internet users has given Web-based surveys the potential to become a powerful tool in survey research and led many marketing agencies, public polling organizations, government offices, and the growing number of social science researchers to take seriously the Internet’s potential as a tool for conducting scientific research (Sills & Song, 2002).

While there are significant advantages that Web surveys offer over traditional survey methods, there are some serious methodological issues and a great number of concerns (Solomon, 2001; Crawford, Couper & Lamias, 2001). Restriction of access, an inability to develop sample frames, and low response rates compared to the telephone survey create certain limitations for using Web surveys (Schonlau, Fricker, & Elliott, 2002). There is a wide range of issues to be addressed to make sure that the Web surveys could be used to their full advantage and provide a high response rate. To name just a few of them in addition to those already mentioned:
• Availability of the respondent’s valid e-mail address and Internet access;
• Respondents checking e-mail on a regular basis;
• Availability of appropriate and compatible technology;
• Ease of access to the survey: ready URL to access or requirement to input a unique user ID and ambiguous password;
• Design and format of the survey;
• Presence of a progress indicator;
• Familiarity with the topic/issue;
• Availability of time;
• Basic computer knowledge.

Some of the major considerations in the use of Web surveys are discussed below.

The uniqueness of the Web surveys as opposed to other methods of data collection is the fact that they are self-administered. Web surveys lack the intermediary, a well-trained interviewer who can assist with different aspects of the survey including explanation of terms, reassuring confidentiality, etc. The role of the intermediary is played by the survey instrument itself which presents the questions to the respondents, and the respondents in their turn convey their answers through the instrument as the only way for them to communicate with the researcher. This distinguishing feature of Web surveys imposes certain pressure on the survey instrument: it needs to be easy to understand and complete, wording needs to be self-explanatory, and the respondents need to be kept motivated. There is a trade-off between a fancy design that will attract and motivate a respondent and not too much technological sophistication which will “scare” them. This is directly related to the issues of Web survey design and non-response discussed below.

Another unique feature of Web surveys is that unlike mail surveys which are static instruments, Web surveys can make use of the full power of computer-assisted interviewing (CAI) methods. The CAI include automated branching and skipping, tailored fills or
question wording, and feedback which could be powerful tools for interacting with respondents (Couper, 2001).

### 3.1.1.1. Design Issues
In terms of overall design of a questionnaire, a Web survey has an advantage in graphic power. It is possible to use html or JavaScript to create an attractive, interesting, and compelling survey that is inviting to respondents (Schillewaert, Langerak & Duhamel, 1998). It is possible to use different formats in a Web survey. Question text in Web surveys can be supplemented with a variety of visual elements, including color, graphics and interactive features, which can facilitate or distract the respondents from completing the survey.

Concerned by the fact that there is not much empirical research on the effect of the format or design of the Web surveys on the levels of unit and item response or data quality, Couper et al. (2001) conducted a study on the impact of the design features on resulting data quality. Based on the results of a number of experiments added to a Web survey of students’ attitudes towards affirmative action, the authors suggested that there are systematic effects of design on the behavior of respondents in Web surveys. Graphic layout, presentation of questions, and number of questions per page have been described as three major issues concerning the visual design of Web questionnaires (Bowker, 1999; Couper, 2001; Couper, Traugott & Lamias, 2001; Dillman & Bowker, 2001, Manfreda, Batagelj & Vehovar, 2002;).

### 3.1.1.2 Reasons Behind Nonresponse
One of the biggest issues with Web surveys is a low response rate which is mostly influenced by interest in the topic and the technology of responding (Vehovar et al., 2002). Another source of nonresponse to Web surveys stems from problems experienced by individuals as they attempt to complete them. Observing people while they attempt to complete Web surveys, Dillman and Bowker (2001) discovered that lack of basic computer knowledge and poor questionnaire design led to premature termination of the survey. They summarized the major issues causing the frustration of the respondents as follows:
• Not knowing how to provide and erase certain answers, e.g., radio buttons, which require clicking on a different answer choice vs. HTML boxes which require reclicking the same box;
• Not knowing what to do with a drop-down menu;
• Not being able to see all of the answer choices without scrolling the page up and down;
• Being forced to answer every question, even when none of the answer choices seemed appropriate;
• Not knowing how close to the end of the questionnaire they were;
• Only being able to see one question at a time, so that when their concentration was interrupted they had to figure out how to back up and see a question in order to answer the current one;
• Having to take multiple actions to answer each question (e.g., clicking on an answer choice, moving to the scroll bar in order to reveal a “click for next page instruction,” and then clicking on that instruction to make the next question appear).

Dillman et al. (1998) report on the results of an experiment in which they compared the completion rates for a sophisticated questionnaire created with html graphics and a simple one printed in black letters on a white screen on a traditional paper questionnaire display. Response rate for the plain design was 41.1% compared to 36.29% for the fancy.

Realizing the need for developing research-based procedures which will reduce survey error, 14 principles of design for Web questionnaires have been developed (Dillman, Tortora & Bowker, 1998; Dillman, 2000). (See Appendix G)
3.1.1.3. Speed
Speed of completion of Web surveys is considered one of its biggest advantages. In Couper et al.’s (2001) study, by the end of the first day 30% of the total number of completed surveys was received, by the third day, 50%. But as mentioned above, there are numerous factors which can prevent the respondents from providing responses in a timely manner. In contrast there are certain approaches which can be used to “speed up” completion. I will share the approaches that helped me to accomplish a speedy and high response rate in my research in the following chapters.

3.2 Survey Participants
The concept of population as any set of persons or objects that possesses at least one common characteristic is fundamental to survey research (Busha & Harter, 1980). The target population of my study consisted of students enrolled in LIS 451 taught by the same instructor, Martin Wolske, since a service component was integrated into the course in the Fall of 2000. Because of the type of survey, the additional requirement for participation was having a valid e-mail address. Lack of it disqualified a small group of students from participating; those were the students who did not have any current contact information. The survey is retrospective as it gathers current data from students who graduated over a period of 6 years.

The total number of students who took the course from Fall 2000 until Spring 2006 was 340. While the course continues to be offered in the semesters following Spring 2006, that particular semester was selected as a cut-off date for my research. Since my target population consisted of the GSLIS graduates who completed the course, and I was aware that the students were taking the course at different stages of the program (some at their first or second semester, some towards graduation), I hoped that some of the students in the Spring 2006 cohort would graduate by my planned time of launching the survey in the Fall of 2006. As it turned out, only 230 students were eligible to participate in the survey. The non-eligible respondents included the following categories:
• Class guests – anyone within and outside GSLIS, who requested access to the course for different purposes including work-related, research or just sitting in;
• GSLIS students who took the class but did not graduate yet;
• Undergraduate students enrolled in Information Technology Studies minor at GSLIS and other colleges across the campus;
• Graduate students from the other colleges across the campus;
• The graduates of the course and GSLIS who did not have any contact information that could be used to locate their valid email addresses

3.2.1 The Population of 340 Students
While all the courses included in the study were taught on campus, the course management system used for the Library Education Experimental Program (LEEP) was also used for these on-campus courses. Information about the students enrolled in the INIS course has been stored on the GSLIS LEEP server. The access to each course had been available only to the students enrolled in it or the registered guests. The Instructional Technology Office (ITO) has granted me access to the Web spaces of the classes that I was covering in my study which was limited to the class lists and course syllabus. The separate lists with the names of students enrolled per semester have been created based on the information from the course pages. A single master list including the names of the 340 students enrolled in the INIS course for the selected semesters was created and sorted in alphabetical order.

Table 1 below contains the number of students enrolled in the INIS course per semester from Fall 2000 to Spring 2006 before the non-eligible students were excluded.
### TABLE 1
The Number of Students Enrolled in the INIS Course Per Semester

<table>
<thead>
<tr>
<th>Semester/year</th>
<th>Total # of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>FALL 2000</td>
<td>41</td>
</tr>
<tr>
<td>FALL 2001</td>
<td>36</td>
</tr>
<tr>
<td>SPRING 2002</td>
<td>38</td>
</tr>
<tr>
<td>FALL 2002</td>
<td>40</td>
</tr>
<tr>
<td>SPRING 2003</td>
<td>15</td>
</tr>
<tr>
<td>FALL 2003</td>
<td>38</td>
</tr>
<tr>
<td>SPRING 2004</td>
<td>31</td>
</tr>
<tr>
<td>FALL 2004</td>
<td>22</td>
</tr>
<tr>
<td>SPRING 2005</td>
<td>22</td>
</tr>
<tr>
<td>FALL 2005</td>
<td>28</td>
</tr>
<tr>
<td>SPRING 2006</td>
<td>29</td>
</tr>
</tbody>
</table>

#### 3.2.2 Selecting the Eligible Respondents

After having the master list in place, the next step was to exclude the non-eligible respondents. Some of the guests (like the director of Prairienet who has been assisting with the course, but was not a registered student) were registered as a guest for a few classes. I was also added as a guest to each class in order to have access privileges to the class Web site. Being an insider in GSLIS and familiar with the people in the lists, including some guests, was an advantage for me. The names in the master list were compared with the names in the alumni database which was also stored on the LEEP server and contained the names of 1746 alumni members. A list of all MS degree students at GSLIS was used for clarification of the status of the students who have not graduated yet. This list was especially helpful for verification of the graduation status of the students who took the course for the last few semesters included in the research. The UIUC online directory was also used for detecting the non-GSLIS affiliated students. The list with the names of “undetected students” was also reviewed by the Associate Dean and admission officers at GSLIS. As a result of the joint efforts 90 names (my name was repeated 11 times but one of those was my official registration to the course when I took it; the name of the Prairienet director was mentioned twice), 78 individuals were determined as non-eligible. The survey sample decreased from 340 to 250 potential respondents. The next task was to locate the valid e-mail addresses of these 250 people.
3.3 Background Work on Questionnaire Design

While working on the literature review and formulating my research questions, I started to brainstorm the questions to be included in the survey and how they would relate to my research questions. Realizing the importance of being careful and considering multiple factors while designing the questions, I tried to follow these guidelines for successful question design (Babbie, 1973; Busha & Harter, 1980; Doyle, 2004): Making items clear; having questions relevant, shorter, unbiased, reliable and easy to answer; avoiding usage of negative and biased items as well as slang and jargon; and sequencing questions from the general to the specific.

Using the major service-learning outcomes such as personal, social, learning and especially career development suggested by Eyler and Giles and provided in detail in an earlier chapter, and keeping in mind my major focus on the careers of the students as well as thinking about the basic demographic information, I came up with the following list of features for the questions to be included in the first draft of the questionnaire (see Table 2 below):

<table>
<thead>
<tr>
<th>TABLE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Features for Survey Questions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEMOGRAPHICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Semester/year graduated from GSLIS</td>
</tr>
<tr>
<td>Current location (city, state)</td>
</tr>
<tr>
<td>Current Position</td>
</tr>
<tr>
<td>Type of Organization</td>
</tr>
<tr>
<td>Library Academic</td>
</tr>
<tr>
<td>School</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELATED EXPERIENCES WHILE AT GSLIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practicum</td>
</tr>
<tr>
<td>Volunteer work</td>
</tr>
<tr>
<td>GAship at Prairienet</td>
</tr>
<tr>
<td>Other Community Projects</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RELATED EXPERIENCES BEFORE GSLIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volunteer Work</td>
</tr>
<tr>
<td>Community Service related activities/job</td>
</tr>
</tbody>
</table>
TABLE 2, cont.

<table>
<thead>
<tr>
<th>MOTIVATION FOR TAKING LIS 451</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required for my specialty</td>
</tr>
<tr>
<td>Learn technology</td>
</tr>
<tr>
<td>Opportunity to engage in community outreach project</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEARNING OUTCOMES QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECHNOLOGY RELATED</td>
</tr>
<tr>
<td>Increased knowledge of technology</td>
</tr>
<tr>
<td>Increased comfort in working with technology</td>
</tr>
<tr>
<td>Problem solving technology problems in real-world setting</td>
</tr>
<tr>
<td>COMMUNITY-SERVICE</td>
</tr>
<tr>
<td>Increased interest in community-service related activities</td>
</tr>
<tr>
<td>PERSONAL DEVELOPMENT</td>
</tr>
<tr>
<td>Personal Efficacy</td>
</tr>
<tr>
<td>INTERPERSONAL DEVELOPMENT</td>
</tr>
<tr>
<td>Ability to work with others</td>
</tr>
<tr>
<td>Leadership and communication skills</td>
</tr>
<tr>
<td>SOCIAL OUTCOMES</td>
</tr>
<tr>
<td>Facilitating cultural and racial understanding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAREER DEVELOPMENT QUESTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positions held since graduation</td>
</tr>
<tr>
<td>Involvement in community service</td>
</tr>
<tr>
<td>Factors influencing career path</td>
</tr>
</tbody>
</table>

While most of these features have been used as a framework for the further versions of the survey, looking at them after completing the data gathering and starting the initial analysis, I realize that based on the survey responses, some of the outcomes are extremely important and are constantly repeated in responses to different questions, while others are not seen as important to the respondents. A copy of the initial draft of the survey (Version #1) is provided in Appendix H.

3.3.1 Pretesting a First Draft of the Survey

The best way to test a questionnaire is to conduct a pretest (sometimes more than one is needed and is quite helpful) by sending a questionnaire to a small number of respondents before conducting the survey of the full population. This helps not only to reveal
unanticipated problems with question wording and format; it can also help to see if the respondents understand the questions (especially the open-ended ones) and are giving useful answers. Conducting a pretest provides an opportunity to get feedback from a few members of the population, so that the survey can be redesigned based on their comments which will make the survey implementation process much easier. Being aware of the fact that the survey might not be able to provide the richness of data that one can get through interviews, and realizing the difference in the format and scope between the two research methods, I was hoping to get a lot of feedback from the open-ended questions which constituted 40% of the questionnaire as opposed to 60% of closed questions. I spent almost a month on putting together the first draft and consulting with my committee members on a regular basis. A copy of the initial draft of the survey is provided in Appendix H. This draft was used for my Pretest #1, when the copies of the survey were sent as an email attachment to 6 students who took the class in different semesters. A short cover letter explaining the purpose of the study was included in the email message. I heard back from 4 students who in addition to filling in the questionnaire (unfortunately they mostly concentrated on closed questions and gave quite short answers to the open-ended ones) provided detailed comments on every aspect of the questionnaire including format, design, wording and most importantly the content of questions. Some of the questions did not make sense to them at all. They provided advice on how to group the questions from the same category, and how to get rid of subsections that I created. Instead, I came up with a short description of the whole project in one box at the beginning of the survey which I incorporated in the next version of the survey. I was also encouraged to move demographic information questions to the end of the survey. This whole exercise would have been more efficient if I worked with the specific survey software that I was going to use for the actual survey. While you are using the same content for both types of survey, the whole approach to design, wording, formatting is quite different. These differences are quite apparent while looking at the copies of the print and Web surveys provided in Appendices H-K.

Based on the feedback provided by the pretest respondents, and discussions with my committee members, a new version of the survey, Version #2 was created (see Appendix I). In the meantime I went back to the literature to make sure that my questions reflected all the
factors in terms of career development, learning experiences and other outcomes that I will consider in my analysis. Keeping a direct connection between the stated research questions and what I was trying to get by asking the questions in my questionnaire was also one of my major tasks. Based on the above mentioned criteria and after consulting with my committee members I compiled a new version of the survey in which I consolidated some of the open-ended questions as well as added some new demographic parameters like types of location: metropolitan, suburban, rural; and the semester the course was actually taken along with reconsolidating and regrouping some of the closed questions. A copy of that Version of the survey (Version #3) is provided in Appendix J.

Based on the results and the positive experience with a first run of my pretest, I decided to run a second pretest of the final version (Version #3) of the survey. This time I sent the surveys via email to another 6 respondents and heard back from 3 of them and received just a few minor comments on design, wording and contents of the questionnaire like using What was your major motivation for taking the course in Question #1 instead of What motivated you to take this course? The other comment on that same question was not limiting a choice to Choose one because More than one option might be applicable. There were some good answers for my open-ended questions along with the closed ones. For example one of the replies on Question 7: Please briefly characterize your experiences in the course, highlighting both positive and negative aspects was:

“The course provided with useful hands-on experience in establishing optimum configuration, installing software, assembling the network from scratch – with the minimum of resources. Although I have never been a techy and have not used these skills in my everyday life since the course (as a result most of them faded away), my level of confidence with technology increased, I know that I can do it if I need to - especially as part of a good team. Teamwork (in my LIS315 lab group’s case – interdisciplinary and cross-cultural) was an extremely valuable component of a course. The most important to me part of the course was interaction with real people in East St. Louis, learning about the community problems and how local activists do their best to solve these problems, seeing the progress and being a part of collaboration on improving community life. As an international student, I could not even imagine before taking this class that there were places in US where people lived such hard lives; learning this and learning more about African Americans through personal interaction during the project expanded
As we see from the example of this brief paragraph authored by an international student, the course helped not only to gain certain professional skills including technological skills, teamwork, problem solving and working with community but also served as an eye-opening life experience, exposure to a different side of America that students wouldn’t have had if not for the INIS course describing it as “expansion of her outlook”. This example is also a good demonstration of the fact that even though the student doesn’t talk directly about her career or the impact of the course on her career, or the relevance of these to the LIS profession, it seems likely that those skills will be an asset in her career. More justification of this will be presented in the analysis of responses to the open-ended questions in Chapter 4.

At the same time only one respondent among those three responses had a NO answer to the major question of my survey on the impact on career development.

Please indicate if this course has had an impact on your career choice/career development.
YES □ NO X
If YES, please explain how

Two other respondents did not respond to the question. It might be just a coincidence that they did not experience any impact and they did not think that the question was important, or they might have ignored a description of my research in my cover letter sent by email. It made me think that I might not be able to get the information that I needed by asking this question directly, but I would be able to pull out the career related information from responses to other questions. Or I might have to reformulate the questions on career impact somehow. I thought I might need to make some additional changes to the questionnaire and run the last pretest before surveying the entire population. But in consultation with my committee I decided to simply change the wording of my questions on career to engage my respondents in providing quite thoughtful reflection on their experiences.
3.4 Design and Implementation of the Web Survey

Review of the extensive literature on Web survey methodology (see Chapter 3.1.1) helped me enormously throughout the whole process of building, implementing, administering and analyzing the survey.

As indicated earlier, due to the time constraints and finalizing the choice of Web survey software, I had to create the original drafts of the questionnaire in print form and distribute the pilot surveys in electronic format via e-mail as an attachment. While I was able to get valuable feedback from the respondents of my two pilot surveys, I spent a lot of time on the design and format of the instrument used for the pilot surveys not realizing that those aspects wouldn’t be used for the Web survey.

Access to Inquisite, the Web-based survey software, was secured for my use by the Library Research Center (LRC) – a research unit at GSLIS. LRC subscribed to Inquisite and had used it extensively in their work. The Inquisite Web Survey System became the major tool for the purposes of building, implementing and managing the Web survey for this research.

3.4.1 The Inquisite Web Survey System

Inquisite Web Survey System is user-friendly software which provides a simple way to create and analyze surveys without the need for specialized IT support. The system provides a quick way to build one’s own survey, publish it on the Web and manage it by the survey management system. The system allows creating sophisticated surveys with a highly professional look and feel and no programming skills are required. The system allows one to link the surveys with the other applications and import and export data quite easily to different formats. The Inquisite online manual - Learning Center provides guides, guiding tours and tutorials including a video on different modules of the system: building the surveys, administering and analyzing. The online reference library provides a glossary and definitions of the major terms and menu commands.
While considerable time was required to study the documentation and do some experimentation with the survey builder as well as to look into literature for valuable tips on how to make the survey more operational and attractive and ensure a good response rate, I did not spend much time on building the survey itself. There were a number of advantages that I received as a part of the “Inquisite package”. In addition to saving lots of time and money that I would have spent if I had used traditional survey methods to support publication of the survey, its distribution, collection of the responses, and sending the reminders and distribution of the results (envelopes, postage), the major benefit I received was access to the server through LRC on which the Web Survey System was stored. All the needed software support was taken care of by LRC and GSLIS technical staff in cooperation with Inquisite technical support.

While using Inquisite and getting familiar with its features, I had the impression that the Inquisite creators took into consideration a lot of issues which have been reported in the literature as potential drawbacks of Web surveys (See Chapter 3.1.1 on Web surveys). Some specific attributes I used for building my survey and that are major strengths of the system include:

- The enhanced templates and introduction of styles including multiple visual attributes such as fonts, colors, tables applicable to each type of control: question, table and text simplified the whole survey building process and resulted in an attractive, professional looking survey;
- Ability to display questions in a grid style layout and add banded colors to alternating rows;
- Customized look of the navigation area of the survey including choosing different button styles and being able to create a unique name for each page;
- A new progress bar providing the information to users on how far along they are in the survey;
- Ability to insert Web hyperlinks and add images, as well as direct importing of BMP files into the survey.
The following are a few examples of the screen shots of my survey demonstrating the features described above:

FIGURE 2
Example of a Survey Builder Editor Page with a Demonstration of the Enhanced Template and the Edit Features for Question Properties Using Different Attributes

FIGURE 3
Example of a Survey Builder Editor Page with a Demonstration of Question Styles Editing
Further sections of this chapter will provide a detailed analysis and account of the work that I undertook to develop, implement, manage and analyze my survey from the beginning until its final completion and will refer to specific features of Inquisite as appropriate.

3.4.2 Building the Actual Instrument

As indicated in the previous sections, the first three versions of a print form of the questionnaire were created originally (see Appendices H-J) and used in pre-test surveys. Based on the feedback received from the respondents and the members of my dissertation committee a final version - Version #3 (Appendix J) was the version to be “transferred” into the Web survey (Appendix K).

While the formats and design of those two surveys were quite different, part of the content of the print form was transferred into the Web version. Even though the difference in number of questions in both versions was only 3 fewer questions in the Web survey compared to the print form, approximately 20% of the new questions were added to the Web survey and almost the same numbers of questions were excluded from the paper form.
3.4.2.1 The Process of Conversion of the Paper Form of the Survey into the Web Survey

In describing the process of how the Web survey was created and what factors of format, design and contents were taken into consideration, I will be building on the comparison of the two surveys.

First I will concentrate on the content, later describing in fuller detail the design and format decisions that I had to make while building the Web survey. It is important to note that all decisions on change of content of the questions were based on the nature of outcomes that I was looking into within the framework of my research questions as well as the theoretical framework of my research.

The paper form questionnaire consisted of 23 questions. The first 2 questions were multiple choice questions about motivation to take the course and how the students learned about the course:

1. What motivated you to take contin: _Learn Technology_ _Opportunity to work in a real community_ _setting_ _Instructor_ _Time the course was offered_ _Other_

2. How did you learn about the course? _Course catalog_ _Recommended by other students_ _Found information on GSLIS website_ _Through Peer_ _Recommended by Advisor_ _Other_

In the Web survey the first question stayed the same; the only difference was that the respondents were given a choice to check all the items that applied:

1. What motivated you to take LIS 315/451 Introduction to Networked Information Systems (INIS) Course? (Check all that apply)

- Gain technological skills
- Gain field work experience
- Reputation of instructor
- Reputation of the course
- Other
Based on feedback from the second pilot survey as well as discussion with my committee members, Question 2 was dropped from being included in the Web survey. How students learned about the course did not seem to have a big influence on the impact of the course as compared to motivation.

East St. Louis has been a major site for implementing the service-learning and community projects within the course, along with a few sites in Urbana-Champaign, Danville and so on for all the years included in the study. In East St. Louis, a community with a high incidence of poverty that was desperate for help with information technology and training, the students were potentially getting their richest experiences including work on community projects. So asking the question about the location of the project was quite important.

The next four questions of the original questionnaire were as follows:

<table>
<thead>
<tr>
<th>Question 3</th>
<th>Please indicate your level of agreement with the following statements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Participation in this class:</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Increased my understanding about computers</td>
<td>□</td>
</tr>
<tr>
<td>Increased my knowledge of computer networking</td>
<td>□</td>
</tr>
<tr>
<td>Increased my comfort level with computers</td>
<td>□</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4. The community-based project:</td>
<td></td>
</tr>
<tr>
<td>Changed my view of library and information services:</td>
<td>□</td>
</tr>
<tr>
<td>Changed my understanding about people living in poverty:</td>
<td>□</td>
</tr>
<tr>
<td>Changed the way I think about LIS professions:</td>
<td>□</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5. The experience in this class:</td>
<td></td>
</tr>
<tr>
<td>Improved my ability to work well with others:</td>
<td>□</td>
</tr>
<tr>
<td>Improved my leadership skills:</td>
<td>□</td>
</tr>
<tr>
<td>Improved my communication skills:</td>
<td>□</td>
</tr>
<tr>
<td>Improved my team work skills:</td>
<td>□</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Doing work in the community helped me:</td>
<td></td>
</tr>
<tr>
<td>To better understand my personal strengths and weaknesses:</td>
<td>□</td>
</tr>
</tbody>
</table>

Multiple choices within Question 3 and Question 4 were consolidated into one before they were transferred into a Web version. For example, in Question 3 the three different
technological skills of understanding about computers, increase of knowledge in computer networking and comfort level with computers were brought together as general technological skills. In Question 4 the second choice: changed the understanding of people living in poverty was dropped and view of library and information services was consolidated with the way I think about LIS professions. The skills mentioned in Question 5: leadership, communication and teamwork skills are the core of the personal outcomes as the result of the service-learning experience, thus they were retained and transformed into the Web version the way they were and presented in a separate table. The table functionalities of Inquisite helped to place each single category in a separate row. Level of agreement is based on a Likert Scale. Question 6 was totally dropped from the Web survey: while understanding personal strengths and weaknesses while doing work in the community is important, they were already suggested in other questions. Enhancement of the ability to work with community organizations and members as one of the important outcomes of service learning was added as another row in the Table with Q3 and Q4.

The two tables described above were created in Inquisite survey builder using “choose one (radio button)” format which is used to solicit a forced choice from a set of possibilities, in my case a Likert Scale starting from Strongly Agree and ending with Strongly Disagree. The question also supports an optional Comments box, which allows the respondents to enter a different choice from the ones that were provided.
Questions 7 through Question 13 in the print questionnaire were open-ended questions. Transferring open-ended questions into the Web survey format was straightforward. Depending on how long you expect the answer to be you have to insert two types of boxes: Text Question box and Paragraphs (memo field). In an instance of a text question the number of characters that respondents can enter is restricted and this box allowed up to 255 characters. A paragraph field is used when the respondents are encouraged to provide more extensive information than what will fit in a text question. The memo field is limited to a maximum of 32,000 characters.

Realizing the value and impact of both negative and positive experiences of the students in LIS 315/451 course, Question 7 of the paper form of the questionnaire: *Please briefly characterize your experiences in the course, highlighting both positive and negative aspects* was incorporated into two separate questions in the Web survey and the one with the least valuable experience was stated first. For both questions as well as for the rest of the open-ended questions that were transferred into the Web survey, I used the paragraph (memo field) boxes to give the respondents enough space to talk about their experiences.

Questions 8, 9, 10 on other community experiences before, during and after GSLIS (see below) were completely excluded from the Web survey taking into consideration that the major focus of the research was the specific experience in the course and how it impacted the respondents.
A central question of the whole study is the impact of the course on career development, so Question 11 was transferred into the Web survey with only a slight change in a wording.

Question 12 on what the respondents remembered most and Question 13 for additional comments on the impact were incorporated into one question on the impact on the students and their subsequent careers, and grouped at the same page with a central question on career development.

Questions 14-18 of the print survey on age, gender, semester graduated and current location
were transferred into the Web survey with the exclusion of questions about the term the course was taken, presuming that not everyone would remember the term and it was not of the same significance as the semester/year they graduated. Those questions with additions to the question on the start time of professional work which was listed as Question 22 in the paper form were also grouped together on the Web survey. While the Age category was placed in a single choice button selection table, and the year was required for inputting in a small Text Question box next to the start of professional work question, a drop down menu with all the terms and years included in the research was provided for Question 17 (11 on the Web survey).
Question 19 on the title of the position of the respondent and Question 20 on the type of organization where the respondent is employed were the last questions of the print version to be transferred into the Web survey.

![Question 19 and 20](image)

The question about the type of organization the respondent preferred to work in after graduation was added to the Web version in addition to the transferred Question 20. As shown in the screenshot below, the choices of the types of organizations are far more expanded than in the original list. The names of the types of the organization have been adopted from the Survey of 2004 MS Graduates of GSLIS and their employers conducted in July-September 2005 by the Assistant Dean for Academic Affairs. The GSLIS survey was based on a model of the Library Journal Salary Survey of the recent Master’s Graduate Salaries and Placements, and the major objective of the survey as stated by the GSLIS administration and faculty was in gathering information from recent graduates to determine their initial career goals, current LIS area of employment, and satisfaction with the GSLIS program.
The importance of including Question 14 along with Question 15 was to identify the job preference of the LIS 315/451 graduates, which might be associated with the impact of the course. The goal of asking both those questions was to see the employment goals of our graduates compared with their current employment situation. The identical questions were asked in the GSLIS alumni survey as well.

As a follow up to these questions are Questions 16, 17 and 18 of the Web survey:

Asking for the job title is relevant information within the major focus of the present study - career development from the point of view of new trends in the profession and new specializations and titles such as community informationist, teen librarian, information architect, etc. In Q17 I wanted to determine if the position the respondent is holding is in the field of his/her choice. A response to this question can also shed some light on what the graduates of the course choose as their careers, and help to determine if these choices are impacted by their experiences in the course. If the response to Q17 is NO, Q18 is supposed to clarify why the person was not able to get employment in the area of his/her choice. Q19 is the last one in the series of career questions, and also reflects the trends in career development and career ideas of the graduates. Question 20 has been discussed above.
3.4.2.2 Major Considerations and Decisions Involved in Different Aspects of the Web Survey Creation

While I already touched on certain decisions made in regards to the format and design of the Web survey in the previous sections, in this section I would like to summarize the factors/issues which were extremely important during the process of survey building. These aspects including design and format issues have tremendously contributed to getting such a high response rate on the survey. The response rate will be discussed separately in section 3.7.

While I have worked with many paper-based surveys, my familiarity with Web surveys was limited to the level of an experienced respondent. I have not had any previous experience in designing Web surveys from scratch. Although a novice, I had the benefit of using software already in place and I did not have to worry about Web server space, technical requirements and technical support issues.

My major concern for the survey was for it to be efficient, operational, easy to navigate, and attractive to the respondents. My major goal was to have a high response rate. As indicated earlier I had to omit several dozens of potential respondents from my sample because they did not meet the requirements for inclusion and I wanted to get as many responses as I could from the remaining respondents I had. At the same time I believed that my survey should somehow make my respondents talk: I was anticipating getting a lot from the open-ended questions.

3.4.2.3 Invitation to the Survey and Consent Form

Before I even started putting the Web survey together my major question was where I would place my invitation letter and a consent form. I already had an idea about the whole mechanism of publishing the survey and having its URL; and how a process of assigning ID numbers to my respondents would work, and how they would be notified about the survey via e-mail. A big question for me was if I included the survey invitation letter and consent form in the e-mail or made it a part of the survey itself. I also had to come up with a text for the e-mail. After consulting the documentation and looking at some Web survey samples, I
decided to have the invitation letter combined with the consent form on the first page of the survey. This gave the respondents a chance to get the idea of what the survey was about and why they were asked to respond and how their anonymity would be preserved, which I hoped would help motivate them to respond.

By clicking on the “Next” button of the survey page navigator the respondents expressed their consent to participate.

In addition to this letter a short text of the email to be sent to each potential respondent was compiled as well which contained brief information about the survey and a direct link to the URL. A text of the invitation is provided in Appendix L.
3.5 Major Elements in the Web Survey

This section will briefly describe the major elements of the Web survey.

3.5.1 Graphics

At this point it is worthwhile to talk about the major elements of the survey: template and settings that have been used throughout the survey. I wanted to use some graphics in the template but I also knew that I have to be careful. Based on the reported literature, advanced graphics may improve the motivation and satisfaction of the respondents, but at the same time it can cause technological limitations such as long downloading time and distraction of the respondents (Vehovar et al., 2002). According to the experimental study conducted by Dillman (2000), respondents are more responsive to the Web surveys with plain graphics. Following these approaches I included plain graphics. By including the name of the school and a logo of the university, I was trying to show the respondents the “legitimacy” and importance of the survey. I used it as a trademark of my survey. The title of the course was included in case some people forgot the name and indicating both numbers of the course was important because it changed once. The created template was automatically applied to every page of the survey.

I also had to make decisions about colors and fonts throughout the survey and followed the rules of trying to stay neutral.

3.5.2 Progress Indicator and Page Navigator

I have included two elements: Page Navigator and Progress Indicator as a part of a template at the bottom of each page of the survey. Progress Indicator plays a key role in helping the respondents to proceed in completing the questionnaire and serves as an orientation in the whole completion process. While placing a progress indicator is a choice of the surveyor, the page navigator is the required element that navigates the respondents through the survey. The Inquisite logo in the bottom right was added automatically by the system.
3.5.3 Length of Questionnaire

The general rule which applies both to paper and Web surveys is that the shorter the questionnaire, the higher the response rate (Vehovar et al., 2002; Dillman, Clark & West, 1994). While converting the paper questionnaire into the Web form, I tried to keep the Web survey short and targeted within the topic of my research and the research questions stated. I also had to be consistent with what I promised to my respondents in terms of the time that they will need to spend to respond. According to my estimates they would have needed 20 minutes on average to respond to 20 questions. I also realized that some of the multiple choice questions will require less time than the open-ended questions.

While I already decided to have the survey divided into several pages as opposed to a questionnaire on one scrolling page (I believe Inquisite would not even allow that), I had to decide how many pages I would have and how much information and how many questions I would include on each page. I also had to use the same approach I used with the paper questionnaire, grouping the questions on the same subtopic in one category and placing them together. The details of my “grouping” decisions along with the screen shots of the pages of the survey are provided in section 3.4.2.1. A copy of the whole survey is provided in Appendix K.

As discussed above, Inquisite survey builder editing capabilities helped me to select different styles and colors to apply to different types of questions. I was able to place 20 questions plus the invitation/consent letter on the first page and the thank you on the last, onto 9 pages. Taking into consideration that almost 50% of my questions were open-ended and they would not take much space with their memo boxes for the responses, it was quite a reasonable number of pages.

Figure 5 shows how much time on average the respondents spent on thinking time per page.
Interesting conclusions can be derived from this distribution. While spending 2.5 minutes on getting acquainted with the invitation letter, it took them 0.5 minute to respond to the motivation question in which they had to get acquainted with 4 choices and check all that apply. More than 6 minutes were spent on responding to the questions on page 3. As indicated earlier, I consolidated a few questions in two separate tables, and presumed that this format would be easier to comprehend. Each question had a level of agreement based on Likert scales. I had incorporated quite colorful graphics on that page as well. It looks like all my efforts were not effective in terms of saving time and attracting the respondents. On the other side based on my response rate (see later in section 3.7) they were not disruptive as few respondents abandoned the survey. The major open-ended questions on least and most valuable experiences (P.4) and the career impact question and what is remembered most (P.5) took on average between 3.5 and 4.5 minutes accordingly to respond. While it took only a few seconds for the respondents to click the finish button on the last Thank you page, one of the major problems of the lower response rate at the beginning was that some subjects had the impression that they completed the survey when they clicked on the next button on Page 8, and they never made it to page 9 to click on the finish button which was placed in a page navigator box instead of the next page.

Table 3 below shows the average and median time in seconds spent on each page views.
3.6 Sending the Invitations

3.6.1 Step 1
After completion of the work on my Web survey instrument and having IRB approval in place, the next step in the survey implementation was to send the emails to my potential respondents with the invitations to participate in the survey and providing a link to it. In this section I will discuss the process of delivering emails to the respondents as well as the details of validating the email contact information of the respondents.

3.6.2 Verifying Emails
As indicated in Chapter 3.2, based on the eligibility requirements, the final number of the subjects to be surveyed was 250. Since all the respondents already graduated from GSLIS, and the study is directly dealing with GSLIS, the email information of the alumni was secured through the Office for Alumni Relations at GSLIS. I received a list of the verified emails of all GSLIS graduates for the six year period I was examining, and my task was to extract the names which were in my roster of the students who took the Introduction to Networked Information Systems (INIS) course. During a process of extraction, my first
finding was that almost 50% of the names in my INIS roster were missing from the Alumni list. Having the advantage of being at GSLIS for the same period of time that my study covers and taking the class once and being an insider, I was able to recognize some of the names from “the missing emails” list and add their email information after I sent the test messages to each of the addresses I found. With those emails added to the ones I retrieved from the alumni list I had the contact emails of a total of 183 respondents and I was missing 67. I checked with the Alumni office the validity of the emails on their list and they reassured me that they all are valid because they were validated by using email validating software.

3.6.2.1 Sending a First Batch of Invitations
Since Inquisite’s “Manage Invitation” module allowed me to create multiple lists and send invitations in different batches, for the purposes of saving time, I decided to send the first batch of invitations to those 183 potential respondents (later in the process that figure changed to 178 total because 5 respondents whom I contacted for the follow up chose not to participate). The Data Import Wizard allowed me to import the email addresses from my list that I converted into an ASCII text file. The same tool would allow me to input email addresses manually and make any edits in the existing list, which was very handy when I had to make changes in the emails later.

![Image of Email Invitation Template](FIGURE_6.png)
The next step after the list creation was inviting the respondents by sending the invitations by e-mail. The invitation template used for doing that is presented in Figure 6 above.

Since Inquisite was kindly provided by the Library Research Center (LRC) and for the purposes of being more “representative”, the LRC UIUC was used as Display name in the invitation wizard. A separate email address for me was created by LRC as a part of the Inquisite set-up. I was supposed to receive all the responses, but technically all the responses were redirected by the Inquisite System to the server. That email helped me to monitor the bounced emails and get the emails from the respondents if they had questions. While sending the invitations out I was able to use Invitation wizard and schedule the time for the emails to be sent including distribution times and days, distribution rate and invitation start time. As soon as invitations are sent, the system produces the mail log which confirms a successful delivery. The Mail log was monitoring every single invitation sent as well as the reminders and specified the time and the date. (See Appendix M for an excerpt from this list.) While the responses are being received the System also automatically produces response rate reports including the lists of people who responded and who did not. (See a screenshot in Figure 7.)
The official start of my data collection began on November 7, 2006 and it stopped on May 22, 2007.

3.6.2.2 Verification Continued

After I sent the first batch of email invitations I started to look for the missing emails of the remaining 67 respondents. I found that I had a substantial number of non-valid emails added to this list after I started to contact the people as a follow-up and would find out that they did not receive the invitation. I started the email validation process from the GSLS alumni Web site and the University online phone directory. The information in the GSLIS online directory was based on the profiles of the students created during their time at GSLIS. As soon as they graduate, the profile is moved to this Web page. A lot of students did not update their contact information. The same is true of the UIUC directory: it is a record created when a student starts at the University and, unless the student himself/herself updates the information, it would remain the same. I was able to locate some emails through those two directories. I also distributed the lists to the faculty and staff members at GSLIS who might have the information, and was able to get some valid emails through them. For the purposes of saving time, I started to send out smaller batches. I also got some bounced emails from my first big batch, and had to verify those emails as well. The process of verifying emails became almost a full time job and kind of an obsession. I used a number of reference tools including online phone books, people finders, and basic search in Google. As an information professional I would have never believed that it is extremely hard to locate that information about people like my potential respondents. Either they put their information in the public domain or the organization that they are affiliated with has their information posted as well. My experience in Web searching will be described in detail in the response rate section along with my experience with follow-ups which helped me to reveal a number of dysfunctional emails or the emails people never use and for which they did not have a “forward” feature installed. Some of my follow-up respondents were able to provide me with their valid addresses. With all my efforts in place I was still not able to locate updated information about 15 graduates.
3.6.3 Total Number of Invitations Sent

For the period of 6.5 months while the survey stayed active (the last response was received on March 21), a total of 230 invitations were sent in batches of different sizes. (See Table 4 below):

<table>
<thead>
<tr>
<th>Description</th>
<th>Members</th>
<th>Invited</th>
<th>Responded</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Email List</td>
<td>170</td>
<td>170</td>
<td>161</td>
</tr>
<tr>
<td>Subbatch</td>
<td>11</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Subbatch</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Sub batch</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>new attempts in 2014</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>and</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>and</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>bouncedback plus</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>More</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>New Batch 2007</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>230</td>
<td>211</td>
</tr>
</tbody>
</table>

The reminders were sent a week after the original invitation was distributed and in some cases the reminder was repeated one week after. As described by Crawford et al. (2001) the reminders were found to affect the speed of return for completed responses. By the time the process of sending the invitations stopped and the survey was closed after staying active for 6.5 months, the total response rate of the survey was 91.74%; 211 respondents out of 230 participated in the survey and provided feedback.

3.7 Survey Response Rate

The response rate of this survey is considered extremely high. While a generally accepted opinion is that the Web surveys typically have had poor response rates, suggesting resistance to this method (Dillman, 2000; Vehovar et al., 2002), Brennan & Hoek reported (1992) Internet survey response rates as high as 70%. The reported response rates in Web surveys are usually below 50% in the vast majority of available studies (Vehovar et al., 2002). Reporting a response rate for college student surveys to be in the range of 25%-
35%, Bruce et al. (2006) present the following eight positive factors essential to achieve the high response rate of 92% for the survey conducted by the Center of Alcohol and Substance Education (CASE) at the University of Virginia in 2005:

1. Student involvement in the design of the survey and the implementation plan
2. Approval from the National Panhellenic Conference (NPC) Research Committee
3. Generous incentive structure
4. Reassurance of keeping privacy and anonymity
5. Tight survey design
6. Web based administration
7. Reminders sent while the survey was still live
8. Personal relations count

Crawford et al. (2001) believe that there is a lack of knowledge on how to achieve high response rates using the Internet Surveys. In this section I will provide a short overview of the major factors, approaches, and decisions which contributed to achieving a high response rate for this survey.

3.7.1 Response Rate Distribution of the Survey

The following two charts demonstrate the increase of the response rate distributed daily (Figure 8) and monthly (Figure 9). The Inquisite Survey System allows monitoring any minor change in response rate and reflects it immediately in the Mail log and response rate report.

Figure 8 below demonstrates the changes which took place almost daily since the beginning of the third week after the survey was distributed. The number of respondents by the end of 2 weeks was 116 which constituted 49.36% of the total number of respondents to whom the invitations were sent at that time. These results support the opinion that usually,
the majority of responses in Web surveys are received within the first few days of the data collection period (Batagelj & Vehovar, 1998).

Figure 8 shows how the response rate changed from month to month.

In the month of November the response rate increased from 49.36% which occurred two weeks after the invitations were sent to 68.1% by the end of the month. While different explanations for the high response rate will be provided later, it is important to mention that in the cover letter which is the part of the Web survey instrument, Page 1 (See Appendix K), I specifically said that I was hoping to get the responses before Thanksgiving. This also was one of the reasons that I sent the reminder invitation a week after sending out the
original invitations. While at that time specifying my time frame was very helpful, I should have included this detail in the email invitation, because it stayed as a part of the instrument for a long time past Thanksgiving.

By Christmas time the response rate was 82.46%, and stayed pretty stable until early February when the response rate was 82.89% and increased to 89.43% by the end of the month. Between February and March the rate increased slightly and reached 91.74%. Based on the percentage provided, one can see that a rapid increase of the response rate took place in the first 2 months (November and December), then it stayed almost the same with a slight increase in the month of February, and another slight increase in March. The last respondent to fill in the survey was March 21.

3.7.2 Factors Contributing to Achieving High Response Rate

In this section I will describe the factors and the strategies that I perceive to be essential in achieving such a high response rate and reflect on my experiences of communicating with my respondents which had a substantial impact on my response rate. The factors which influenced the response rate in my survey could be classified as technical and social.

3.7.2.1 Technical Factors

By technical factors I mean all the technological aspects of the survey including the design, content (which might not be considered purely technical), technical infrastructure and access issues (by which I mean access of the researcher to the survey management software/system and the access of the respondents to the Web). In its turn the technological factors can be divided into the “major” and “minor” impactors. Major impactors include all the technological issues (in which cost and time saving factors are embedded as well) associated with getting access, downloading, having a server space, technical support. All these details have been provided in Chapter 3.4.
Having survey software in place and individuals with expertise in using it was important to the success of the survey. Impactors under my control and my decisions based on the findings in the literature include:

- Length of my survey: short survey of 20 questions;
- Division of survey into separate pages as opposed to one screen: my survey was situated on 9 pages including a cover/consent letter on the first page and “finish” button and thank you on the last;
- Length of questions: trying to keep questions short and clear; vocabulary;
- Form of access: instead of providing net id, password and URL, providing a direct link to the survey;
- Design of the survey including:
  - A template with the use of plain graphics which made the survey attractive and easy to download;
  - Moderate use of styles including multiple visual attributes such as color, fonts, tables throughout the whole survey;
  - Use of radio buttons;
  - Use of check boxes;
  - Use of drop down menus for multiple choice questions;
  - Grouping the questions into sets;
  - Use of progress bar providing the information to users on how far they have proceeded with the survey;
  - Page navigator helping to go back and forth with the last and next question.
3.7.2.2 Social Factors
Social factors relate to the respondents, researcher and environment as well as connection and communication within those environments. In addition some cultural aspects should be distinguished.

3.7.2.2.1 Respondents
The impact of the “status” of the respondents on the response rate has been discussed in the literature. “Some populations - employees of certain organizations, members of professional organizations, certain types of businesses, students at many universities and colleges and groups with higher levels of education - do not exhibit large coverage problems” (Dillman & Bowker, 2001). The access to the Web, familiarity with the topic as well as technical expertise has an impact on the Web survey response rate. In my case my respondents were graduates of library school, who have been employed in LIS profession and have access to the Web, and have valid emails (which turned out to be not true in some of the cases). Vehovar et al. (2002) describe this phenomenon as the indirect effect of the social environment on participation through such factors as general economic development, telecommunications policy, educational system, and technological tradition.
In addition the survey was close to their area of expertise as well as based on their personal experiences. The biggest advantage of the survey was that the survey was coming from and was affiliated with their Alma Mater, and most of them had fond memories and kept in touch since they graduated. All these factors contributed to the high response rate.

3.7.2.2.2 Researcher Conducting the Survey
While I have elaborated on my position as an insider in this study in Chapter 1, it is worthwhile to mention how these advantages directly impacted the process of getting the high response. The whole communication system of prior contact and follow-up with the respondents via phone and email can even put this study under a classification of a mixed method because a lot of communication took place via phone in the form of short interviews.
Being familiar with my respondents was a big advantage for me, but even bigger was the fact that I was still affiliated with GSLIS and working with the Associate Dean as my Principal Investigator (her name was included in the cover letter and email), who is well known to all the students. I also had LRC mentioned as the organization which provided support as well as Library Research Center UIUC used as display name for my email invitations. It was mostly an advantage having the LRC email (LRCSurveys@gmail.com) set up, but in some instances people who were not familiar with it would not look at the message or delete it as spam. The subject line of the email message was the name of the course and the survey: LIS 315/451 Introduction to Networked Information Systems (INIS) Course; this likely also gave some motivation for people to respond. According to Crawford et al. (2001) the email invitation plays a disproportionately important role in eliciting responses to a Web survey. On a bigger scale, the field of LIS uses surveys a lot. This also could be legitimately considered as an advantage.

This study covers 6 years of the INIS course taught at GSLIS from Fall 2000 through Spring 2006. This is the exact time and even beyond that I have been at GSLIS. I also took the course in the Fall 2001. During those years I also TAed in some courses and my respondents were the students in those courses. In other words a certain percentage of my respondents had a previous familiarity with me. For me, I might not remember all the names but if their picture was displayed in their profiles at GSLIS alumni page, I would recognize the person. Even though I was not sending the email from my uiuc account which would have immediately shown my last name (not a typical American name – advantage as well), as soon as they opened their emails, they would see my name. The decision of the respondents to participate is based on the relatively limited information conveyed in the advance letter or communicated by the researcher (Groves & Couper, 1998).

There is something about personality, persistence and time availability/flexibility of the researcher which also contributes to the whole process and of course the response rate as well. As indicated above, my survey response rate was 49.36% by the end of the second week, and 68.1% by the end of the month the invitations were sent. So, I could have been
satisfied with that rate and waited a little bit more and closed the survey. As one of my respondents noticed: “If you have such a high response rate, why are you still trying to contact and follow up on more?” I personally think that the motivation for getting more responses came from my experiences of communicating with a few alumni who were quite happy to work on the survey, and I thought apparently there is some reason behind the non-response and it is other than they just ignore it. Vehovar et al. (2002) are convinced that a positive attitude toward survey participation in general increases the chances of participation in Web surveys. In addition, an important aspect of Web surveys is also the enjoyment of responding to a Web Questionnaire. I can add to this statement that a positive attitude and enjoyment of the survey researcher increases the motivation and willingness to do something more to increase the response rate.

In my case an enjoyable part and extremely valuable part was communicating with the respondents to locate the missing contact information, and determine reasons for nonresponse. While I did not officially send any pre-notice emails which are used to get the attention of the respondents (Sheehan & Hoy, 1999) before I sent the invitations out, I did engage in email and phone communication when initial contacts did not result in a response, especially when a valid email address was lacking. Trying to search for the names and emails was quite a challenging task: people have the same names and they are even in the same field, and when you finally find a likely person, he/she may turn out not to be the GSLIS alum sought.

Follow-up contacts and memos with non-respondents, personalized contacts, and contacting sampled people prior to sending out the survey were the three dominant factors in higher response rates reported in the literature and can possibly double it (Cook, Heath & Thompson, 2000; Kittleson, 1997). For this study I made at least 100 phone calls and have more than 400 emails archived in the process of communicating with the respondents. That was the most enjoyable part of my research: it was sort of reconnecting with the alumni who graduated but who still cared about the school. Sometimes it was just a short two minute interaction when I gave my spiel, and asked them if they would be willing to provide their valid email, so that I could send the survey. I had five people, who talked to
me, were nice but chose not to participate. I had people thanking me for doing this kind of research. I had lots of interesting findings. Through communication with the respondents I found out that there was a small mistake in the survey which gave people the impression that they finished the survey. I would call them and ask them if they are willing to do that and they would say, I just did that. When I would ask if they reached the last page and clicked on finished button and saw Thank You, they said no. A small percent of the respondents were not registered by the system because they never pushed that button. The other finding was that people change jobs and move, and their contact information changes. Sometimes I talked to their colleagues and was very careful in terms of privacy; I would always leave my contact information and ask them to pass it on.

While most of the factors described in this chapter could be applied to any kind of survey in general, it should be noted that the social factors around every survey might be different which can impact the response rate tremendously. In saying so I want to highlight that if I had not had those advantages in terms of having an organizational affiliation, being a partial insider, and having enough time to follow up and communicate with respondents directly, then my response rate would not have been as high.
In this chapter I will present the results of the survey and provide a detailed analysis of the data from the survey responses. The analysis will be conducted within the framework of the major research questions of the study as well as the main theoretical frameworks. The major service-learning outcomes in areas such as personal, social, learning and especially career development (Eyler & Giles, 2001) will serve as a framework for exploring major outcomes reported by students in the study. An important focus of the analysis will be targeted around the careers of the respondents.

Statistical data and basic conclusions will be presented as a result of a detailed analysis and discussion of all close-ended questions of the survey along with the open-ended questions. My analysis included coding and classifying the responses to the following open-ended questions:

*What were the least valuable aspects of the LIS 315/451 course? (Q5)*

*What were the most valuable aspects of the LIS 315/451 course? (Q6)*

*As you look back now and think about the course what do you remember most? (Q7)*

*How would you describe the impact the course had on you and your subsequent career? (Q8)*

*Do you have any additional comments on the LIS 315/451 course and/or subsequent career? (Q20)*

As indicated earlier, these questions emerged as a result of multiple pilot trials of the survey as well as extensive discussions with the thesis committee members. As a researcher, I was concerned about how to ask “good” questions, “the ones which will take
the research to a productive conclusion and will lead to answers that will serve the developing theoretical formulation” (Strauss & Corbin, 1998).

4.1 Developing Strategies for Organizing the Data to be Analyzed

My major objective was to organize for further analysis the extensive data output from the Web survey’s open-ended questions: 84 pages of text with the responses of up to 211 respondents. Applying certain classification procedures during processing and organizing the data assisted in the process of data interpretation and analysis. Strauss and Corbin (1990) identified three major components of qualitative research:

- Collecting data from different sources;
- The analytic or interpretive procedures (which is called “coding” and is based on the researcher’s experience and purpose);
- Written and verbal reports.

The procedures involved in this process “consist of conceptualizing and reducing data, elaborating categories in terms of their properties and dimensions, and relating through a series of propositional statements. Conceptualizing, reducing, elaborating, and relating are often referred to as coding” (Strauss & Corbin, 1998).

Because my research foci were determined in advance, I used the open coding procedures described by Strauss & Corbin (1998), but did not engage in grounded theory in its fullest sense. I was very much driven by the creative aspect of grounded theory – its theoretical sensitivity, which refers to a personal quality of the researcher and relates to understanding the meaning and subtlety of data. Grounded theory helps the researcher obtain experience and expertise, and provides the researcher with the ability to recognize the important data and formulate a theory (Barker et al., 2002). While a theoretical sensitivity was first described by Glaser in 1978 as the process of developing the insight with which a researcher comes to the research situation, Strauss and Corbin (1998) describe how sensitivity is applied to the meaning of data:
“Having sensitivity means having insight into and being able to give meaning to, the events and happenings in data. It means being able to see beneath the obvious to discover the new. This quality of the researcher occurs as he or she works with data, making comparisons, asking questions, and going and collecting more data. Through these alternating processes of data collection and analysis, meanings that often are illusive at first become clearer. Immersion in the analysis leads to hose sudden insights, “aha” experiences so familiar to those of us who do qualitative research.”

In addition having an already established insight on many aspects of the course, I was looking forward to discovering more in the process of recognizing, developing and relating the concepts present in the data. The major concentration of my research was career development in relation to service learning experience as reflected in the following research questions:

- **How does a service learning experience in the INIS course contribute to careers/career development of the students?**

- **Do the students relate their experience in the course, what they learned in the course to their ultimate careers?**

Therefore the concepts identified focused on relevance to career development.

The major outcomes of the course along with the major motivation of the students to take the INIS course closely related to a career “theme” and were also considered during the process of coding. I also realized that some categories outside the theme but quite relevant to my research might emerge. Finally, I started the analytic process of fracturing, conceptualizing and integrating data to form theory through applying an open coding approach (Strauss & Corbin, 1998).
4.1.1 Open Coding

Open coding is described as the process during which the raw data is initially examined and is broken open to identify relevant categories. “During open coding data are broken down into discrete parts, closely examined, and compared for similarities and differences. Events, happenings, objects, and actions that are found to be conceptually similar in nature or related in meanings are grouped under more abstract concepts termed categories. A process of formulating the core categories starts at this stage” (Glaser, 2001). There are several approaches to perform open coding: line-by-line analysis, analyzing by sentence or paragraph and perusing the entire document. Line-by-line analysis allows a close examination by phrase and even word by word. Coding by analyzing sentences and paragraphs provides a researcher with a major concept, and this type of coding is useful when the researcher has several categories in mind already and wants to code in relation to them. It doesn’t provide the depth that the line-by-line analysis does. Perusing the entire document provides a general idea of what is contained in the document and what are the differences or similarities compared to the other documents that the researcher looked at.

4.1.2 Stage One: Developing Initial Categories

Following the major stages of the open coding I started to read my 84 pages of open question responses word-by-word, line-by-line and tried to break down the data into separate units. While I was closely examining the text and coming up with the units, I started to compare them for similarities and differences to be able to conceptualize and label the data. By grouping the concepts into categories I hoped to reduce the amount of material that I was working with. At the first stage of the open coding, I was able to group the verbatim responses (some of them lengthy responses I had to summarize and not include as verbatim) into categories within each open-ended question. Before starting with the categories, I looked at the actual verbatim text and while discovering certain similarities between different responses, I came up with a category. In most of the cases I grouped the verbatim responses in their entirety unless they were extremely long, then I tried to summarize them. The verbatim in their entirety are provided in Italics as opposed to the summarized responses in a normal font. I also excluded the responses which did not carry
any meaning such as: “None”, “Sorry-it's hard to remember. This was at least four years ago,” etc. If a single response made two different points, I included it into two different categories.

As an example, Table 5 below provides the partial excerpts of several categories picked at random from the entire list of categories identified as a result of the open coding of Question #8: **How would you describe the impact the course had on you and your subsequent career?** A full and detailed record of categories with the responses included is provided in the Appendix N.

**TABLE 5**
Examples of Categories Identified in Q8 after the First Stage of Open Coding

<table>
<thead>
<tr>
<th>BASIC UNDERSTANDING OF TECHNOLOGY/SPEAK ABOUT COMPUTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Although I do not work in networking or systems, I do have a basic understanding of the technology that many of my colleagues do not have.</td>
</tr>
<tr>
<td>• It has also allowed me to speak more confidently about computers and networks.</td>
</tr>
<tr>
<td>• It has made me more fluent and able to relate and communicate with my organization's technology department.</td>
</tr>
<tr>
<td>• Gaining the idea of how computers and network system work.</td>
</tr>
<tr>
<td>• It enhanced my interest in computer/technology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIAL IMPACT GREATER THAN TECHNOLOGICAL/GIVING BACK/INTEREST IN COMMUNITY SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• I guess the social impact of the course was greater than technological one.</td>
</tr>
<tr>
<td>• I think the intangible stuff has had the most impact - learning about giving back, working with a team, etc.</td>
</tr>
<tr>
<td>• Also, outreach has been a major theme throughout my career so far. Nothing as dramatic as what I experienced in East St. Louis, but while working at universities I have always tried to give back to the community through workshops and presentations to the public libraries/librarians.</td>
</tr>
<tr>
<td>• It also was great experience for working with the public and with a community, as well as experience working with a team.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMFORTABLE WITH TECHNOLOGY/CONFIDENCE TROUBLESHOOTING SKILLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• I’m comfortable with tackling technology problems and experimenting with new technologies.</td>
</tr>
<tr>
<td>• It probably doesn’t help out my job much (being a children’s librarian) but I know that my confidence around computers does help.</td>
</tr>
<tr>
<td>• It made me feel more confident working with technology professionals because I recognized the “language” they were using.</td>
</tr>
<tr>
<td>• The course and St. Louis experience helped build my self-confidence in working with technology, especially the hardware side.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBLEM SOLVING SKILLS/PATIENCE ADDRESSING DIFFERENT SITUATIONS/ TROUBLESHOOTING IN A DIFFERENT CONTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The course helped me hone my problem solving skills, which is useful both with technology issues, but also with almost all aspects of my current position, from working at the reference desk, teaching, and working with faculty, students, and library colleagues.</td>
</tr>
<tr>
<td>• Regarding technical (and sometimes non-technical) related issues, I learned from Martin to look at things from a different perspective and to break down certain problems/fixes into more logical steps. Thusly achieving success in the end.</td>
</tr>
<tr>
<td>• “Also, Martin did teach us a series of steps to install programs, etc., but he taught us how to solve problems and work together. These skills have been invaluable in my career.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEAMWORK/LEADERSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>• I learned that by working as a team, a project can be accomplished in a specific timeframe.</td>
</tr>
<tr>
<td>• It increased my leadership and team working skills.</td>
</tr>
<tr>
<td>• And, a large amount of the work that I do is in a group context. The experience and practice of working in a group on a large project has helped me be a more effective group member.</td>
</tr>
<tr>
<td>• Gave me good leadership experience.</td>
</tr>
<tr>
<td>• Made me really appreciate being an active team member.</td>
</tr>
<tr>
<td>• Leadership skills.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPLORE A DIFFERENT ASPECT OF INFORMATION PROFESSION/CHANGED VISION OF LIS PROFESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• It allowed me to explore a different aspect of the information profession &amp; helped me realize that it wasn’t for me.</td>
</tr>
<tr>
<td>• “The course changed my vision of LIS profession from library centered to patron’s needs oriented.”</td>
</tr>
<tr>
<td>• Gave me a new perspective on how I can apply practical skills relating to computer hardware and networking in any workplace.</td>
</tr>
<tr>
<td>• It didn’t have a great impact on my career, but it did help me come to terms with what I feel are some of the great on-going practical and theoretical concerns in my profession.</td>
</tr>
</tbody>
</table>

98
The next table (Table 6) provides a complete list of the categories that I came up with as a result of the first stage of the open coding of the responses of all open-ended questions.

**TABLE 6**
Categories Created at the First Stage of Coding

<table>
<thead>
<tr>
<th>What were the least valuable aspects of the LIS 315/451 course? (Q5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
</tr>
<tr>
<td>Visits/Trips</td>
</tr>
<tr>
<td>Community Work</td>
</tr>
<tr>
<td>Logistics</td>
</tr>
<tr>
<td>Bonding</td>
</tr>
<tr>
<td>Course related stuff</td>
</tr>
<tr>
<td>Equipment</td>
</tr>
<tr>
<td>Teamwork. Group Work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What were the most valuable aspects of the LIS 315/451 course? (Q6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Skills</td>
</tr>
<tr>
<td>Hands-on/lab experience</td>
</tr>
<tr>
<td>Confidence with technology</td>
</tr>
<tr>
<td>Computer Literacy</td>
</tr>
<tr>
<td>Instructor</td>
</tr>
<tr>
<td>Service component/Fieldwork</td>
</tr>
<tr>
<td>Teamwork. Group work</td>
</tr>
<tr>
<td>Value of the course</td>
</tr>
<tr>
<td>Different skills</td>
</tr>
<tr>
<td>Course materials</td>
</tr>
<tr>
<td>Lectures</td>
</tr>
<tr>
<td>Course management software</td>
</tr>
<tr>
<td>Atmosphere</td>
</tr>
<tr>
<td>ESLARP</td>
</tr>
<tr>
<td>Films</td>
</tr>
<tr>
<td>Project management skills</td>
</tr>
<tr>
<td>Problem-solving</td>
</tr>
<tr>
<td>Understanding the Digital Divide</td>
</tr>
<tr>
<td>Information needs</td>
</tr>
<tr>
<td>Aspects of the course</td>
</tr>
<tr>
<td>Communication with the site</td>
</tr>
<tr>
<td>Great on your resume</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>As you look back now and think about the course what do you remember most? (Q7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork. Group Work</td>
</tr>
<tr>
<td>People</td>
</tr>
<tr>
<td>Technical skills aspects</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Confidence with technology</td>
</tr>
<tr>
<td>Frustration/challenge</td>
</tr>
<tr>
<td>Class environment</td>
</tr>
<tr>
<td>Instructor</td>
</tr>
<tr>
<td>Class exercises</td>
</tr>
<tr>
<td>Lectures</td>
</tr>
<tr>
<td>Final project</td>
</tr>
<tr>
<td>Practical Experience/Service-learning part</td>
</tr>
<tr>
<td>Local people/planning and communicating</td>
</tr>
<tr>
<td>Different negative experiences</td>
</tr>
<tr>
<td>Community Service Project</td>
</tr>
<tr>
<td>Best Practices</td>
</tr>
<tr>
<td>Information access provision</td>
</tr>
<tr>
<td>Poverty</td>
</tr>
<tr>
<td>Digital divide</td>
</tr>
<tr>
<td>Project management skills</td>
</tr>
<tr>
<td>The most memorable experiences/Important conclusions</td>
</tr>
</tbody>
</table>

**How would you describe the impact the course had on you and your subsequent career? (Q8)**

<table>
<thead>
<tr>
<th>Basic understanding of technology</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Speak about computers</td>
<td></td>
</tr>
<tr>
<td>Comfortable/at ease with computers</td>
<td></td>
</tr>
<tr>
<td>Confidence/comfortable with technology/Troubleshooting skills</td>
<td></td>
</tr>
<tr>
<td>Technical vocabulary</td>
<td></td>
</tr>
<tr>
<td>Personal benefit/use</td>
<td></td>
</tr>
<tr>
<td>Making extra money</td>
<td></td>
</tr>
<tr>
<td>Verification that took the course</td>
<td></td>
</tr>
<tr>
<td>Total career change</td>
<td></td>
</tr>
<tr>
<td>Tremendous effect in a subsequent career</td>
<td></td>
</tr>
<tr>
<td>Change of the career focus</td>
<td></td>
</tr>
<tr>
<td>Huge impact</td>
<td></td>
</tr>
<tr>
<td>Invaluable</td>
<td></td>
</tr>
<tr>
<td>Provision of the competitive advantage</td>
<td></td>
</tr>
<tr>
<td>Made better at the job</td>
<td></td>
</tr>
<tr>
<td>Foregrounded the importance of technology</td>
<td></td>
</tr>
<tr>
<td>Changed vision of LIS profession</td>
<td></td>
</tr>
<tr>
<td>Explore a different aspect of the Info profession</td>
<td></td>
</tr>
<tr>
<td>Non-technological career</td>
<td></td>
</tr>
<tr>
<td>Made decide to go into non-profit computer networking</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 6, cont.

<table>
<thead>
<tr>
<th>Got a job/job offer</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Change career</td>
<td></td>
</tr>
<tr>
<td>Most useful course</td>
<td></td>
</tr>
<tr>
<td>Not much gained. Not much/Very little impact</td>
<td></td>
</tr>
<tr>
<td>Not much use at present position</td>
<td></td>
</tr>
<tr>
<td>Awareness on how extension program works</td>
<td></td>
</tr>
<tr>
<td>Impacted policy adoption at a job/used on a job</td>
<td></td>
</tr>
<tr>
<td>Performing technology instruction/Teaching as a part of the job</td>
<td></td>
</tr>
<tr>
<td>Ethical issues in the profession</td>
<td></td>
</tr>
<tr>
<td>See your own strengths</td>
<td></td>
</tr>
<tr>
<td>Teamwork</td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td></td>
</tr>
<tr>
<td>Problem Solving skills</td>
<td></td>
</tr>
<tr>
<td>Patience</td>
<td></td>
</tr>
<tr>
<td>Troubleshooting in different context</td>
<td></td>
</tr>
<tr>
<td>Addressing different situations</td>
<td></td>
</tr>
<tr>
<td>No impact</td>
<td></td>
</tr>
<tr>
<td>Skills lost in a present career</td>
<td></td>
</tr>
<tr>
<td>Not LIS career</td>
<td></td>
</tr>
<tr>
<td>Interest in system administration</td>
<td></td>
</tr>
<tr>
<td>Listing in a resume/getting a job</td>
<td></td>
</tr>
<tr>
<td>Social impact</td>
<td></td>
</tr>
<tr>
<td>Giving back</td>
<td></td>
</tr>
<tr>
<td>Interest in community service</td>
<td></td>
</tr>
<tr>
<td>Not direct impact but still</td>
<td></td>
</tr>
<tr>
<td>Impact on someone as a person</td>
<td></td>
</tr>
<tr>
<td>Information organization and access</td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td></td>
</tr>
<tr>
<td>Hands-on course</td>
<td></td>
</tr>
<tr>
<td>Positive-learning experience</td>
<td></td>
</tr>
<tr>
<td>Different learning experience</td>
<td></td>
</tr>
<tr>
<td>A model all universities should adopt</td>
<td></td>
</tr>
<tr>
<td>Communication skills</td>
<td></td>
</tr>
</tbody>
</table>

**Do you have any additional comments on the LIS 315/451 course and/or subsequent career? (Q20)**

<table>
<thead>
<tr>
<th>Instructor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Valuable/invaluable/useful class</td>
<td></td>
</tr>
<tr>
<td>Great course</td>
<td></td>
</tr>
<tr>
<td>One of the best</td>
<td></td>
</tr>
<tr>
<td>Fabulous</td>
<td></td>
</tr>
<tr>
<td>Highly recommended course</td>
<td></td>
</tr>
</tbody>
</table>

101
TABLE 6, cont.

<table>
<thead>
<tr>
<th>The top 3 courses I took in my entire life</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>More skills</td>
<td></td>
</tr>
<tr>
<td>Special class</td>
<td></td>
</tr>
<tr>
<td>Highlight</td>
<td></td>
</tr>
<tr>
<td>Will take it again</td>
<td></td>
</tr>
<tr>
<td>Impact</td>
<td></td>
</tr>
<tr>
<td>Thank you</td>
<td></td>
</tr>
<tr>
<td>Relevance</td>
<td></td>
</tr>
<tr>
<td>Love the course, hate the LIS field</td>
<td></td>
</tr>
<tr>
<td>Crappy class</td>
<td></td>
</tr>
<tr>
<td>Instrumental in my work</td>
<td></td>
</tr>
<tr>
<td>Provided core technical skills</td>
<td></td>
</tr>
<tr>
<td>Community-service aspect</td>
<td></td>
</tr>
<tr>
<td>I was on the top of the world</td>
<td></td>
</tr>
<tr>
<td>Should be required/mandatory/core course</td>
<td></td>
</tr>
<tr>
<td>Feel lucky to have taken the class</td>
<td></td>
</tr>
<tr>
<td>Awesome class</td>
<td></td>
</tr>
<tr>
<td>Syllabus</td>
<td></td>
</tr>
<tr>
<td>Contact with local organization</td>
<td></td>
</tr>
<tr>
<td>Very practical course</td>
<td></td>
</tr>
<tr>
<td>Very educational</td>
<td></td>
</tr>
<tr>
<td>More cultural awareness and sensitivity</td>
<td></td>
</tr>
<tr>
<td>Sources for technology questions</td>
<td></td>
</tr>
<tr>
<td>Warm Memories</td>
<td></td>
</tr>
<tr>
<td>Shortcomings</td>
<td></td>
</tr>
<tr>
<td>Follow your muse</td>
<td></td>
</tr>
<tr>
<td>Worthwhile course</td>
<td></td>
</tr>
</tbody>
</table>

I gave myself freedom to express the categories initially in the way that seemed natural to me. As Table 6 demonstrates they are not only represented by different parts of speech (nouns, verbs, adjectives and combinations of them describing different processes and activities) but also they are different in length (one word, two words, statement, even a sentence.) (e.g., Bonding, Communication, Technical skills, Made better at the job, Invaluable, See your own strengths; I was on the top of the world, etc.). Through my approach I was able to capture and save the statements that really stood out and carried the main ideas which were relevant both to the questions as well as the focus of my study, and also collect the ones which contained the important points but could otherwise be “lost”.
To summarize, at the first stage of open coding I organized the data contained in the responses to all the open-ended questions of the survey contained in the 84 pages of text according to the key categories that emerged within responses to each question.

4.1.3 Stage Two: Coming up with the Major Themes

In stage two of my coding process, I started to classify the categories that I retrieved at the first stage under the major themes fitting the focus of my study. I still had lots of data which had gone through a rough coding and was classified under multiple categories, as introduced in Table 6. At this stage of coding I came up with the major themes which served as the umbrella themes for different groups of categories identified at stage one. Since I was working with electronic text which was generated by Inquisite, while assigning the categories to the major themes, I was literally moving them and purposefully kept their titles for convenience of working with the data and locating the necessary excerpts from the responses. In some cases, I was also adding or keeping the distinctive attributes of the categories for the purposes of differentiating in what context it was used.

For example in Q20 the original category “special class” was moved to the Course Impact/Positive category, but in order to remember what is meant by “special” I added naming of the skills that the respondent identified: “practical, social and logical”. In terms of grouping the categories under the major theme for example in Q6 I grouped “technical skills”, “hands-on lab experience”, “confidence with technology” and “computer literacy” all under one main theme—Technological Skills.

During this second stage, I also dropped some of the categories originally identified. It was mostly based on the relevance to my research. At stage one I was doing more mechanical work, trying to capture each single phrase. During this process I also found that some of the categories that I have assigned originally were not exactly what they represented. For example when I revisited Q7 and looked at the responses that I coded under Practical Experience/Service Learning I realized that it was mostly about the trips to the site. So I changed the name of the category to Site Visits/Trips. In some cases my decision to place a
certain category under a specific theme and not create a separate one (even though it had direct relevance to a major research focus) was dictated by the amount of data and its content.

At this stage of coding I was also trying to standardize the language of the themes throughout the questions. My decisions about changing, leaving, and eliminating themes were all based on the major focus of my research and the research questions that I needed to address. For example, since Leadership, Teamwork and Communication were some of the impacts that I was looking into I kept them as major themes. I was also trying to eliminate most of the overlapping categories. I decided to retain the complete listing of the categories for reference to be attached to the major themes, so that I could add them back or eliminate at a later stage during my data analysis if needed.

The following themes (See Table 7 below) contained within each open-ended question emerged as a result of revisiting and reclassifying the categories identified at the first stage along with some weeding within each open-ended question:

<table>
<thead>
<tr>
<th>TABLE 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lists of Themes Including Subthemes Identified at the Second Stage</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>What were the least valuable aspects of the LIS 315/451 course? (Q5)</strong></td>
</tr>
<tr>
<td>COURSE CONTENTS (equipment used, logistics)</td>
</tr>
<tr>
<td>SITE VISITS/TRIPS (communication, community work, bonding with community members)</td>
</tr>
<tr>
<td>TEAMWORK. GROUP WORK</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>What were the most valuable aspects of the LIS 315/451 course? (Q6)</strong></td>
</tr>
<tr>
<td>COURSE CONTENTS (materials, Lectures, Course management software, Films)</td>
</tr>
<tr>
<td>COURSE IMPACT/VALUE/POSITIVE (Great on your resume etc.)</td>
</tr>
<tr>
<td>DIGITAL DIVIDE (information needs etc.)</td>
</tr>
<tr>
<td>INSTRUCTOR</td>
</tr>
<tr>
<td>SERVICE COMPONENT/FIELDWORK (Communication with the site, ESLARP etc.)</td>
</tr>
<tr>
<td>SKILLS (OTHER) (Project management skills, problem solving)</td>
</tr>
<tr>
<td>TEAMWORK. GROUP WORK</td>
</tr>
<tr>
<td>TECHNOLOGICAL SKILLS/ASPECTS (Hands-on/lab experience, Confidence with technology, Computer Literacy)</td>
</tr>
</tbody>
</table>
### As you look back now and think about the course what do you remember most? (Q7)

<table>
<thead>
<tr>
<th>Community Service Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Contents</strong> (Exercises, Lectures etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital Divide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty, Information access etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Impact/Value Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlights, the most memorable experiences, important conclusion etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Visits/Trips (Lab time, Final project, planning and communicating with locals (negative aspect))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills (Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project management, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teamwork, Group Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonding, Camaraderie, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technological Skills/Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence with technology, lab time etc.</td>
</tr>
</tbody>
</table>

### How would you describe the impact the course had on you and your subsequent career? (Q8)

<table>
<thead>
<tr>
<th>Career Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total career change, tremendous effect in a subsequent career, change of career focus</td>
</tr>
</tbody>
</table>

Made decide to go into non-profit computer networking, Made better at the job, Got a job/job offer, Career change, Non-technological career |

<table>
<thead>
<tr>
<th>Communication Skills</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Course Impact/Value Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not much gained, Not much/Very little impact, No impact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Impact/Value Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huge impact, Invaluable, Personal benefit/use, making extra money, Verification that took the course, Listing in a resume/getting a job, Impact on someone as a person, Most useful course, Not direct impact but still positive, Provided the competitive advantage, Impacted policy adoption at a job, used on a job, Positive-learning experience, Hands-on course, (helped in ) Performing Technology Instruction/Teaching as a part of the job, (made aware of) Ethical issues in the profession</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital Divide</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Instructor</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Leadership</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>LIS Profession</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changed vision of LIS profession, explore a different aspect of the Info profession. Not much use at present position</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills (Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Solving skills, Troubleshooting in different context, Addressing different situations, Patience, See your own strengths</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Impact</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Teamwork, Group Work</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Technological Skills/Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic understanding of technology, Speak about computers, comfortable/at ease with computers, Confidence/comfortable with technology/Troubleshooting skills, Technical vocabulary, Fore grounded the importance of technology, Interest in system administration</td>
</tr>
</tbody>
</table>

### Do you have any additional comments on the LIS 315/451 course and/or subsequent career? (Q20)

<table>
<thead>
<tr>
<th>Course Impact/Value Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Love the course, hate the LIS field, Crappy class, Contact with local organization (poor), More cultural awareness and sensitivity</td>
</tr>
</tbody>
</table>
TABLE 7, cont.

COURSE IMPACT/VALUE POSITIVE (Valuable/invaluable/useful class, Great course, One of the best, Fabulous, Highly recommended course, Should be required/mandatory/core course, Feel lucky to have taken the class, Worthwhile course, The top 3 courses I took in my entire life, Very practical course, Very educational, More skills (practical, social, logical), Special class, Highlight, Will take it again, Impact (positive), Thank you, Instrumental in my work, Community-service aspect, I was on the top of the world, Awesome class, Warm Memories, Follow your muse)

INSTRUCTOR

TECHNOLOGICAL SKILLS/ASPECTS (Provided core technical skills, Sources for technology questions, shortcomings)

4.1.4. The Last Stage of Coding: Identifying the Final Themes

The themes that were identified during the second stage are all interrelated to each other and in some cases overlap within the open-ended questions as well as across them. At this third stage of coding I was trying to further consolidate and refine the themes which had been created at the second stage. The following list of final themes was created to represent the research data across 5 open-ended questions. Depending on the contents of the responses each final theme emerged 1, 2, 3 or 4 times across all the open-ended questions (see the Table 8 below):

<table>
<thead>
<tr>
<th>FINAL THEMES</th>
<th># of times emerged</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CAREER IMPACT</td>
<td>1</td>
</tr>
<tr>
<td>2 COMMUNICATION SKILLS</td>
<td>1</td>
</tr>
<tr>
<td>3 COMMUNITY SERVICE/Project</td>
<td>2</td>
</tr>
<tr>
<td>4 COURSE CONTENT</td>
<td>3</td>
</tr>
<tr>
<td>5 COURSE IMPACT/VALUE NEGATIVE</td>
<td>2</td>
</tr>
<tr>
<td>6 COURSE IMPACT/VALUE POSITIVE</td>
<td>4</td>
</tr>
<tr>
<td>7 DIGITAL DIVIDE</td>
<td>3</td>
</tr>
<tr>
<td>8 INSTRUCTOR</td>
<td>4</td>
</tr>
<tr>
<td>9 LEADERSHIP</td>
<td>1</td>
</tr>
<tr>
<td>10 LIS PROFESSION</td>
<td>1</td>
</tr>
<tr>
<td>11 SERVICE COMPONENT/FIELDWORK</td>
<td>1</td>
</tr>
<tr>
<td>12 SITE VISITS/TRIPS</td>
<td>2</td>
</tr>
<tr>
<td>13 SKILLS (OTHER)</td>
<td>3</td>
</tr>
<tr>
<td>14 SOCIAL IMPACT</td>
<td>1</td>
</tr>
<tr>
<td>15 TEAMWORK, GROUP WORK</td>
<td>4</td>
</tr>
<tr>
<td>16 TECHNOLOGICAL SKILLS/ASPECTS</td>
<td>4</td>
</tr>
</tbody>
</table>
It needs to be noted that while some of the final themes specifically indicated positive or negative aspects of the issue (for example Course Impact/Value Negative, Course Impact/Value Positive), most of them did not and depending on the contents of the question and how it was articulated the description of the issue might have a different character. (For example, the theme Service Component/Fieldwork appeared in the question on Least valuable aspects as well as in the question on the Most Valuable Aspects of the course. In most cases a decision on differentiating between two categories within the theme was based on the balance between those categories and the amount of data. All the above-mentioned themes are interrelated and they are all related to the service learning aspect of the course and its different impacts on the students in reference to their career development.

4.1.5 Summary of Coding Process
The sections above provided a detailed description of the three stages of coding of the data retrieved from the responses to the open-ended questions. At the first stage the categories contained in the 84 pages of text were identified. The second stage included grouping categories and eliminating phrases which were not related to the focus of the study in order to develop the major themes. At the third stage a further consolidation and refining of those themes took place and final themes were named to represent the research data across 5 open-ended questions. Finally, the number of times each of the themes appeared in each question was calculated.

4.2 Survey Data Analysis: Characteristics of Respondents
This major section of this chapter profiles respondents based on their answers to a range of survey questions
4.2.1 The Respondents' Demographics (Q9, Q10)

4.2.1.1 Gender

The gender and age distribution of 211 students who participated in the survey are provided in the tables and figures below.

<table>
<thead>
<tr>
<th>GENDER</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>60</td>
<td>28.44%</td>
</tr>
<tr>
<td>Female</td>
<td>151</td>
<td>71.56%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>211</td>
<td>100%</td>
</tr>
</tbody>
</table>

Since LIS is a female-dominated profession, it is not surprising to see that 71.6% of the respondents are females. This figure is representative according to the statistics reported in the LIS field. According to the results of the latest ALA survey of the membership, ALA members are predominantly women: 80% female as opposed to 19% male (Lynch, 2003). According to the Bureau of Labor Statistics (BLS) publication, Women in the Labor Force: A Databook (2006 Edition) there are 214,000 librarians in the workforce and 84.9% of them reported gender as female. ALA membership represents only 30% of the librarian workforce.

The same dominance of women is found in GSLIS. The gender distribution among the on-campus students enrolled during the Fall semesters of the 6 years included in this study is demonstrated in Table 10 below. The data introduced in the table shows that on average the percentage of women is from 2 to 3 times higher compared to the male percentage. Respondents to the survey are consistent with this – the ratio of women to men is 2.5.
TABLE 10
Gender Statistics for GSLIS for Fall Semesters (2000-2006)

<table>
<thead>
<tr>
<th>Semesters</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Fall 2000</td>
<td>78</td>
<td>26.9%</td>
<td>212</td>
</tr>
<tr>
<td>Fall 2001</td>
<td>79</td>
<td>24.4%</td>
<td>245</td>
</tr>
<tr>
<td>Fall 2002</td>
<td>88</td>
<td>26.1%</td>
<td>249</td>
</tr>
<tr>
<td>Fall 2003</td>
<td>100</td>
<td>31.7%</td>
<td>215</td>
</tr>
<tr>
<td>Fall 2004</td>
<td>79</td>
<td>29.6%</td>
<td>188</td>
</tr>
<tr>
<td>Fall 2005</td>
<td>68</td>
<td>27.5%</td>
<td>179</td>
</tr>
<tr>
<td>Fall 2006</td>
<td>72</td>
<td>27.1%</td>
<td>194</td>
</tr>
</tbody>
</table>

*This information was obtained from the UIUC Division of Management Information Website Students Enrollment Reports at http://www.dmi.uiuc.edu/stuenr/

4.2.1.2 Age

The following figure and the table present the age distribution of the survey respondents:

TABLE 11
Age Distribution

<table>
<thead>
<tr>
<th>AGE</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not Answered)</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>under 25</td>
<td>7</td>
<td>3.32%</td>
</tr>
<tr>
<td>25-34</td>
<td>140</td>
<td>66.35%</td>
</tr>
<tr>
<td>35-44</td>
<td>48</td>
<td>22.75%</td>
</tr>
<tr>
<td>45-54</td>
<td>12</td>
<td>5.69%</td>
</tr>
<tr>
<td>55 or over</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>211</td>
<td>100%</td>
</tr>
</tbody>
</table>

FIGURE 10
Age Distribution

Based on the information provided above, the biggest number of the respondents (N=140) which constitutes 66.35% of the total respondent population is in the range of 25-34 years old, the second largest group is age 35-44. Forty eight respondents belong to this group representing 22.75% of the total population. Seven respondents under 25 apparently represent the group of students who decided to get a graduate degree right after undergraduate.

While I was trying to speculate that the biggest percentage of the population in my survey (the combined 25-34 and 35-44 age groups which constitute 89% (188) of the respondents),
are the people who are pursuing either a second career or are the ones who have worked in libraries earlier but did not have a professional degree, Maata (2006) confirmed this in the 2006 edition of LJ’s Annual Placements and Salaries survey report. According to her, the notion of LIS graduates as career changers began to be explored in 2004. In 2005, 49% of 2005 graduates who responded to questions about career aspirations were seeking second, and in some instances the third and the fourth careers. In 2004, the first time the questions about backgrounds was asked, 53% of graduates were seeking second and third careers (The previous careers that they had included education (35%), business and finance (17%), social work and human services (5%), and healthcare (4%), non-profit fundraising (2%), and museums and arts management (2%)).

4.2.2 Graduation Date (Q11)
Since this study is retrospective and covers 6 years of course offerings of LIS 315/451, having the respondents representing different cohorts was important. While some minor changes in the syllabus as well as the changes in the major textbook for the class have been made, no substantial changes had taken place in the syllabus. (For more detailed information on the changes see Appendices A-D for the Reflection of the instructor on how the course developed, copies of syllabuses for the Fall 2000 and Fall 2006; and Final project summaries for the Fall 2000). There have been some changes in the local coordination of the sites where the service-learning projects took place, adding a designated coordinator to work with the team assigned to that site. In addition to that, a special “agreement of understanding” is signed with the site before a team starts to work directly with a project. Recently the general service work on community projects has been changed to more technology-related service work, i.e. working with Teen Tech groups.

Even though minor changes were reflected in the responses of the students lack of substantial changes is an indicator that all of them went through similar experiences with some minor variations. Based on the information on the number of respondents representing each possible graduation date in this period, there is a good representation of almost every semester. The biggest group of respondents, in the range of 21-24 graduated
in Spring 2002, Spring 2003 and Spring 2004. The results presented in the table below demonstrate that we have students who took the course in each year under study.

<table>
<thead>
<tr>
<th>Semesters/Year</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not Answered)</td>
<td>5</td>
<td>2.37%</td>
</tr>
<tr>
<td>FALL 2000</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>SPRING 2001</td>
<td>15</td>
<td>7.11%</td>
</tr>
<tr>
<td>SUMMER 2001</td>
<td>1</td>
<td>0.47%</td>
</tr>
<tr>
<td>FALL 2001</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>SPRING 2002</td>
<td>21</td>
<td>9.95%</td>
</tr>
<tr>
<td>SUMMER 2002</td>
<td>9</td>
<td>4.27%</td>
</tr>
<tr>
<td>FALL 2002</td>
<td>9</td>
<td>4.27%</td>
</tr>
<tr>
<td>SPRING 2003</td>
<td>23</td>
<td>10.90%</td>
</tr>
<tr>
<td>SUMMER 2003</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>FALL 2003</td>
<td>15</td>
<td>7.11%</td>
</tr>
<tr>
<td>SPRING 2004</td>
<td>24</td>
<td>11.37%</td>
</tr>
<tr>
<td>SUMMER 2004</td>
<td>16</td>
<td>7.58%</td>
</tr>
<tr>
<td>FALL 2004</td>
<td>13</td>
<td>6.16%</td>
</tr>
<tr>
<td>SPRING 2005</td>
<td>14</td>
<td>6.64%</td>
</tr>
<tr>
<td>SUMMER 2005</td>
<td>8</td>
<td>3.79%</td>
</tr>
<tr>
<td>FALL 2005</td>
<td>8</td>
<td>3.79%</td>
</tr>
<tr>
<td>SPRING 2006</td>
<td>10</td>
<td>4.74%</td>
</tr>
<tr>
<td>SUMMER 2006</td>
<td>8</td>
<td>3.79%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>211</td>
<td>100</td>
</tr>
</tbody>
</table>

It is interesting to compare the distribution of the semesters the respondents graduated from GSLIS to the number of the students enrolled in the INIS per semester (see Table 1) as well as the total number of graduates during those semesters.

According to ALISE statistical reports the number of MLS students who graduated from GSLIS from 2000 to 2003 is as follows:
Table 13

<table>
<thead>
<tr>
<th>Illinois</th>
<th>MLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2003</td>
<td>217</td>
</tr>
<tr>
<td>2001-2002</td>
<td>214</td>
</tr>
<tr>
<td>2000-2001</td>
<td>166</td>
</tr>
</tbody>
</table>

*This data was retrieved from Table II-3-a-1 for Library and Information Science Education Statistical Reports for 2004, 2003, 2002, and 2001 prepared by ALISE and is available at [http://www.ils.unc.edu/ALISE](http://www.ils.unc.edu/ALISE)

The total number of respondents graduating in the period of 2000-2003 is 105. Compared to the total number of GSLIS graduates for this period (597), they constitute 17.5% of the total number.

4.2.3 Current Employment Status and Desired Employment

Responses to several questions:

- *At the time of graduation, what type of organization did you prefer to work in? (Q14)*

- *Please indicate the type of organization you work in now? (Q15)*

- *Is your current position in the field of your choice? (Q17)*

- *If no, why not? (Q18)*

provide an idea about career goals of the students starting from the time they graduate until the present, and how these goals have been realized. While deeper insights on the impact of the course and the service-learning experience as a part of it on students’ careers and career development are provided in the responses to other questions of the survey and especially by the data from the open-ended questions and specifically Q8 (*How would you describe the impact the course had on you and your subsequent career?*), the responses to
the above listed questions (Q14, Q15, Q17, Q18) will serve as a starting point for investigating the career development of the respondents. The data extracted from the “employment” questions will be presented in the next few sections.

4.2.3.1 Start of Professional Work (Q12)

In Question 12 *When did you begin your professional work?* the respondents were asked to indicate the year when they started their employment. 196 students responded; 10 of the responses included statements like: not applicable, still a student, haven’t yet started. The remaining 186 respondents have the following distribution according to the year when they started their professional work:

<table>
<thead>
<tr>
<th>Year</th>
<th># of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>1</td>
</tr>
<tr>
<td>1992</td>
<td>1</td>
</tr>
<tr>
<td>1994</td>
<td>2</td>
</tr>
<tr>
<td>1997</td>
<td>1</td>
</tr>
<tr>
<td>1998</td>
<td>1</td>
</tr>
<tr>
<td>2000</td>
<td>2</td>
</tr>
<tr>
<td>2001</td>
<td>14</td>
</tr>
<tr>
<td>2002</td>
<td>31</td>
</tr>
<tr>
<td>2003</td>
<td>24</td>
</tr>
<tr>
<td>2004</td>
<td>46</td>
</tr>
<tr>
<td>2005</td>
<td>36</td>
</tr>
<tr>
<td>2006</td>
<td>26</td>
</tr>
<tr>
<td>2007</td>
<td>1</td>
</tr>
</tbody>
</table>

This information provides a general idea about professional experience of the survey sample. While there are just a few professionals who started their career 30, 15, 13, 10, 9 and 7 years ago, most of the respondents have between 1 and 5 years of experience in professional work, just starting on their career paths.
4.2.3.2 Preference of the Organization to Work in after Graduation (Q14)

The following table indicates the types of organizations the students selected to get jobs at:

<table>
<thead>
<tr>
<th>Preference of the Organization to Work at After Graduation</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not Answered)</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>Academic Library</td>
<td>86</td>
<td>40.76%</td>
</tr>
<tr>
<td>Public Library</td>
<td>46</td>
<td>21.80%</td>
</tr>
<tr>
<td>School Library</td>
<td>16</td>
<td>7.58%</td>
</tr>
<tr>
<td>Special Library (including corporate library)</td>
<td>15</td>
<td>7.11%</td>
</tr>
<tr>
<td>Government Library</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Archives</td>
<td>5</td>
<td>2.37%</td>
</tr>
<tr>
<td>Computer Industry</td>
<td>5</td>
<td>2.37%</td>
</tr>
<tr>
<td>Information Industry</td>
<td>5</td>
<td>2.37%</td>
</tr>
<tr>
<td>Library/Information Science higher education</td>
<td>5</td>
<td>2.37%</td>
</tr>
<tr>
<td>Library Cooperatives</td>
<td>1</td>
<td>0.47%</td>
</tr>
<tr>
<td>Museums</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Government Agency</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Non-profit Organization</td>
<td>6</td>
<td>2.84%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>9</td>
<td>4.27%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>211</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the responses to this question the majority of the graduates preferred to work in academic (86/40.76%), public (46/21.8%), school (16/7.58%) and special (15/7.11%) libraries. The other students preferred to work in other types of libraries and library and information organizations. Six respondents (2.84%) expressed the preference to work in a non-profit organization.

4.2.3.3 Type of Organization Currently Employed in (Q15)

In Q15 the respondents are asked to indicate the type of organization they are currently employed in. The list of organizations is the same as in Q14. Comparing the counts in the tables of both questions can help to identify how many students reached their employment goals.
According to the responses provided to this question contained in Table 16 below 77 respondents are employed in an academic library as opposed to 86 who were seeking a position at an academic library. Thirty-eight respondents are employed by a public library as opposed to 46 who were seeking employment in a public library. The number of respondents employed in a school library is 16, 12 - in a special library is 12 and 2 - in a non-profit organization.

<table>
<thead>
<tr>
<th>Place of Employment</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not Answered)</td>
<td>3</td>
<td>1.42%</td>
</tr>
<tr>
<td>Academic Library</td>
<td>77</td>
<td>36.49%</td>
</tr>
<tr>
<td>Public Library</td>
<td>38</td>
<td>18.01%</td>
</tr>
<tr>
<td>School Library</td>
<td>16</td>
<td>7.58%</td>
</tr>
<tr>
<td>Special Library (including corporate library)</td>
<td>12</td>
<td>5.69%</td>
</tr>
<tr>
<td>Government Library</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Archives</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>Library Vendors</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>Computer Industry</td>
<td>5</td>
<td>2.37%</td>
</tr>
<tr>
<td>Information Industry</td>
<td>1</td>
<td>0.47%</td>
</tr>
<tr>
<td>Library/Information Science higher education</td>
<td>9</td>
<td>4.27%</td>
</tr>
<tr>
<td>Library Cooperatives</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Museums</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Government Agency</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Non-profit Organization</td>
<td>2</td>
<td>0.95%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>28</td>
<td>13.27%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>211</td>
<td>100</td>
</tr>
</tbody>
</table>

According to the ALA membership statistics in 2002 24% of the ALA members were employed in public libraries and 21% in academic (Lynch, 2003).

4.2.3.4 Job Title (Q16)

As a follow-up to the previous questions about career preferences and employment places, Question 16 asks the respondents to provide a specific title for their position. The possible job titles to choose from were not provided intentionally in order to be able to learn about
the variety of positions that the respondents hold and also to see a whole range of titles especially the ones which recently emerged in the field.

The LIS curriculum at GSLIS is divided into four areas, and the same areas are considered as possible areas of employment which include: access-people and collections, information organization and analysis, design and evaluation of information systems and services, management and evaluation. The job titles which were provided by the respondents in the 2004 Survey of MS Graduates and their employers conducted July-September 2005 by Dale Silver, Assistant Dean for Academic Affairs at GSLIS, included the following types of employment: adult services, school librarian/media specialist, instruction librarian, children’s services librarian, electronic resources librarian, administrator/manager, and cataloger.

A full list of the job titles provided by the respondents is included as an attachment (see Appendix O). The jobs that the graduates of the LIS 315/451 have taken are quite diverse. While the skills and abilities acquired as a result of the service-learning experience in this course turn out to be useful in any LIS job, and indeed respondents use them at their workplaces, it is quite impressive to see that so many of the job titles appear to be directly related to the specific skills gained as part of the class. Specific skills include not only technological skills (which are rated number one in terms of motivation to take the class), are meant, but also a whole suite of skills including leadership, communication, teamwork, working with the community etc. As the further analysis and conclusion will show, these skills were quite critical for respondents to succeed in their careers. Many respondents ended up becoming coordinators of different library services and managers as well. The job titles indicated include: Coordinator of Instruction/Instructional Services Coordinator, Coordinator of Acquisitions, Project Coordinator, Library Coordinator (User Services), Records and Information Manager, Learning Commons Coordinator, Team Leader of Circulation and Reserves, Library Program Coordinator, Assistant Youth Services Manager/Interim Young Adult Services Coordinator etc. While more information on the impact of the course on their career development will be provided in the analysis of the open-ended responses, some connections can still be made. It is obvious that the leadership
skills and working as a part of the team in the course are very relevant in the positions requiring coordination and management. These skills are also an asset for the administrative positions, and quite a few of the respondents hold them. The following are examples of administrative positions have been named by the respondents: Head Librarian, Head of Instruction, Head of Children’s Services, Head of Reference, Head of Music Library, Associate Director, Director of Electronic Services and Communications, Senior Assistant Librarian, Grant Administrator, School Media Director, Assistant Youth Services Manager. Even for the respondents who did not choose the LIS career, the skills that they have acquired as a part of the course could be useful in their positions as Senior Pastor, Pastry Chef, Property Manager, Senior Conflicts Analyst, Managing Editor, and Office Manager.

The impact of the course in terms of gaining technological skills is relevant to the decision of the respondents to choose the following jobs: Technical Services Librarian, Librarian and Technology Consultant, Systems Librarian, Web Services Librarian, Computer Assisted Instruction Specialist, Web Developer requiring certain technical skills have been the jobs that some of the INIS graduates have taken as well. Four of the respondents ended up becoming Semantic Engineer, Software Developer, Database Application Developer and Database Design Analyst and apparently it required more than just taking the LIS 315/451 course.

4.2.3.5 Current Location (Q13)

Question 13 of the survey regarding location of the respondents was included in the survey for the purposes of finding out how the environment (urban, suburban and rural) in which the respondents work is similar or different to the community where they carried out their project for the course. Based on the responses to this question (Table 17), 61.6% of respondents reside and work in urban areas, 28% in suburban, and almost 10% in the rural areas. In analyzing open-ended questions, responses will be studied to determine how the experiences in the class are applied in different settings.
4.2.3.6 Current Position in the Field of Choice or Not? (Q17)

By responding to this question the respondents specify if their current professional position is in their field of choice or not. 174 respondents (82.46%) indicated that their current position is in their field of choice, while 31 respondents were not able to get a position in their field of choice, and 6 individuals chose not to respond. Taking into consideration the overall library jobs outlook and the high probability of different factors that could influence not getting the employment of their preference, having 14.7% of respondents in the No category seems quite reasonable. The high percentage of those who got the jobs of their preference apparently is due at least in part to the skills and abilities that they have developed through their program of study including the INIS course.

### TABLE 17
Current Location

<table>
<thead>
<tr>
<th>Your current location:</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not Answered)</td>
<td>1</td>
<td>0.47%</td>
</tr>
<tr>
<td>Urban</td>
<td>130</td>
<td>61.61%</td>
</tr>
<tr>
<td>Suburban</td>
<td>59</td>
<td>27.96%</td>
</tr>
<tr>
<td>Rural</td>
<td>21</td>
<td>9.95%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>211</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.2.3.7 Why the Position Is Not in the Field of Choice (Q18)

This question is a follow-up to the previous question for those not employed in their field of choice. The following options are provided for respondents to choose from: position not
available, applied but did not receive a job offer, had the position offered but did not accept, not willing to relocate. While these options will clarify why some respondents did not end up in the positions of their preference, since these were close-ended questions there was not much explanation behind those answers. Out of 31 respondents who did not get the position in their field of choice, in 6 cases position was not available; 12 respondents applied but did not get a job; 4 received a job offer but did not accept it; 3 were not willing to relocate. Six respondents indicated other reasons.

<table>
<thead>
<tr>
<th>18. If No, why not?</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position not available</td>
<td>6</td>
<td>2.84%</td>
</tr>
<tr>
<td>Applied but did not receive a job offer</td>
<td>12</td>
<td>5.69%</td>
</tr>
<tr>
<td>Applied and offered a position but did not accept</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>Not willing to relocate</td>
<td>3</td>
<td>1.42%</td>
</tr>
<tr>
<td>Other (please explain)</td>
<td>6</td>
<td>2.84%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>211</td>
<td>100</td>
</tr>
</tbody>
</table>

**4.2.3.8 What is Your Ideal Job? (Q19)**

This question helps to get an idea of the career aspirations of the graduates. The responses to this question provide information on what kinds of jobs the graduates are planning and hoping to get and which are the ones that will fit into the skills and abilities they have. Having this question in a close-ended format limits the opportunities to hear the “stories” behind their responses. There could be a lot of reasons behind someone considering a specific LIS job as a dream job. The fact that depending on the age and experience it might be the first, second or even third job and also another career, the dream jobs could be quite different. While the question just asks for a job title, a lot of the responses (almost 50% of the total of 130 responses) envisioned that there should be more than just a title in their responses and included a couple of sentences in which the respondents provided a description of their ideal jobs with the concrete activities that they would like to be involved in. Two of the respondents are quite articulate about their dream jobs:
“My ideal job would include a combination of research, teaching and work with committees. It would be creative, social and allow for trying new systems, different marketing strategies, etc.”

“Working with adults and teens on reference, readers advisory and learning to use the computer for whatever purpose is desired by the customer (whether it is research, job searching, word processing, scrapbooking, playing games, chatting with friends, or whatever).”

It is interesting to note that systems and use of the computer are present in both descriptions, together with a range of other activities.

In some cases in order to indicate that the job they have is their ideal job indeed, their job descriptions were provided:

“I am in it-librarian at mid-sized elementary school-375 K-5 students, with a great staff and wonderful administrator. (The district on the other hand is very dysfunctional, but I don't have to deal with most of that...)”

“The job(s) I have now. Working directly with youth birth through teens as well as making policy and programming decisions for the district.”

Five of the respondents are so happy about their present ideal jobs they forget to even provide a title:

“My current job is ideal for me at this time.”

“I pretty much have it. Though I would like to have a subject area in which to purchase materials”

“I have my ideal job, but I would like to get into management someday.”

“Actually, my current job is really great! I don't think I have any set ideas about what I would prefer.”

“I am working in an ideal position for me right now.”
Another respondent is excited about his ideal job and shares this:

“I am lucky enough to say that I have my ideal job! I work in an urban public library providing adult reference services.”

Almost 65 respondents out of 130 total just named the job they have which they apparently consider their ideal ones. Here are the examples of two responses.

“I have it already - children's librarian”

“This one. I wanted to work in a corporate environment.”

One respondent is sharing that he was surprised to find the ideal job without knowing what it is:

“I didn't know it, but it's this one!”

Another respondent also tries to share the problems they have with their ideal jobs because they feel overwhelmed:

“What I'm doing now more or less, but they also have me teaching two classes, tech support and running the library for 1,100 students. It is really hard to wear so many hats.”

One of the respondents would like to keep their ideal job but just to expand their horizons. An interesting observation about this statement is that:

“The one I have, except in a much bigger library where I can have a classroom set of computers.”

Another one is not sure what will be their ideal job:

“Not sure! I like a mix of everything...cataloging, computer work, reference, Web design, etc.”
One respondent is not sure but still has some idea:

“I'm not sure what my ideal job is specifically. I just know that I love working in higher education and doing work that involves working with students and faculty”

The ideas about the ideal jobs for three of the respondents are closely related to the skills learned in the class:

“A job in which I can work more closely with populations resembling that of East St. Louis”

“Working with the application of technology and electronic resources in libraries”

“Community center that provides patrons with variety of services: traditional library, technology, Internet.”

Since the question meant the ideal job in the LIS field but did not specify this explicitly, one of the respondents also talked about their ideal jobs in other fields:

“I enjoy my current position but if I were to make a career change I would go into law.”

Two responses also share future career plans within the same organization or beyond:

“I currently hold my ideal job for my level of experience. I do hope to begin gaining some supervisory experience soon”

“I really enjoy my job. I work with teachers and students. I manage the library by purchasing materials, resources, organize activities, teach information literacy skills, and more. At some point, I might enjoy working in a University or Junior College Library”

Providing a short narrative about their ideal jobs, instead of just naming the title for 65 respondents out of 130 who replied to this question, is a good indication of how the students feel about their jobs and sets a good tone for further analysis of their career. From
the point of view of survey methodology, this is quite a positive phenomenon when instead of just naming a thing the respondents start describing. It indicates the level of engagement and involvement in the survey responding process. It also supports the discussions in the Web survey methodology literature that people feel much more relaxed and are more open in a Web survey environment compared to other types of surveys.

Given this background on graduates’ career paths, subsequent sections focus in more detail on the INIS course and its contributions to career development.

4.2.4 Motivation to Take the Course (Q1)

Asking the students a question about their motivation to take the course is directly related to their future career plans. Depending on the background as well as their goals some of the students who decided to pursue the MLS degree might start thinking about their careers early in the program and motivation to take specific courses might in cases be associated with their future career plans as well as the major trends and requirements in the profession. Putting this question at the beginning of the survey helped to get a preliminary idea of the main interest of the students in the course and the motivation behind a decision to take the course.

The respondents were supposed to choose from the following motivation options and advised to check all that apply:

As indicated in the following table the major motivation for taking the course was gaining technological skills: 191 respondents (90.5%) chose it as one of the major motivations.
Ninety one students (43.1%) selected gaining fieldwork experience as another motivation to join the class. The percentage of students who chose this kind of motivation is relatively close to the remaining two types of motivation including reputation of the instructor (88 respondents-41.7%) and reputation of the course (100 respondents-47.4%).

<table>
<thead>
<tr>
<th>Motivation Indicators</th>
<th>Checked all that apply</th>
<th>% of total checked</th>
<th>% of total respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain technological skills</td>
<td>191</td>
<td>39.5%</td>
<td>90.5%</td>
</tr>
<tr>
<td>Reputation of the course</td>
<td>100</td>
<td>20.7%</td>
<td>47.4%</td>
</tr>
<tr>
<td>Gain fieldwork experience</td>
<td>91</td>
<td>18.8%</td>
<td>43.1%</td>
</tr>
<tr>
<td>Reputation of instructor</td>
<td>88</td>
<td>18.2%</td>
<td>41.7%</td>
</tr>
<tr>
<td>other</td>
<td>14</td>
<td>2.2%</td>
<td>6.64%</td>
</tr>
<tr>
<td>Total Responses</td>
<td>484</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Such a high indicator of the interest in gaining technological skills can be explained by two factors that can be called internal and external. By internal I mean the overall objective of the course which is to provide a hands-on introduction to technology systems for use in information environments and includes the following major topics: hardware, operating systems, networking. So, it is quite logical that based on the course description, students noted gaining technological skills as their motivation. By external factors I mean the changes in the nature of the LIS profession when professionals have to work within technologically rich environments in a dynamic, information and technology-driven society and need appropriate IT skills to create new roles (Garrod, 1998; Fourie, 2004). In different jobs the level of technical skills needed can be different. For an academic librarian or school media specialist, for example, familiarity with the operating systems, mark up languages, ability to do basic troubleshooting and talk to technical staff might be enough to operate in the environment of pervasive changes brought by technology. For systems administrator or IT specialist knowledge of basics is not enough; a much more substantial knowledge of IT is required.
Motivation to gain technological skills does not necessarily mean that the students who chose this indicator did not have a lot of technical skills already. Even though testing the students before the class to evaluate their technical skills is not practiced by the instructor, and this kind of evaluation is not a part of this study, based on the responses of the students to the open-ended questions, we will see that they acquired different levels of expertise which proved more or less helpful at different LIS and even non-LIS jobs.

Reputation of the course as a second motivator is based on the fact that the course has been taught at GSLIS for a number of years and gained popularity as a unique hands-on course working with real projects for people in need. Reputation of the instructor was not only another strong motivation to take the course but also a significant factor in the overall success of the course, and subsequently the reputation of the course was based on the reputation of the instructor. Gaining fieldwork experience as another motivator was directly connected with the nature and format of the course and the needs of the profession in working with different types of communities.

The following factors were mentioned as motivating in the category of other: recommended by advisor, all of the above, class was still open, community service, required course for K-12 School Media Specialist Program.

The frequent response of “reputation of the instructor” is not surprising. Students talk about the expertise, teaching and personal skills of the instructor throughout all the responses to open questions. For most of them the overall success of the course and what they achieved as a part of it are attributed to the role of the instructor, his knowledge and expertise in the subject area and beyond:

“There is no way that 315 could have been as successful without the influence of Martin Wolske. His attitude toward problem-solving ("Unsure about what to do? Well, what’s your best guess? Try it and see..."), coupled with his work ethic and notoriously positive good spirits made the class one of the most memorable of my GSLIS career.”
“I feel that Martin was, hopefully still is, a major factor in the success of this course. His good nature, willingness to help and guide students, and his apparent passion for helping students, and the residents of the communities of the 315 projects makes this course such a success.”

4.2.5 Major Outcomes: The Impact of the Course on Development of Different Skills, Abilities and Attitudes (Q3, Q4)

Questions 3 and 4 of the survey (see below) looked at the major impacts of the INIS course.

The evaluation of the overall impact of the course in terms of gaining the following skills, abilities and attitudes including Technological Skills, Leadership, Communication, and Teamwork Skills as well as a Change of LIS Profession Outlook and Enhancement of the Ability to Work with Community Organizations and Members provides basic information about the variety of skills which serve as attributes of and contribute to career development of the graduates.

The skills and abilities included in the questions are based on personal, social and learning outcomes described by Eyler & Giles (1996), Kolb’s experiential learning model (1984)
and Dewey’s principles of continuity and interaction. Realizing that impact can be on a different scale, the level of agreement was set up according to the Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree). A box for comments has also been added.

This initial data served as background information for further analysis of the careers of the respondents based on the responses to other survey questions.

While detailed statistical information about the responses containing different levels of agreement per each impact of the course is provided in Appendix P (Figures P.1-P.6 accompanied by the tables), the results of each impact in the category of Agree and Strongly Agree have been summed up and included in Table 21 and Figure 11 below:

**TABLE 21**
Rating of the Skills

<table>
<thead>
<tr>
<th>Skills Gained</th>
<th># of total checked (Agree &amp; Strongly Agree)</th>
<th>% of total respondents (211)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological Skills</td>
<td>199</td>
<td>94.32%</td>
</tr>
<tr>
<td>Teamwork</td>
<td>167</td>
<td>79.15%</td>
</tr>
<tr>
<td>Communication</td>
<td>152</td>
<td>72.03%</td>
</tr>
<tr>
<td>Working with community</td>
<td>130</td>
<td>61.61%</td>
</tr>
<tr>
<td>Thinking about LIS Profession</td>
<td>129</td>
<td>61.14%</td>
</tr>
<tr>
<td>Leadership</td>
<td>110</td>
<td>52.13%</td>
</tr>
</tbody>
</table>

**FIGURE 11**
Skills Gained as an Impact of the Course
The data in Table 21 has been ranked. Based on the results, the biggest impact of the course is the increase of technological skills: 199 (94.3%) respondents agreed and strongly agreed that participation in the class increased their technological skills. This result is not unexpected and fits very well with the motivation question (Q1): 191 respondents indicated that their major motivation for taking the course was gaining technological skills. It is important to mention that referring to the Library Journal Salary Survey data on the Recent Master’s Graduate Salaries and Placements for the GSLIS graduates of 2003, 2004 and 2005 retrieved by Dale Silver on 8/28/06 based on the question: Which experiences/activities do you feel were the most helpful or important in obtaining your first professional position? in 2005 and 2006 ranking, Technological Skills are ranked #2 and Fieldwork or Internship experience is ranked #1.

Going back to our ranking table, Teamwork Building Skills and Communication Abilities are placed at the second and third place accordingly: 167 (79.15%) respondents agreed and strongly agreed that experience in the INIS class helped them to increase their skills in teamwork, while 152 (72.03%) of the participants agreed and strongly agreed that their communication skills were enhanced as an impact of the course.

Enhancing the Ability to Work with Community Organizations and Members is rated as number 4 in the list, with 130 (61.6%) respondents who agreed and strongly agreed that they were able to improve their ability to work with communities. Almost the same number of the respondents 129 (61.4%) agreed and strongly agreed that the Hands-on Project in the Community Changed the Way the Students Think about LIS Professions. The Leadership Skills were rated as the last in the list, 110 (52.1%) agreed and strongly agreed that the experience in the class enhanced their leadership skills.

The skills, abilities and attitudes gained as a direct impact of the LIS 315/451 INIS course are all important elements in the career of an LIS professional. The results introduced in this section provide the basic insights on how these impacts will fit into the whole picture of career development of the respondents as well as serve as background for looking into impacts in more depth in the responses to the other questions of the survey including the open-ended ones.
4.3 Service-learning Experience in LIS 315/451 INIS Course and Students’ Careers: Outcomes, Impacts, Contributions and Relations

“In its fullest form, service learning encourages students to thoughtfully assess what they learn through service and to integrate that knowledge into their future practice” (Elmborg et al., 2001)

As learning which takes place in real communities, serving the needs of real-life people, service learning helps students to gain useful knowledge, which has a practical power. It would make sense to anticipate that this practical power of the knowledge gained as a result of service learning experience will be extremely helpful in a real-life job situation. The problem is that to date not much research has looked in retrospect at the service-learning experience and its influence on career development. The only study identified was one conducted by Reynolds (2005) in the physical therapy field (see section 1.3.3).

As indicated several times earlier in this dissertation, a number of studies (mostly at undergraduate and K-12 level) including a few big national ones mentioned in Chapter 2 of this study and 17 PhD and MS dissertations out of 400 academic works published in the three volumes on Recent Dissertations Related to Service and Service Learning (Shumer et al., 1999; Shumer & Treacy, 2001; Norvell, 2004) mentioned the word career in different variations such as career exploration, career planning, preemployment skills, etc. (Brown, 1998; Conrad & Heidin, 1982 et al.). But they don’t spend much time on actually looking into the direct connections between service learning and subsequent careers. This study is the first attempt in a graduate professional field such as Library and Information Science with the exception of the field of physical therapy (Reynolds, 2005) to look at direct outcomes, impacts, contributions and relations of the service-learning course and careers of the graduates in retrospect.

There is quite an interesting small body of literature on service learning in LIS including some theoretical pieces as well as reporting on quite interesting and unique projects as a part of course work. A detailed description of this literature is provided in Chapter 2 as
well. Some of the publications mention the value of the service-learning experience for future jobs but have not investigated this further.

One of the big shortcomings in the service-learning literature is that while talking about different impacts including personal, social, and learning (Eyler et al., 2001) outcomes of the service learning experience, researchers don’t look at them as a set of outcomes that are directly related to career outlooks of the students. It is not possible to talk about career outcomes without having all these impacts in place. A good example is the typology of outcomes, proposed by Eyler and colleagues (2001) (see pp.38-39). While most of the elements described as part of personal, social and learning outcomes are present in career development, none of them are included into it.

By stating that, I want to introduce the major section of the study which presents a detailed analysis of the subsequent career development in relation to, and as an impact of the service learning INIS course. The major impacts briefly described in the previous section such as gaining certain skills, abilities and attitudes including Technological Skills, Teamwork, Communication, Working with community, Thinking about LIS Profession, Leadership will be examined as major attributes in career development along with others.

The final 16 themes (See Table 8) that have been generated as a result of a three stage coding of the data contained in the five open-ended questions of the survey will be used as a basis of the analysis.

It should be noted that along with the positive aspects of different impacts and experiences associated with the class, there were some negative ones which will be included in the analysis as well.

4.3.1 Gaining Technological Skills
As indicated earlier Technological Skills were rated number one in terms of the skills gained as the impact of the course as well as being a major motivation for the students to
take the course. This is not surprising given the role and place of information technologies in LIS and the emphasis on technology in the syllabus. As the examples of the syllabuses demonstrate (Appendix A & B), LIS 315/451 INIS course is a hands-on introduction to technology systems for use in information environments and the objectives of the course are to provide hands-on experience with the technology systems and a clear conceptual understanding of the computer hardware, operating systems and networks that make up networked information systems and also to prepare students to take a lead as information technology managers. More detailed information about the course including the role of technology is provided in An’s dissertation (1997). Her detailed ethnographic study of INIS started with classroom observation in the Spring 2004 and she conducted her research in the Fall 2004. As a part of her study, An conducted participant observations of the class together with the 20 students, used a collection of class artifacts, conducted pre- and post-course surveys, and formal and informal in-depth interviews. She also interviewed the instructor of the course. While the interviews with the instructor focused on understanding his view of technology, teaching philosophy, curriculum design etc., interviews with the students (12 were interviewed) were designed to collect their narratives about their learning experiences. Some of the questions that An (2007) is trying to address as a part of her research include: What kind of preconceptions and experience about technology did students bring to the class? What kind of inquiries about technology did the students raise? In what ways did students change their perceptions of technology? While An definitely focuses on the technical aspects of the course, the instructor himself is convinced that technology is just a means and there is much more to the class. I quite agree with him and this inspires the investigation of the INIS course as a service-learning course. An’s dissertation can serve as a rich source of data for further research on the ‘INIS “phenomena”.

In responding to Question 3 of the Web survey, students were supposed to express their level of agreement with the statement: Participation in this class increased my technological skills using the Likert scale starting with Strongly Agree and ending with Strongly Disagree.
Based on the responses to this question almost 95% of respondents (199) agreed and strongly agreed that the participation in the course increased their technological skills. Only 10 students were neutral and 2 disagreed. (See Figure P.4 in Appendix P). These results show that as intended the course has a significant influence on the development of the technological skills of the students. But since evaluation of the level of technological skills before taking the class and after was not part of the study, it is difficult to determine whether the increase of the skills occurred in people who did not have a background in technology before taking the class, or improved the level of those who already had that background.

That’s where analyzing qualitative data contributes to our understanding. Analyzing the data from the open-ended responses will shed some light on what specifically they meant in responding to these close-ended questions, and different levels of expertise in regards to technological skills will be identified.

The hands-on aspects of the course, taking place both in the computer lab at Prairienet when the students had a chance to work with the technology (learn the computer basics and gain a clear conceptual understanding of computer hardware, operating systems, and networks through a regular weekly hands-on training) and on site when they were actually setting up the local area networks and made sure that everything works properly, are considered the most valuable experiences. That’s how five students describe their experiences in learning about the technology including a description of the setting and the process:

“The initial labs -- taking apart and putting together desktops, learning about the components, basic hardware troubleshooting, basics of operating systems, networking, etc. -- were invaluable. The later labs -- preparing a set of computers, getting them networked, talking to end users and planning the installation of cables and machines in a particular site -- that work served to cement the knowledge from the earlier labs.”

“The hands on labwork, actually tearing apart and rebuilding computers and networking them, was completely invaluable. And the field trips to East
St. Louis to network the computers were unforgettable (both on a personal/emotional level and on an academic experience level).”

“The technical knowledge that I gained in the class, the encouragement to try things, figure things out, learn about things I wouldn't have normally tried to learn about, and the general you-can-do-it attitude have all helped me in my professional life, because I find that I am much more willing to try new devices and technologies, work on broken/jammed/malfunctioning machines, find help instructions online for software problems and follow instructions in technical manuals to fix problems than my coworkers. I am very certain that my confidence comes directly from my positive LIS315 experience.”

“The most valuable aspect of the course was the actual install of the computer lab at the church - however, I still walked away from the course not feeling very confident about my abilities to network a lab.”

“The lab sessions. The hands-on work was the focus and the best part of the class.”

Based on the feedback of 199 students who responded to this question, the following list of the technological skills at different levels (basic and advanced) were reported by the respondents in the Technological Skills Category across the open-ended responses:

- Taking apart and putting the computers together; learning the guts of computer; rebuilding the computers; Learning how to refurbish the computers and install the networks ("Understanding how the physical components of computers and networks work. Taking apart a computer and network cables and thinking about them as physical objects.")
- Gaining hands-on experience with different types of hardware, software, operating systems and networks ("Broad exposure to Windows useful in almost any professional environment” “I learned information about hardware and about networking that I use almost every day in my job as a high school librarian.”)
- Basic computer networking skills; Understanding of networking technology; Learning about the physical components and processes that made networked information systems work ("Building a physical network; understanding of networking technology.")
• Gaining the confidence in troubleshooting the computer problems; Increasing level of confidence with technology; Becoming comfortable with technology, Feeling empowered; Overcoming technophobia and fear of working with computers ("My level of confidence with experimenting and problem solving with technology increased tremendously as a result of the course. This was really key for me."); "becoming comfortable enough with computers and programs, hardware and software, that I knew I could at least try to find solutions or at least know where to go to ask for help"; “more importantly than gaining skills, I became much more comfortable working with computer hardware—I gained the confidence to open up a computer and perform simple tasks such as adding memory, checking the fan, etc.”, “it made me feel comfortable to work with technology.”)

• Learning how to troubleshoot networking problems ("I remember the simple tricks of pinging to see if a computer is on the network, the steps used in beginning to diagnose a problem, and keeping track of the steps already taken.")

• Learning to set up the server and network

• Learning how to physically install a computer lab

• Figuring out how to image

These skills in most of the cases have been used by the respondents at their workplaces to advance in their careers and proved to be extremely valuable. The following excerpts from the responses of five students show how they talk about the value of hands-on technical skills for their professional work:

“I learned a great deal about computers and networks...which anyone at a public service needs to be able to help patrons with computer problems. The best help for us was confidence...decloaking the terrible mystery of computers and networks. One of the best and most practically useful courses at GSLIS.”

“The hands on experience of ripping into a computer in a lab was a great way to get over the initial fear of working with computers. The instructor gave the right amount of hand-holding and telling us to figure it out by
ourselves. I walked away with trouble-shooting skills that I use almost every day at my current job and can also developed the proper vocabulary for communicating with my current job's IT personnel. While the classroom time was very useful in developing a background knowledge of computer networking, the in-time class and field trip for the final project was invaluable for building confidence and a basic understanding of networking."

“I still use troubleshooting techniques that Martin taught”

“Realizing that the computer wasn't so "scary" after all, and learning about the various components and how they worked -- fascinating. It has helped in all my jobs since then."

“Learning to troubleshoot. This skill has remained most valuable.”

The following aspects of the course related to technology/technological skills have influenced the careers of the students both working in technology related and non-technology related jobs:

- Basic understanding of the technology that many of their colleagues don’t have; gaining the idea of how a basic network works;
- Speak confidently about computers and networks: Made more fluent and able to relate and communicate with technology department; Learned the jargon, and now can much better understand IT specialists when they need to discuss technological issues;
- Enhanced the interest in computers/technology;
- Made them more comfortable with computer;
- Gave a basic competency in networking;
- Helped in troubleshooting computer problems;
- Made them less afraid of technology;
- Helped to build self-confidence in working with technology;
Knowing the vocabulary and having a basic understanding of networks helped some students to feel empowered and have enough confidence to deal with IT people even though they did not gain that high a level of expertise or they did not retain everything they learned in the class over time. That is what two of the students say:

“I'd say that I regret to admit forgetting a lot of the details of what I learned but the confidence it gave me was key and I retained the details for at least two years into my current path. This was very important as I dealt with an IT department who didn't think librarians knew anything and played it to a lazy advantage. When I asked for things knowing what was and wasn't possible, using "the" language. You could see the whole room go *blink, blink* and reconsider what kind of access I was going to get to the network.

Basically even though I don't quite remember how to get into the DMOS mode I know enough to be confident about asking for what I need and more. It's definitely made me a more competent (or at least appear very competent) in several key library environments, including meetings when we are making decisions about the purchase of online tools or databases, restructuring parts of the Website etc.”

Mastering technical vocabulary and understanding the IT basics has proved itself to be a quite useful skill for many respondents at their workplaces and provided them with confidence while communicating with tech staff. That is how six of the respondents describe this experience:

“It has given me a vocabulary and a confidence to be involved in conversations, planning and projects with our IT department.”

“I think I'm more effective at communicating with others about software, hardware, and network issues”

“It helps me understand what the IT people are talking about and I can set up a basic computer network.”

“I am more familiar with tech terms and can speak with better authority
about networking systems and hardware. I can understand our technology coordinator (I work at a high school) and discuss problems and troubleshooting with him to head off serious issues.”

“Believe it or not, I'm doing quite a bit of technology on my job. I can talk somewhat intelligently with the geek squad here and am usually pretty fearless trying things on the computer.”

“While the course didn't affect my career choice, I think that being comfortable with networks and technology more generally has been extremely helpful. I'm not ever afraid to jump in and try to troubleshoot or figure out a new technology”

While it is quite natural that technical expertise is a part of and needed in all kinds and types of library jobs, evidently in most cases people with technical skills end up in technology “heavy” library jobs such as in systems or Web administration. Technical skills gained in the INIS class are a different kind of expertise which is accessible to any “ordinary” person with and without preliminary technical experience. People learn the basics and the “beauty” of it that these different kinds of skills at different levels of expertise are used in all kinds of library jobs in different library settings including public, corporate, academic and school libraries. Q15 and Q16 of the survey about type of organization and job title provides the information about the full range of LIS institutions and careers where those skills are implemented at different levels. Three of the respondents talk about their experience using the technical skills they gained in the INIS course in a public library setting:

“It improved my comfort level with computers and systems which has allowed me to better help patrons in a public library setting”

“The class was amazing because people with many different levels of experience with technology could benefit. The way it was set up there were core ideas that we needed to master, but everyone could learn on their own level. I gained confidence in working with computers and was able to troubleshoot with computers in my first job at a public library.”

“It has helped me working in a public library. I feel the skills I learned help me to understand technology, and I am a member of my library's technology committee and lead technical developments at my branch. It
also was great experience for working with the public and with a community, as well as experience working with a team.”

A respondent working in a corporate library setting describes how a confidence with computers helped him in his job as a corporate librarian.

“The most valuable aspect of the course for me was a good combination of theory and hands-on experience. The course significantly enhanced my understanding of networked computer systems and increased the feeling of confidence in dealing with computers. During the course I acquired skills that helped me a lot when I started working as a librarian in a corporate library.”

The technical skills gained during the INIS course have turned out to be a real asset for a respondent working as e-librarian to constantly troubleshoot the access problems of the patrons:

“I am working with e-resources and knowledge I gained in this course helps me in troubleshooting patron's access problems. I also feel more confident when I talk to tech support of various e-resource providers when we have to troubleshoot problems.”

The other skills gained as an impact of the course will be discussed further, and looked upon as a combination of the skills required for career advancement. The following example indicates the success of the respondent in her career while using the community outreach skills gained in the class in combination with technological skills:

“As a librarian at a community college, I often find myself working with folks outside of my institution. LIS315 taught me to be a confident participant in outreach activities. Also, the knowledge I gained of computers and networking was excellent.”

Sometimes students are amazed how much skills and knowledge they have acquired and actually carry. There is no information when this particular respondent graduated but her keeping her lab book and using it for reference is a good example of the Deweyan principle of Continuity of experience.
“Its impact was much greater than I would have expected. I didn't realize when I accepted my position in a tiny school district that I would be responsible for so much networking and other computer related issues. This course provided me with the basic understanding to work through some problems and the understanding that it is okay to ask for guidance and help. I am often amazed at how much I remember from this course and how often I look back at my 315 lab notebook.”

Taking the technical skills gained in the class to another professional level, this respondent uses them not specifically at a workplace in a library setting but even throughout the whole organization that the library is a part of and even influencing decision making processes. That’s where apparently the leadership skills gained in the course are demonstrated:

“In my current career, because of my basic technical background (mostly acquired through LIS 315), I am asked to perform routine troubleshooting and help with all technology-related issues at the high school at which I work. I also have the opportunity to work with the tech team and influence purchasing and other technology decisions.”

Some of the respondents compared to others in their organization with quite similar skills are considered technical “gurus,” as in the case of the following respondent:

“A strong impact. I am not afraid to dive right into tech issues at the school I work at; even if I'm not entirely sure what I'm doing. The other teachers at my school see me as a tech guru which is really funny because I am so not but am willing to trouble shoot. Martin's class contributed to my growing confidence in these areas.”

In some cases they are the ones who are getting called upon to solve all the technological problems even though it is not their primary responsibility but they took the LIS 315/451 course and know a lot about technology:

“I work in the Children's Dept. of a public library, and while we have a Computer Dude on call to help, I find that I am a much, MUCH better problem solver when something goes wrong with one of the computers.”

“I don't really do anything with the networking side of the library, but I am also not afraid of technology like I was prior to the class. I also understand (most of the time) what the IT staff is talking about. I would
say it has made me better able to adapt to new technology and to troubleshoot when IT staff is unavailable. Working at a public library we do not have IT staff on site. I am comfortable with dealing with day to day issues and I don't think that would have been the case had I not taken this course.”

“While my library has a couple tech folks, I get called on as well, especially when I’m close or when the others aren’t there. I gained much practical knowledge.”

“It has been helpful in the day to day troubleshooting that comes up in an academic library”

Over and over again students talk about the tremendous value at their workplaces and careers of technical skills they acquired in the course:

“Tremendous. With IT personnel working in various locations, and patron needs being quite immediate, the skills I learned have managed to quell many volatile situations, due to the heavy reliance on technology within libraries and society at large.”

In some cases students don’t anticipate that these skills can be useful even in non-technology related library positions:

“I would say that this course had more of an impact on me than any other course at UIUC. Even though I am in reference and instruction, I find myself pulling on that knowledge often.”

4.3.1.1 Not Gaining Enough Technological Skills

While all the positive aspects of the technological skills as a part of career development of the respondents have been discussed in the previous section, this section will report on the cases when the students felt that they did not gain enough technical experience and attribute it to different reasons. These views were expressed not only in Q5 on the least valuable aspects of the course but were present in the data collected from all the questions. The total number of negative remarks (13) about the value of technical experiences was quite small compared to the number of the respondents who reported it as extremely
valuable Those negative remarks about technical skills were mostly related to the structure of the course and what was a priority in the curriculum, which is also apparently related to the different levels of expertise that people came to class with and the expectations of what they would learn in it as well. In this regards, the data collected as a part of An’s (2007) research which includes the web-based pre-course surveys of the students taken during the first week of the semester on their prior experience with computers, conceptions about information technology, class expectations, and experiences of group work or service to communities and the post-course survey asking the students to evaluate the overall learning, service projects, and the changes in their concepts about computer technology which took place as a result of the class could be a good source to identify the reasons for some students not gaining enough technological skills.

One of the major complaints that the students had was not gaining enough knowledge of Unix and Linux systems. Two of the students describe it in the following way:

“The students did not learn how to set up servers/routers/printers run on Linux on the network because it was not a part of learning. There was no real exposure to Linux and command-line systems management”

“Although I did gain some knowledge of computer hardware and systems, I still have no idea how Unix or Linux works.”

While the students who came to the class had different levels of technological expertise and the major motivation to take the course as reported was gaining technological skills, as well as the major impact, one student thinks that they did not gain “any solid knowledge of computers”:

“While we were able to get some grounding, learn a little bit of technical knowledge, and put together a practical solution to a project using limited resources, I don't really feel I took any solid knowledge from this course. Since I didn't go on to work in this area, I wasn't able to build on the basics I learned, and I have a hard time participating in discussions around these topics.”
At the same time some students had a difficult time even grasping the basics. That’s what one of them says:

“As a very non-technical person, I had trouble following some of the more complex aspects of the course towards the end of the semester. Going over things with Martin helped me get through the material at the time, but most of it didn’t stick.”

Some students felt that “the technological skills training was rushed” and they didn't really learn what they were interested in learning.

For some of the students the course was extremely challenging mostly for the ones who lacked a technological background.

The students name a number of reasons for not being able to gain enough technological skills:

- Too much focus on the nifty gritty details of computers;
- Not enough follow-up work; lack of a follow-up on the projects and sites;
- Lack of feedback (or very little) from the instructor especially about the final project;
- “The lab cramped conditions sometimes impeded learning”;  
- Because it is such a big class, the professor was often stretched thin when it came to working with the groups on site;
- Networking was new to many students in the class. Because it was a large class, it was difficult for many students to grasp the technical skills needed. It would have been beneficial to have either a smaller class or for Martin to have 2 or 3 assistants;
- Lack of time to do post installation follow-up gave single-sided experience (put it in and it is running, but did our site evaluation prove accurate? did the installation meet needs);
• “Maybe not the least valuable but the most frustrating was that there was not documentation for what we learned in class--mostly only trial and error.”;

• “Because we were working with free software like Windows 98 it is less pertinent to the kinds of networking issues I face currently as a Media Specialist but I still know the basics of networking because of the class.”

The students realized that most of the equipment used for the class were donations to Prairienet, which helped to keep the cost associated with the whole “enterprise” very low for so many years. This also provides the opportunity for the students to learn on those machines by taking them apart and starting from scratch for learning all the details about the computers including installing the software and building the networks. However, one of the students believed that using the outdated equipment was not useful especially for the users:

“The quality of the equipment and the age of the software we installed. I think the equipment was so old and the software so dated, that the users wouldn’t benefit. I know that some people think that just b/c the community is poor that anything is better than nothing, but there really has to be a cut-off on the age of the equipment and software.”

Another respondent was convinced that because the equipment was out-of-date, it prevented computers from functioning properly and created a lot of frustration for the students:

“Due to the age of the computers that were donated, we had a major problem getting any of them to function properly. While it was a very good example of how technology can be a headache, it was mostly just a very frustrating and ill-planned field trip.”

Some respondents did not see any point in using “the old operating systems while the libraries used the more up-to-date systems”.
One of the respondents did not see any use of the skills gained in the class because of the age of the equipment used:

“At the time, I felt it was unhelpful to learn how really old PCs worked. I could see no use for these skills outside setting up a computer lab in a third world country.”

While 94.32% (199) of the INIS students agreed and strongly agreed that they gained technological skills that had positive impact on their subsequent careers, there are still cases when the formula of experiential learning does not work. Although not the primary focus of this research, identification of factors that diminished the quality of learning can lead to needed enhancements in future offerings of the course.

4.3.2 Teamwork

Teamwork skills are considered as a part of personal outcomes of service learning with a positive effect on the ability to work with others. As a part of the LIS 315/451 students work in teams and the success of the project mostly depended on how well they worked with each other. In the responses to the statement The experience in this class enhanced my skills in Teamwork 79.15% (N=167) agreed and strongly agreed that their teamwork skills improved as a result of the experience in the class. Only 12.32% (N=26) were neutral, and 8.5% (N=18) disagreed and strongly disagreed. (See Figure P.3 in Appendix P) Based on the comments provided in a comment box to this question some of the students expressed the concern that the work in the teams was not shared equally. One comment specifically said:

“one or two of us did almost all the work, and the others were freeloaders despite goading from those who were working. We could have talked more as a class about how to deal with this, perhaps”

Some of the students found the teamwork quite challenging because everyone in the groups had different expectations, abilities and personalities, but they found this experience important because it was exactly what they would experience at their professional and
academic workplaces. Some of the comments indicated that the groups consisted of a mix of “highly committed” to “just interested” members. One of the respondents found this experience quite motivating:

“More than any other course I’ve taken (in LIS and otherwise), this course forced you to rely on others. The fact that the final product of the course will influence the lives of others is strong motivation to work as a team!”

Another respondent believed that it was essential for his group members to work together and delegate the responsibilities. A similar comment indicated that since the entire grade depended on a group project, the students had to learn all over again how to work in a group.

The success of the Service project as a final project for the class that the students worked on throughout the whole semester, depended on how the students worked as a team.

“The group project was really the heart and soul of the course and probably the best group project I have had before or since in terms of group dynamics and real-world results.”

“I also gained a lot from the teambuilding exercise that we had to do before we began our project. As cheesy as I thought it was having college sophomores ask me if I knew what "goals" were, it turned out to be such a help to understand my teammates' personalities as well as my own *before* we started working. As our project progressed and we found ourselves in very stressful situations, I knew why certain people were reacting in certain ways, as well as why I was reacting the way that I was, and I was able to adjust my behavior to work better with the others instead of simply being frustrated.”

For many students working in a team was a great learning experience:

“I learned what a team can do for a community to make a difference!”

They were able to have a good balance among the team members and how to work things out:
“My team had a great mix of computer savvy and public relations students so each of us could shine at our best qualities.”

“I also learned much about working in a team accomplishing a project. There were some unpleasant dynamics to overcome and this was certainly a primer for the “real world.”

The students share stories on how the skills of every team member combined together to lead to the success of their project:

“The unique group of students that I worked with. All had their own unique skills that helped make the project more successful. Some members of the group created conflict which created its own set of challenges - which was a great learning experience. By the end of the project, most of the group had resolved conflicts and were pleased with the outcome.”

“I remember working with my group members; we worked very well as a team. We had a lot of fun working on this project.”

Taking into account the unusual nature of the project as well as the constraints of time and resources as well as the unique environment for carrying out the project, some students admit that “learning how to work effectively in a group on a project of this nature was very important.” Students were “more dependent on one another, and the differences between our working styles, personalities, experiences, and expectations had a greater impact on the group experience.” They “learned to be part of a team with diverse backgrounds.”

For one respondent the most memorable aspect of the course were the people involved in the course:

“I know I'm probably supposed to remember something about the technology, but the more I think about that course, the more I can remember the people in it, more clearly than any other class I took at GSLIS.”
Ten students used the term “camaraderie” which means “Goodwill and lighthearted rapport between or among friends; comradeship” and “a spirit of friendly good-fellowship” to describe their teamwork experiences and the way they bonded with their team members.

For one student a teammate in the project became a best friend:

“One of my best friends at present was a teammate on this project and I very much credit the positive experience we had working together on our lab with the beginning of our friendship. I may have forgotten many of the specific technical details, but I still have a sense of the processes and procedures that we learned.”

The following are brief characteristics that the respondents used to describe the different aspects of the teamwork experience:

- Team building
- Bringing different strengths together to achieve a goal
- Problem solving with my peers
- Relationship with the team
- Dividing the responsibilities
- Helping each other learn
- Amazing teamwork experience
- Coordinating activities with team members

This response to a question on what was remembered the most is a perfect demonstration of how most of the students felt about the teams that they worked with, the unity and bonding that took place and the fact that they were together in the most critical situation:

“My classmates, the camaraderie, the long hours, and the morning of 9/11 when we were all together”

“I remember going to class on the morning of September 11 and Martin trying to find Internet news about the attacks.”
While teamwork was rated as number two among the skills gained as the impact of the course, learning how to work in the group and be a good team player was as important as gaining technological skills for the careers of the students in combination with the other skills. The next section will describe the instances when the teamwork experiences were not very positive.

4.3.2.1 Weaknesses of the Teamwork Impact

While almost 79.15% of respondents agree that they gained valuable teamwork experiences while working in groups during the course, based on the feedback from 14 respondents some groups did not function well as a group. A number of group members lacked appropriate technological competence and relied on a certain member of the group which created certain dissatisfaction among the students. A major concern was that by someone more competent doing the job, they were deprived of the opportunity of learning by doing. Two students suggested that more independent work within certain aspects of the class should have been required:

“While putting together our build we all chose tasks that played to our strengths and didn't stretch ourselves as much as we could have to improve our technical skills.”

“A consequence of group work always includes the possibility of one or two group members doing more of the work for the group than they should. When this happens the opportunity to learn the skill set being offered in the course is minimized because others are exerting too much influence over the direction and completion of the team’s goals. I vaguely remember this occurring within the context of my group in LIS 315.”

One of the respondents felt quite challenged by his team:

“While teamwork was a major component of the course, I was VERY challenged by the group I worked with. In some respects, the fact that one had to rely on one's team so much made learning some of the technical skills more difficult.”

For another student working in the team even interfered with her learning process:
“I would have preferred to work individually instead of as a team during lab. I feel that I didn't learn as much because the members of my team who were more computer savvy did most of the work.”

Another student felt that because the team members with stronger technical skills will take the lead in doing the most challenging technical tasks for the group, other students end up not learning anything. It has been reported in a few instances:

“When I encountered problems understanding networking concepts, my group members and I had difficulty troubleshooting and finding help in this area. The pace of the project felt hurried / hectic, and so we seemed to rely more on the smartest person in the group to solve the problem for us and less on troubleshooting skills. I was a bit disappointed in how little I learned about the hands-on, technological aspects during the course.”

4.3.3 Communication Skills
Among personal outcomes communication skills are also positively influenced by service learning. Service learning has a positive effect on the ability to work with others and development of communication skills (Eyler & Giles, 1996). Communication skills are also an important element in an LIS career; the success of the LIS professional often depends on how well he/she communicates with the patrons. Based on the responses to Q4, 72.03% (152) of respondents agreed and strongly agreed that the experience in the course enhanced their communication skills. Only 40 (19%) respondents were neutral and 19 (9%) respondents disagreed and strongly disagreed with this statement (see Figure P.1 in Appendix P).

Within the course communication skills were important to communicate both within a team and with the community members. While the students were experiencing certain problems in communicating with the community members and the sites, one of the respondents valued the opportunity of practicing her communication skills while working with the community members:
“Explaining the technology to the end users was excellent practice in communication, since I often had to ask for additional help in answering some of their questions.”

4.3.4 Service Component/Fieldwork of the Course

As indicated earlier hands-on experience which is actually service-learning and experiential education in action, has been highly valued by the respondents. One aspect of it was as described above working in computer labs “at home” to gain technological skills and carry out the preparation for the final project and another aspect was implementing an actual project on site which was considered the major service component of the class.

Q2 of the survey specifically asked where the major project was carried out. Since most of the projects with few exceptions are carried out in East St. Louis, it was not surprising to see that for almost 85% (N=179) of respondents the location of the project was in East St. Louis. The remaining 15% (N=32) had other locations for the project in Illinois including Champaign, Urbana, Kankakee, Deland, and Rantoul.

The students highly valued the service component of the course. Five of them describe their experiences as follows:

“The service component gave the class a focus and urgency.”

“The fieldwork, absolutely. Getting the chance to put technical know how into practice, and to recognize that there was no shortage of places where such skills could be applied.”

“The most valuable aspect when the students were able to see what their contribution meant to local community.”

“The most valuable aspect of this course is the two trips to ESL. It’s almost impossible to explain what you learn on those trips. The team bonding, community service, and relationship built with the ESL community all made the trips my favorite part of the class.”
“I really liked the volunteer and service learning aspects of the class, they really made it memorable and worthwhile.”

The project empowered them as professionals and gave a chance to test the values and concepts of the LIS field in a real-world environment. During their work on site and communicating with the community organizations and members, students learned how to work with a different kind of clientele and meet their needs - skills that they carry on into their careers. Three of them say:

“I really feel that librarians can make difference to the community.”

“Using our skills in the community; seeing how our skills can extend far beyond the physical library.”

“The chance to see the values and concepts of our field put to the test in a real-world environment, a very rare opportunity in the academic world.”

The respondents identified the following aspects of the service component of the course which made a positive impact on them:

- Trips to East St. Louis, “all the preparation and hardwork involved with implementing our network”;
- Setting up the lab;
- Interacting with clients; communication with the community members; working with community groups;
- To see what their contribution meant to local community;
- On site use of skills taught in the class;
- Working with community agency; Assess, design, and implement a working system for the agency;
- “Working with the users to design and set up their desired network.”;
- “Giving back to a community using servant leadership.”
- Real life project; helping real people; chance to help others;
• Provide a benefit to community organization;
• Putting classroom knowledge into practice;
• Providing community outreach;

Some students enjoyed being a part of the community:

“Besides the tech, being part of that community, even for a little while, was just wonderful.”

Some of the respondents saw the project as a practical application of the technological knowledge gained in the class:

“The service project in East St. Louis was very valuable as it provided an explicit service to the community and increased my knowledge of network functionality and architecture.”

The students stressed the difference of the experience in this course compared to other experiences:

“I'd previously successfully worked in many groups, but the "real life" nature of this project (that we were creating something that would actually be used by people) added another dimension.”

“It was also significant for me to be able to be involved in a service learning course. I really wanted to bring together my interests in academics and service in a substantial way. This class allowed me to do that.”

Responding to Question 7 of the survey As you look back now and think about the course what do you remember most? three students described the trips to East St Louis and working on community projects as the most memorable experience and a highlight of the class:

“The trip to east St. Louis made quite an impression on me. It was an eye-opener to meet the people there and see the kinds of limited resources available in the community.”
“they were lots of fun and we got a chance to see change happen.”

“I remember many things from this course. The most valuable thing was the practical experience of setting up the lab in East St. Louis. I don’t believe I would have learned as much without the practical application of what we had learned.

Two students express their satisfaction with the project even though it was lots of hard work:

“My site in East St. Louis, the fun I had and all the work we put into those computers.”

“I remember trips to East St Louis, and all the preparation and hard work involved with implementing our network. We had a good time, and it was a lot of work.

4.3.4.1 Learning about Digital Divide

As indicated earlier, East St. Louis, an impoverished community, was a major site for community projects as a part of which the students were setting up computer labs in the churches and other community organizations. For many students it was their first trip to East St. Louis and a first exposure to the “have nots”. There is a need to educate LIS students about underserved populations and an effective way to do it is through a service-learning experience. Describing digital divide as a gap between those who have access to computer technology and Internet and those who don’t, Mehra (2004) believes that through service learning “we as LIS professionals and educators can provide experience and training to students to work with groups that lack access to technological resources. Such efforts will develop sensitivity in LIS students towards the realities, experiences, and needs of marginalized populations.” This is exactly what has been taking place in the INIS class for all the years it has been taught. Through those experiences the students prepared themselves for their future careers through recognizing the existence of a digital divide and
changed their attitudes under the influence of the experience in the class. Three of the students express it in the following way:

“It helped me think more about the information/economic divide at the same time made me question other issues including the very service we were doing.”

“The course made me recognize the "digital divide" in a real, physical way. I knew underserved communities were out there, but I'd never worked in one. Now I have real life experience. It has come in handy talking to folks who think that everybody has a laptop and high-speed, on-demand access to the Internet.”

“I think that the course changed my attitude in two ways. One, it changed my attitude about people who don't have access to computers, and how many different strategies can be used to help provide them access to computers and the Internet in their lives and communities. And two, it changed my attitude about computers and how they aren't the mysterious scary boxes I thought they were, and how to help other people understand how to use them.”

For one international student working with the community in East St Louis was an eye-opening experience:

“As an international student, before taking the course I was unaware that there were communities in US that desperately needed help; I learned that even in the most underdeveloped and seemingly abandoned areas there always are people who care and who work hard to revive their communities, and that it is possible to do this.”

As well as for some local students:

“I don't think it had any impact at all on the direction of my career - that said, however, I do believe that it was a great eye-opener as to the haves and have-nots regarding technology as well as the basic necessities of life.”

Some local students did not really have an idea about these communities before:
“It made me think about poor communities that I had not imagined before.”

Envisioning that, Cuban & Hayes (2001) write: “The high numbers of middle class students who are drawn to librarianship can learn about economically and ethnically diverse communities they will service from many perspectives.”

While the course did not directly change the careers of some of the students, it reinforced their interest in community activism:

“I don’t think it has directly impacted my career. However outside my work I am involved in groups doing grassroots community work, one that includes book donations. So I think LIS 315 reinforced my interest and commitment to community activism and work.”

4.3.5 Work with Community Organizations and Members
The work and communication between the INIS teams and community members can be divided into two separate categories:

- Direct work with a specific community organization and members on a major final class project on setting up a computer lab;
- Work on different community oriented projects with a broader community

A huge part of the success of the final project depended on the relationships the students built with the community members and organizations. How these relationships are built and developed is also directly connected to the personal outcomes such as leadership skills, teamwork and especially communication that were discussed above.

Through the work on the hands-on project for the community, the students were working with the community members and community organizations. The Community service
project as a part of the course involved different kinds of projects carried out at the site including working in the parks, making up benches, working on the yards for Habitat for Humanity houses, working with Teen Tech groups, etc. It should be noted that along with the other changes, a change in the nature of the community-based service projects has been made. For the last few semesters the students instead of working with different community work-oriented projects, worked with more ICT and information literacy training. The last project the INIS students have been working on was Teen Tech. Apparently this change in project orientation was done based on the feedback from the students.

In regards to the community projects that the INIS students participating in the present study took part: while the main idea behind the projects as part of the course was to work hand in hand with community members by participating in projects for the community and getting to know the members of the community in addition to setting up a computer lab, some students found this work absolutely useless and even called it “forced labor”.

“Non technology related work in the East St. Louis area. Example: picking up trash, planting gardens, etc. This work is valuable, but has nothing to do with Info technology, and was not useful for most.”

“Shoveling mulch. Our particular group shoveled mulch and my eyes watered so badly everyone thought I was crying.”

“The forced labor in East St. Louis. On our first trip down, we had to create a park in a neighborhood.”

It looks like if there was more planning involved, frustration could be reduced:

“I remember standing in the drizzle around a pile of mulch for two days, no one really knowing what we should do with it. We eventually went house to house, asking people if they needed it. Also, waiting most of another day for instructor to finish at a different site before giving us the okay to go home.”
A few students expressed concerns about cultural awareness and sensitivity in terms of the community that they were interacting with as well as the sustainability of the projects. One of the comments in the category of what students remembered most was:

“I appreciated the course in that I learned a lot about computers and how systems work. But to be honest what I remember the most is that there was not a lot of talk about being respectful of the community we were going into. I don't think the students thought very much about cultural and economical differences and I felt a number of people were somewhat insensitive with their comments and actions which made me very uncomfortable. And although I think the intension was to be working with the residents of East St. Louis, it still felt more like we were coming in to fix problems. I think it would be more successful for the residents if they could feel more of a mutual benefit (besides giving students experience). I was also uncomfortable with the fact that we set up systems many organizations wouldn't be able to maintain. I know the class can only be responsible for so much but I would have liked to see some ongoing support for these systems after the fact.”

This comment raises issues that are being addressed as the course continues to develop, but the challenge of the limits of what more can be accomplished remains.

4.3.5.1 Lack of Communication with the Site

While setting up a computer lab at the site was a major project of the class and working directly with the community members at the site was extremely important for the success of the project, one of the major obstacles for the team was communication with the site. It was a big issue in the early years of the course being taught. Based on the feedback received from the students, the course instructor with assistance of the director of Prairienet as well as ESLARP have recently made some changes in coordination of the projects from the local community side as well as some aspects of the course. During the second half of the semester the INIS students visit the site, they conduct site surveys, plan systems designs, and meet the community members and the organization that they will be working with. The director of Prairienet working closely with ESLARP identifies the community organizations who are in need of ICTs and are in need of a computer lab for the community members they are serving. Since the project has been going on for 10 years, most of the
community members and organizations are quite familiar with it. Usually community organizations themselves send a letter of request. Then based on those letters, the director of Prarienet individually visits those sites, meets with the community members and based on that signs a contract with them which includes the name of the local coordinator. This contract spells out the responsibilities of the partner organization and the coordinator in terms of cooperation and collaboration with the INIS team to contribute to a successful completion of the project. So, all the groundwork is done before the students actually meet their site coordinators.

These changes took place just recently, and did not cover the years which were included in the study. But even so, based on the responses to Q3 The experience in the class enhanced my ability to work with community organizations and members 130 students (61.6%) agreed and strongly agreed. (See Figure P.5 in Appendix P). Quite a high percentage of students 31.75% (67) stayed neutral and it might be due to the reasons I stated above. Only 14 students didn’t agree with this statement.

Two of the students describe their frustration with the lack of communication the following way:

“Lack of cooperation from the local organization which was designated as a site for the network installation which made some of the students feel that the lab would be of no benefit for the community”

“Many of us had frustratingly little contact or support. And afterwards our projects were sometimes never implemented or abandoned. I understand the volunteer nature of all the projects, but a bit more commitment or being involved with organizations that are a bit more structured and willing to cooperate would have been nice.”

4.3.6 Changing the Ways the Students Think About the LIS Professions

This question (second in a group of questions in Q3) specifically asks about how the hands-on project in the community changed the way the respondents think about LIS professions. As indicated earlier even though it is a close-ended question and the respondents use the
Likert scale to respond to this question, the responses provided initial information on the impact of the service-learning experience as a part of the course on their perception of the LIS profession. It also suggested linking this experience to their careers and ideas about subsequent career development which are the major questions and focus for this research. Based on the responses to this question 129 respondents (61%) agree and strongly agree that the hands-on project as a part of the course changed the way they think about LIS professions. The details on what was the most appealing part and how those changes occur were obtained from the open-ended responses. 65 students (30.8%) remained neutral in responding to this question and only 17 students out of the total 211 disagreed and strongly disagreed. (See Figure P.6 in Appendix P).

As indicated earlier in this section, in many instances the LIS 315/451 course changed the students’ vision of the LIS profession and provided the students with different perspectives about the major issues and values of the profession, addressing certain practical and theoretical concerns in the profession. That is what some of the students say:

“The course changed my vision of LIS profession from library centered to patron's needs oriented.”

“It didn't have a great impact on my career, but it did help me come to terms with what I feel are some of the great on-going practical and theoretical concerns in my profession.”

“The fact that our lab was designed for children also made me more aware of their technological needs while working as a Children's librarian.”

The course empowered one student to implement user policy changes:

“It’s also influenced my actions/arguments with respect to our computer use policy. I’ve struggled against opinions in order to free up the computers to the use of teens without permission from their parents. I've also argued against judging our patrons' use of the computers (resumes vs. games, for example), as well as restricting them from uses that are tough on our software (such as social networking sites that seem to cause problems with our patron management software). These values were
influenced by the lessons and the project of 315.”

For another student INIS made him aware of ethical issues in the profession:

“It made me aware of the ethical issues facing librarians, as well as the variety of technology skills needed.”

### 4.3.7 Bigger Social Impact than Technological

Continuing the ideas of the previous sections, it is quite important to note that some students consider that the course had a stronger social impact than a technological one. By social impact the students mean a notion of giving back to the community, working with the community, community outreach and understanding the issues. Four of the students make the following statements about the social impact of the course:

“seeing technology as a means (i.e., to improve people's lives) rather than as an end in itself.”

“Course valuable socially -- working with others to complete a real life project aimed at actually helping a community.”

“the social impact of the course was greater than technological one”

“I think the intangible stuff has had the most impact - learning about giving back, working with a team, etc.”

For some students outreach became a major focus of their careers as influenced by the course experiences. One of the students says:

“Also, outreach has been a major theme throughout my career so far. Nothing as dramatic as what I experienced in East St. Louis, but while working at universities I have always tried to give back to the community through workshops and presentations to the public libraries/librarians.”

For some students the class raised awareness of the issues related to underserved populations and one of the students ended up working for ESLARP and Prairienet after he graduated and the student is convinced that the course helped him to determine who he is:
“After this course, I became aware of the great need for active CTC's and computer training for underserved populations, and the impact technology can have on people's lives. I went on to work with Prairienet and the ESLARP group while I finished up my MS at GSLIS, and am still involved in CTCnet. While I'm not sure 451 had a direct impact on my career path, it definitely affected who I am and my community involvement.”

For some students the course “demonstrated possible avenues for community service projects”. LIS 315/451 helped another student to become aware of the issues in his own state:

“On a social level it made me more aware of the poverty within my own state. I am still involved with various community development projects, but I don't have a career.”

In some cases based on the experiences of the course and the model of service learning as a part of the course some students tried to replicate this model at their workplaces and in some cases even expand internationally. That is how two students describe their activities:

“I am currently the coordinator for a grant project which provides digitization equipment and training to at-risk historical archives in the Caribbean. Much of the outreach and training we do very closely resembles what I was first exposed to in the course. I would say the course had a very strong impact on me”

“It definitely made me more confident in dealing with technology and network environments. I currently work at a university with a strong service learning component and have recently been trying to devise a program where the library could assist in helping one of our target sites (a poor area in the state similar to East St. Louis) have more access to technology for health-related information as well as to develop job skills. So far we haven't gotten very far in the planning but I find my experiences with this class to be a constant source of inspiration.”

The experience with the course also served as a starting point for doing community projects of that kind:

“It also definitely gave me a point of reference if I am ever involved in a community project of that kind. I think I would definitely have a better idea going into a project of that kind what worked and what I would do differently.”
To some students the course “showed the importance of collaboration and community outreach” and taught “Thinking big even with small means.”

One of the students calls this experience “a social work experience”:

“I’m still not a techi by any means, but the social work experience strengthened my commitment to working with people through creating pathways to information, and convincing people they had a right to access to information. Library school is a good place to be, and the class affirmed my convictions”

For some students working with community was quite a satisfying experience:

“Personally, I still feel a sense of accomplishment from working closely with the people at the church, building a relationship and appreciating the importance of our work to the community.”

“Outreach becomes a meaningful concept for me.”

While some of the students were greatly impacted by the social aspect of the course, they did not have a chance to apply it in their careers right away but they are planning to do so in the future. One of the respondents shares his experience:

“The course did not have a direct impact on the position I took right after graduation. However, I have always had a strong interest in community outreach and empowerment, and I hope that I will be able to incorporate these interests more into my career down the road. One of the reasons I took the course in the first place was that I wanted to participate in a community project.”

Some of the students believe that the class had a bigger impact on them personally than on their careers:

“While I have benefited from understanding the basics about how computers work, I have had little use for the networking. The experience in East St. Louis was wonderful, but I think it had a greater impact on me as a person than it has been applicable in my career.”
4.3.8 The Overall Impact of the Course on the Subsequent Careers of the Respondents

As indicated earlier and supported by a detailed analysis of the different impacts of the course, each single skill, ability and attitude including the *Technological Skills, Teamwork, Communication, Working with community, Thinking about LIS Profession, Leadership and some others*, individually and/or combined together impacted the careers and career development of many respondents. While the term “career choice” has not been used as part of this discussion, the course has indeed impacted the career choices of some of the respondents as well.

A specific question Q8 asks the students to talk about the impact of the course on their careers directly: *How would you describe the impact the course had on you and your subsequent career?* This question directly reflects on the major research question of the study. But as indicated earlier, it is impossible to isolate all the other impacts from just the career impact.

In some cases the students would have never ended up applying for and getting the specific jobs they are describing if they did not take the course. LIS 315/451 turned out to be a “passport” for their career destinations. For example it was the case for the following four students:

“I've been able to enter a new job and be known as a good resource for computer problems. This has helped open opportunities and now I'm working as a Web designer in my new library...and also retained as a resource for solving computer issues. In a profession where many aren't familiar with computers, this class was extremely helpful.”

“I would never have taken on a job w/ such a technical component if I hadn't enrolled in 315. I'm even a manager of a computer help desk. My future career plans involve hoping to assist rural communities set up libraries and computer labs.”

“As a result of this class and other technology experiences at GSLIS, I am a technology leader at my school.”
“I have had the courage to apply for jobs that required technology knowledge. I have often been the first line of defense to figure out a problem.”

For the student employed by the Milwaukee Public Library, the course also reinforced the career decision:

“I went to GSLIS with the intention of a career in public libraries, and this course reinforced that notion. The "real life" experience of going to a public library and installing needed technology was invaluable. People often use public libraries to fill a gap within their own lives, be it a lack of information or a lack of means to technology. Free public-use computers are a necessity, and I was happy to be part of fulfilling that need for one community. It was a small glimpse into what I now see every day in my work with the Milwaukee Public Library.”

Sometimes the experience in INIS helped tremendously to get a first job and go from there:

“It was a big part of first job as electronic services librarian—it gave me lots to talk about and use during the interview to make my experience come to life. The service nature of the project also helped.”

In some cases taking the course provided a competitive advantage for the students to actually get the job right after they graduated. Here is the case of one of the INIS graduates:

“I found the job two months after graduating from the university. I was fresh out of school with 2 years of graduate assistantship as my only work experience. The description of the position I applied for listed mostly cataloging skills but, as became evident from the interview, they were equally interested in my other skills. And computer skills were very high on the list of priorities. I had to compete against a person with nearly 15 years of experience and I am sure that I landed this job (they eventually hired us both) due to my "technical" skills. LIS315 was not the only course that helped me to gain needed skills but it was definitely one of them. I had a lot of opportunities to apply those skills in my day-to-day work.”
Having the course listed on a resume helped one of the students find a job:

“Positive resume material probably helped as I moved into an IT related position.”

One student almost made a decision to go into the non-profit sector:

“The course almost made me decide to go into more of a non-profit computer networking career track, but I ended up in a public library.”

The students continue to share their testimonials on how the course had a big impact on their subsequent careers and progression of the careers:

“The course provided a deep foundation of technological skills which I had not had previously and subsequently gave me the confidence to learn more and explore more technology in my career. I now do a lot of technology training and teach with digital tools. I find that knowing more about the hardware helps in my teaching.”

“It had a tremendous effect in my subsequent career. It got me very interested in technology (especially free software) in librarianship. I use tools and skills I learned in this and similar classes almost daily in my job.”

“I cannot state too strongly how useful the networking course has been to my career. My first job out of graduate school is in a vibrant but rather underfunded library where we are using aging computers that continuously need TLC. I have replaced memory, worked out glitches in the networked computers, helped computer science graduate students set up servers for our Web pages, and served as translator between professors and IT professionals when problems occur on faculty's personal computers.”

“The course has been invaluable to the progression of my career. I consistently find myself referring back to the experiences I had and using the technical and problem solving skills that I learned. The course provided a technical and social foundation that I would otherwise never have gained.”
“I have had several positions -- both public services and IT -- and this course got me on track to be more effective in both arenas.”

and even when those skills made them find their career “by accident”:

“The course has had a tremendous impact since I became an "accidental" systems librarian due to the knowledge gained. I have moved to other positions but I take with me a technical understanding of how systems work.”

And then the skills that they acquired in the LIS 315/451 course years ago are being used on a day-to-day basis in their current positions until today:

“I use those skills every day. Having IT skills at my academic library gives me lots of clout with the IT staff, and this only helps me bridge the gap between libraries and the rest of the campus.”

“The course turned out to be very important to me because I managed to learn things I would not think of before and that still helps me in my current position. “

To some students:

“the course gave me a certain amount of confidence with technology that I did not have before. This enabled me to take a leading role at my institutions in Website redesign and digitizing of music materials.”

In some instances the course did not change their career choices but:

“Made me much better at my job. Most computer problems encountered by the students and teachers in my building are really pretty simple, and can be solved using the info. and skills I got in Martin's class. My learning curve for new hardware and software is also less steep since I understand more of what's going on behind the scenes.”

“It didn't change my career path of becoming a school librarian, but I am more than willing to tackle tech problems at my school.”

“It fore grounded the importance of technology in my professional life.”
The technological skills have proved to be valuable and expected in non-LIS related careers as well:

“A certain level of computer and network literacy is assumed by my employer (a maker of security/availability products for individual consumers and enterprise-wide implementation). I have the knowledge I need and more from my LIS experience and am known as a technical resource within my immediate team and beyond. It's a big "plus" with management.”

Some of the students who took the course decided to either change their subject concentration while at GSLIS or pursue a different career:

“The service learning aspects. Working in a practical setting motivated me in ways that a grade cannot. I also changed my focus in GSLIS to a more technical track because of this class alone.”

“Ultimately it gave me confidence to pursue computer programming and POSIX systems administration, which in turn opened up a general interest in applied science which had never been cultivated previously. Long term, this led me back to graduate school in engineering after two years or so working with computers in an information management context.”

“I started out with an idea to go into Children's librarianship. It was due to the combination of this course with Using Networked Information Systems that caused me to make a career change into a more technical focus.”

Some students replicate different aspects of the LIS 315/451 such as teaching it in their careers:

“I hope that other classes will be added that are similar to and complements LIS 315/451. It was a great class, with a great professor & would take it again if I had the chance. In fact, I have considered offering a similar course to undergraduate students & possibly a one-day teen program for the local public library.”
“As a public librarian, the class has significantly changed the way in which I teach my patrons about technology. It's no longer a secret set of skills, out of reach to the layperson. Instead technology is simply a fear to be conquered. By embracing this attitude, and helping to convince patrons that there is actually very little they can do to break a machine, I've made my own training sessions more interesting and effective.”

“I am no longer afraid of computers. I can explain to people how they work, and how the internet works. I do this at least a couple of times a month, when I teach people basic internet classes at my library.”

4.3.8.1 Not Much Impact on the Careers
In spite of the fact that there is evidence in the form of many testimonials of the students about an enormous impact of the course on their careers, 24 respondents are convinced that the course did not have much impact or had just a little on their career development. Some of them think that while they got some basic technological skills, they were not enough to go into jobs requiring more substantial knowledge of technology. Three of the students stated:

“Unfortunately, I had enough exposure to know some things, but not enough to get into something like systems librarianship. At the time, I was more interested in Knowledge Management, but took a research/reference job as I was not able to find the kind of work I was looking for.”

“While I enjoyed the hands-on experience and the knowledge I gained, the course has had little to no impact on my career since I left GSLIS.”

“While the course gave me a strong sense of satisfaction, it had little impact on my career.”

The students whose career paths have not been influenced by taking the course are also convinced that the course did not have any impact. That is the opinion of the other three students:

“It is hard to say what impact the course had on me. It did not particularly change the path that I was already on.”
“I don't think it changed the direction of my career.”

“It had no positive impact on my career. I became successful in spite of that class. But I do still talk about it to other GSLIS people who took the class with me. It's sort of a joke now.”

While so many connections could be made between the experiences gained through the INIS course and any LIS job, and not necessarily of a technical character, some respondents did not see a connection with the course unlike their colleagues mentioned earlier who see the value of the course in different types of library jobs in different types of settings.

4.3.9. Other Skills Gained

“Service learning is a means to teach problem solving skills, it assists students in learning more about themselves and their capacities....”

(Tanner, 2006)

Along with the skills described in the previous sections, a number of outcomes reported in the literature as an impact of service learning such as complexity of problem analysis, identification of problems and solutions, and critical thinking (Eyler & Giles, 1999; Batchelder & Root, 1994) which could be related to career development as well have been mentioned as outcomes of the experiences in the LIS 315/451 course:

- Project Management Skills (“learned about project management skills”, “planning and implementing project”, “project management skills acquired via the group work”)
- Problem Solving Skills (“This was an extremely valuable course in many ways: working as a team, problem-solving, cooperating with others, trying things outside of your comfort zone with varying
results”; “real world problem solving”)

- Practical, Social, Logical Skills ("Some GSLIS students may consider LIS 315/451 as a course that is too technical, but it is so much more. This course is one of the few that provides an opportunity for students to gain practical, social, as well as logical skills”, “it was very useful-practical experience as an integral part of education”)

The following statements of six respondents indicate how these other skills separately or in combination with the others impacted the careers of respondents.

“The course helped me hone my problem solving skills, which is useful both with technology issues, but also with almost all aspects of my current position, from working at the reference desk, teaching, working with faculty, students, and library colleagues.”

“In my current job, I work with a lot of objects that I have not seen before, and I often have to figure out how to work them without any manuals. After taking 315, I now approach these types of problems differently. I stop and think "what would Martin tell me to look for?" before I try to take things apart and do my best to apply logic to the situation—in short, I have learned to try to think like an engineer. For better or worse, this has gained me a reputation at work for being patient and for being good at solving problems.”

“Regarding technical (and sometimes non-technical) related issues, I learned from Martin to look at things from a different perspective and to break down certain problems/tasks into more logical steps. Thereby achieving success in the end.”

“This was an extremely valuable course in many ways: working as a team, problem-solving, cooperating with others, trying things outside of your comfort zone with varying results. I also gained tech skills that have been invaluable in my career. One of the most valuable things gained from Martin's course was the vocabulary to speak with district tech personnel. Even if I am unable to troubleshoot and solve a problem, I have the language to explain what the problem is. This has subsequently elevated their opinion of me and we have worked very well together during my three years as a Library Media Specialist.”
“While I don't have a position that enables me to apply the technical skills I gained in the class, I am able to apply all of the project planning, problem-solving, team building skills that I learned on a daily basis. I always remember - "measure your cable, add 5 feet, add another 10, and then add 5 more".

“I learned to be more and more patient not only to take this course and learn about computer stuff, but also in doing my job, and address different patrons, and situations.”

While in 15 cases the course has not been relevant for someone’s career a combination of skills gained has still been helpful as indicated by 2 of the respondents:

“I wasn't so happy about LIS 315 after I took the course. But over time, my mind has shifted (or memory faded). I am glad I took the course for the experience but that experience hasn't been very relevant to any of my positions except a confidence with computers and knowledge of teamwork and leadership.”

“It has had a very positive impact on the way I troubleshoot things on the job whether computer related or not. I use those evaluation and diagnostic skills everyday.”

4.3.9.1 Leadership
According to Eyler and Giles (1996) service learning has a positive effect on leadership skills as a part of personal outcomes. Leadership was included in the major impacts of the course in Q4: The experience in this class enhanced my skills in Leadership and more than half of the total number of the respondents (52.13%, N=110) strongly agreed and agreed that the experience in the INIS class enhanced their leadership skills. 76 respondents (36%) were neutral, 2 respondents chose not to respond, and the remaining 23 (10.9%) disagreed and strongly disagreed with this statement. (See Figure P.2 in Appendix P). Responses to the open-ended questions did not provide many more specific examples.

Nevertheless, one of the students observed that the course helped him “To see his own potential as a leader and reinforced the idea that there are many different ways to exhibit "leadership."”
4.3.10 Impact on International Students

One international student shares how the course impacted their vision of the LIS profession and how they are working with the library professionals in their home countries to expand the vision of LIS:

“The course changed my vision of LIS profession from library centered to patron's needs oriented. Also I found out the LIS people in USA are involved in community and other public initiatives much more than in my home country, where librarians most of the time remain in the library buildings and very rarely go out to people and offer their services and expertise. As an information specialist now I work a lot with rural libraries in my home country and encourage librarians to be leaders of their communities and involve as many organizations and institutions in their projects as they can.”

The course has also helped the international perspective of some students:

“I did find a job at an organization that attempts to provide better info access to info-poor countries. (I had to leave because of lack of funding, but they have promised to bring me back as soon as they find more funding).”

4.3.11 The Impact Beyond a Career

While previous sections illustrate through respondents’ comments the tremendous impact that the course provided for them both personally and professionally (“This one class had a huge impact personally & professionally, more so than any other class I took at GSLIS”), this short testimony about the invaluable impact of the course on a career and beyond a career of one of the students tells a lot about how taking the course has influenced the life of that student professionally and personally. The course through its service-learning aspect turned out to teach a whole set of new skills which helped the student to survive and succeed at work and in real life settings:

“Invaluable. The impact was beyond my career. From a career standpoint, I am now the person who troubleshoots computer and other technology issues at my branch. Often, when I am not present, a branch
staff member, including the branch manager, will face problems with a computer or even the copy machine, and will put an "Out of Order" sign. Then, when I come in, I almost always fix the problem. When I do need to call our Computer Services department, I am well prepared to give them all possible information and to communicate efficiently and effectively. If it wasn't for this course, many of our technology issues would be directly felt by patrons. Because of the knowledge learned, however, our patrons rarely have to deal with "Out of order" computers or copy machines.

But that's not all.

Shortly after graduation, me and my father went to reinforce the ceiling of a bedroom in a work-in-progress house that he owns in Wisconsin. Now, this normally is the type of project that I am not at all good at. However, because of the skills learned in LIS 315, I exuded excellent analytical and problem solving skills that made the process much easier. My dad was quite impressed with the way I approached problems. This was an entirely new skill set for me. I've also learned not to rush through things and to take a pause here and there to collect myself and do things the right way rather than just finish them quickly."

4.3.12 Role of the Instructor and Value of the Course

While this study does not have any intention to serve as an evaluation of the course or of the course instructor, the analysis of the impacts would have been incomplete without discussing the role of the instructor not only as seen by the students but also sharing his philosophy of teaching, his participation in the course, and his devotion to the course. All have a direct connection to the impacts that the course made on the students.

The studies reported in the literature on service learning regarding faculty involvement indicate that faculty value service learning for the students’ outcomes, building closer relations with the students, and improving teaching effectiveness (Eyler & Giles, 1996; Hesser, 1995; Hammond, 1994).

Speaking about the rewards of academic service learning, especially for the faculty, Weigert (1998) pointed out the following factors:
• Desire of the instructors to have teaching and learning make a difference –for students, for themselves, for the world;
• Service learning to offer new opportunities to think more consciously and more creatively about the relationships, including those of a faculty and student, disciplinary and interdisciplinary or multidisciplinary knowledge, campus and community;
• Opportunity to contribute to the service learning development as evolving field;
• Service learning as a link between what goes on in the classroom and what goes on in the community, offers a vehicle to faculty, students, and community partners for thinking and responding in new, collaborative ways to the critical issues that confront our local and global worlds.

These rewards can be directly applied to the teaching philosophy of the INIS instructor, who was the one who “offered one avenue for rethinking and re-imagining the whats, whys, and for whoms of higher education” (Weigert, 1998). As indicated earlier the instructor originally “engineered” and “reengineered” the INIS course when it started back in 1997. It is quite rare for one instructor to keep teaching the same course for so many years. While the instructor does not have a tenure-track faculty position at GSLIS, he has the status of Adjunct faculty and also holds a full-time position as a Manager of User Services. Before he started to work for User Services, he worked with Prairienet and already had the established relations with ESLARP and East St Louis. He anticipated the need for designing such a service-learning course and has remained devoted to it. Posing the question “Must a faculty member do service at the same time the students do?,” Weigert (1998) first says yes. Just as the faculty has to read all the assigned texts for the courses they are teaching, they also need to participate in service-learning related activities. On the other hand it really depends if the faculty has the necessary time to undertake the service. In the case of the INIS instructor, he not only had and found the time to do so but he was actually in the “field” and was directing, guiding and helping the students 24/7. It is
a luxury that a full time tenured track faculty might not have been afforded because of all the other responsibilities they have to undertake.

Before I move to students’ feedback about the role of the instructor in the course and value of the course, it is important to highlight the instructor’s philosophy about teaching the INIS course which is directly related to a dilemma stated at the beginning of this dissertation regarding whether INIS is a “pure” technical course which somehow had a service-learning component, and it is more about technological skills rather than about service learning. Actually, the instructor solves this dilemma quite easily. In An’s (2007) dissertation answering the question "What did you want or expect students to learn from this course?" the instructor explains his philosophy in the following way:

“They [students] see it [the INIS course] as too much a training course, and not really something that is um...an intellectually challenging course, I mean. It's more of, um... you know, superficially maybe looked at, as more of a kind of course [that] can be offered in part, or you know, a course that it is just meant to teach basic computer skills. But if that would be the case, I wouldn't spend a lot of time teaching binary math. And I spend more time teaching about what a graphic card is. I spend less time trying to develop troubleshooting skills and I spend more time going through cookbook examples. The course, the students I believe are some times frustrated. What else can be done? I'm trying to [inaudible] let people know if that's the case. I think they're frustrated because, what else can be done, they don't come out being able to do more technically. They still have a lot of gaps of knowledge. They don't have an easy cheat sheet to say "oh, quick here do this and do that. Now it should be fixed." The course is really more helping students to learn how to think through the issues. It really is meant to...in part get them to use some of the troubleshooting skills that they use to get through their courses and to get through their degrees.”

Explaining his philosophy of teaching, he says:

"Technology is not a solution. It is just a tool, which is not different from a hammer. . . . First, think what your end goals are. Then, you should think how technology can help you get the end goals. Think when it works and it does not. Technology also has significant costs. So, you should think where technology is appropriate and where not..."
My goal is also to get them to get over this idea that a computer will solve everybody's problems, but really start being able to more critically appreciate where computers can help and where computers can't."

These statements directly support my perspective that even though this is a course about technology, and technological skills are highly rated by the students as an impact of the course, it is not all about the technology. It is much more about service learning as the approach to teaching technology, which helps to enhance all the impacts of the course and eventually impact the careers of the students.

The role of the instructor, his level of expertise in the subject area, his teaching methods, confidence in his students, extraordinary patience and enthusiasm, and his devotion made the INIS course an exemplary service-learning experience for many students. They are commenting on the course experiences and its impact through the lenses of what a good job the instructor had done. That is what two of the students say:

“There is no way that 315 could have been as successful without the influence of Martin Wolske. His attitude toward problem-solving ("Unsure about what to do? Well, what's your best guess? Try it and see...")), coupled with his work ethic and notoriously positive good spirits made the class one of the most memorable of my GSLIS career.”

“I feel that Martin was, hopefully still is, a major factor in the success of this course. His good nature, willingness to help and guide students, and his apparent passion for helping students, and the residents of the communities of the 315 projects makes this course such a success.”

One of the students considers him as a role model based on the way he interacted with students and handled their mistakes:

“I remember how the instructor handled our mistakes most. We made mistakes in our work, including a big one that caused a problem at the site. The instructor calmly helped us to resolve the crisis and never scolded us. I am most impressed by that and consider him a role model.”

One of the respondents shares how he enjoyed working with the instructor. He felt that:
“Martin really embodied the service learning component of the course and believed in taking what we do and using it to help others.”

The students considered the instructor as “being excellent and highly motivating”.

The respondents valued Martin’s patience not only with his students but the community members in East St. Louis as well:

“Martin Wolske's extraordinary patience; the East St. Louis residents who seemed to appreciate what we were doing; working with a great group of people.”

“Martin's patience, knowledge, energy and confidence in all of his students.”

The following professional and personal characteristics of the instructor have been valued by the students:

- Wonderful teacher
- Approach to teaching
- Giving the students with no technical backgrounds the confidence to set up a lab
- Awesome instructor
- Phenomenal instructor
- One of the best teachers I ever had
- Terrific teacher
- Motivator for the subject matter
- The instructor is great fun what makes the class less painful than anticipated

Some students kept in touch with the instructor and consulted him when they needed his advice in the projects that they were pursuing at their workplace:
“Martin Wolske has been extremely helpful in refreshing my memory regarding LIS315 when I contacted him regarding a volunteer project I've been working on. I still remember some things from the class, but am not sure if I would still be able to set up a (non-wireless) network if I were asked to do so. I've set up 2 wireless networks since then.”

The following statements from three students are once again demonstrating that the instructor had a crucial role in making the course a huge success and a big impact on students:

“I think that a lot of the value of the course is Martin Wolske's teaching and style of working with students, the challenges of the technical and community agency aspects of the course. He does an exceptional job of letting students work through their learning and appreciating the different level and types of skill people bring to the experience.”

“Martin is the best teacher I could ask for in a class like LIS 315. He knows what he's talking about, he cares about his students and the projects we work on, and he makes computers fun.”

“I really appreciate Martin Wolske's work and dedication. His energy and knowledge made the class interesting, challenging, and thought-provoking.”

4.3.13 Extraordinary Value of the Course

While the detailed analysis provided in earlier sections clearly demonstrates the role and value of different impacts of the course and its service-learning aspect on career development, it is quite appropriate to briefly mention the statements of the students about the value of the course in this section because the instructor’s role in making the course such an experience for students has been outstanding.

One of the students describes her experience as follows:

I feel so lucky to have taken this class. It was a great experience because Martin was able to take students from many different backgrounds and provide an environment where they could all learn. I also learned in working with the community organization that projects only work if both partners are supportive and have a long term
commitment to the project.

One of the students considers the INIS “one of the top 3 courses I have ever taken in my entire life” and another one says that it was “definitely one of the most useful classes I took in library school.” For another respondent the course was a real highlight:

“That course was definitely a highlight. The combination of technical skills, hands-on experience and the community service aspect is very unique I think.”

The statements like “I was on the top of the world” and “follow your muse” is not something that one would typically hear about a course experience from students. Students are usually quite reserved. It really says a lot about the course and its impact:

“I am really, really glad I took this class. While it doesn't relate specifically to what I do now, the confidence it gave me was significant. I was on top of the world and I thought I could do anything after mastering what little I mastered. But to me it was a huge moment, to know I had become more technically skilled. Martin set up a wonderful learning environment - this was one of my favorite GSLIS classes.”

“Follow your muse! If your interests do not lead to some well-defined job or career, don't worry. You'll find it. I never imagined there was anything called a Semantic Engineer, but it embodies precisely what I love to do in the Library Science field. I get to build taxonomies and design enterprise information architectures. How cool is that?”
CHAPTER 5 CONCLUSION

5.1 Summary of Major Results
The major research questions of this study were:

*How does a service-learning experience in the INIS course contribute to careers/career development of the students?*

*Do they relate their experience in the course, what they learned in the course to their ultimate careers?*

A Web survey of 20 questions (11 close-ended and 9 open-ended) was completed by 211 students who took the INIS course from Fall 2000 till Spring 2006. Analysis of this survey data provided the findings for this study.

5.1.1 Demographics and Motivation to Take the Course
The gender and age of the respondents were distributed as follows: out of the total 211 respondents 60 (28.44%) were male and 151 (71.56%) were female. Seven respondents (3.32%) were under age 25, 140 (66.35%) - 25-34, 48 (22.75%) - 35-44, 12 (5.69%) - 45-54, 2 (0.95%) - 55 and over, and 2 respondents did not provide their age.

According to the results of the survey the major motivation for the students to take the course was *gaining technological skills* (90.5%), followed by *reputation of the course* (47.4%), *gaining fieldwork experience* (43.1%) and *reputation of the instructor* (41.7%) (See Table 20).

5.1.2 Major Outcomes of the Course
The following skills, abilities and attitudes represent a complex of a variety of skills which contribute to career development of the graduates: *technological skills, teamwork,*
communication, working with the community, leadership skills, and thinking about the LIS Profession. The statistical data on the major skills gained as a direct impact of the service-learning aspect of the course is provided in ranked form in Table 21.

5.1.2.1 Technological Skills
The biggest impact of the course is the increase in technological skills: 94.32% (199) of the respondents strongly agreed and agreed that participation in the LIS 315/451 course increased their technological skills. This result is not unexpected and fits very well with the motivation results according to which gaining technological skills was the highest motivation to take the course. Among the technological skills gained which were valuable for the careers of graduates the following skills are listed: rebuilding and refurbishing computers, gaining hands-on experience with different types of hardware, software, operating systems and networks; basic computer networking skills and understanding of networking technology; gaining confidence with troubleshooting computer problems and becoming comfortable with technology; mastering technical vocabulary; learning how to set up the server and network. These skills have turned out to be extremely valuable for not only the respondents who took on technology-related positions but also for most jobs in different types of libraries (public, school, corporate, university, college). Some respondents raised concerns about specific skills that they were not able to gain in the course, such as enough knowledge about Unix and Linux systems. At the same time a few students had difficulties even grasping the basics. Reasons listed that prevented a few students from gaining enough technological skills included: too much focus on nitty-gritty details of computers, not enough follow-up work, lack of feedback from instructor, big size of the class, not enough time in post-installation stage, lack of documentation on what was learned in the class, using free open source software, use of old equipment.

5.1.2.2 Teamwork Skills
Teamwork skills are rated second in terms of the impact of the course: 79.15 % (167) of the respondents strongly agreed and agreed that the experience in the course, especially its
service-learning component, enhanced their teamwork skills. As a part of the LIS 315/451 students work in teams and the success of the project mostly depends on how well they work with each other. While some negative aspects of teamwork such as unequal sharing of the work, lack of technical expertise in certain members of the group, and reliance on one member with technical expertise, have been mentioned by the respondents, most of the students consider the group work to be the “heart and soul” of the course and a great learning experience. Taking into account the unusual nature of the project as well as the constraints of time and resources along with the unique environment for carrying out the project, some students admit that “learning how to work effectively in a group on a project of this nature was very important”. The following aspects of teamwork have been identified as the major ones to emerge during the group work in the class: team building, bringing different strengths to achieve a goal, problem solving, relationships with a team, dividing the responsibilities, helping each other learn, and coordinating activities with team members.

5.1.2.3 Communication Abilities

Communication abilities were rated third in the skills enhanced as a part of the experience in the course: 72.03% (152) of the respondents strongly agreed and agreed that their communication skills have improved as a direct result of participating in the course and working with their team members and members of the community. For many students the communication within the class led to a strong bonding between classmates, site coordinators and the instructor. While some of the students referred to difficulty in communication with their sites and people at the sites sometimes leading to limited success of the project, this problem has now been eliminated by assigning designated liaisons at the sites that are responsible for initiating and supporting contact and coordination with the team.
5.1.2.4 Enhanced the Ability to Work With Community Organizations

Ranked fourth in terms of impact, 61.6% (130) of the respondents strongly agreed and agreed that participation in the course enhanced their ability to work with community organizations and members. Through the hands-on project for the community, the students worked with the community members and community organizations. For many students the service component of the course gave it “a focus and urgency”. The project empowered them as professionals and gave them a chance to test the values and concepts of the LIS field in a real world environment. For many of them that experience raised awareness of the issues related to underserved populations. A large part of the success of their project was related to the relationships they built with the community members and organizations.

5.1.2.5 View of the LIS Profession

61.14% (129) respondents indicated (strongly agreed and agreed) that the service-learning project in the community changed the way they think about the LIS profession. The course changed the vision of the profession for many students and provided them with different perspectives regarding the major issues and values of the profession.

5.1.2.6 Leadership Skills

According to Eyler and Giles (1996) service learning has a positive effect on leadership skills as a part of personal outcomes: 52.1% (110) students strongly agreed and agreed that the experience in the LIS 315/451 course enhanced their leadership skills. While leadership skills are extremely important for someone to be able to work and communicate with others, not everyone is expected to possess exemplary leadership skills. While there was some mention of leadership in the data retrieved from the open-ended questions, mostly as part of the teamwork experience, it did not emerge as a focus as often as the other categories of skills already discussed.
5.1.3 Career Paths of Graduates

As Table 16 illustrates, graduates who completed LIS315/451 are employed in all types of libraries (academic, public, school, special) as well as other sectors.

5.1.3.1 Job Titles

A full list of job titles provided by the respondents is included as Appendix P. The jobs that the graduates of the LIS 315/451 course have taken are quite diverse. While the skills and abilities acquired as a result of the service-learning experience in this course turned out to be useful in many LIS jobs, it is quite impressive to see that so many of the job titles are directly related to the specific skills gained through the course. By specific skills not only technological skills which are rated number one in terms of motivation to take the course are meant, but a whole suite of skills including leadership, communication, teamwork, and working with the community. Many respondents ended up becoming coordinators of different library services and managers. The job titles include: Coordinator of Instruction/Instructional Services Coordinator, Coordinator of Acquisitions, Project Coordinator, User Services Coordinator, Records and Information Manager, Learning Commons Coordinator, Team Leader of Circulation and Reserves, Library Program Coordinator, Young Adult Services Coordinator, etc. While more information on the impact of the course on their career development was provided in the open-ended responses, some connections can still be made. Leadership skills and working as a part of the team in the course is very helpful in positions requiring coordination and management. These skills are also an asset for administrative positions, and quite a few of the respondents hold them. Titles include: Head Librarian, Head of Instruction, Associate Director, Director of Electronic Services and Communications, Senior Assistant Librarian, Grant Administrator, Director of Research, School Media Director, Assistant Youth Services Manager. Even for the respondents who did not choose an LIS career, the skills that they have acquired as a part of the course could be useful in their positions as senior Pastor, Pastry Chef, Property Manager, Senior Conflicts Analyst, Managing Editor, and Office Manager.
The impact of the course in terms of gaining technological skills relates to a number of jobs: Technical Services Librarian, Librarian and Technology Consultant, Systems Librarian, Web Services Librarian, Computer Assisted Instruction Specialist, Web Developer, etc. For the respondents who ended up becoming Semantic Engineer, Software Developer, or Database Application Developer, it required more than just taking the LIS 315/451 course, but the course still enhanced their skills.

5.1.3.2 The Impact of the Course on Careers/Career Development

Along with the data derived from the other open-ended questions, a very specific question on career impact, Question 8 of the survey How would you describe the impact the course had on you and your subsequent career? directly addresses the research questions that are the focus of this dissertation.

LIS 315/451 had variety of impacts on the careers and career development of students as reported in their open-ended responses. Some students changed their career choice decisions, some changed their careers, and others changed certain aspects within their careers. In some cases the skills gained as a direct impact of the course have been used by the graduates at their workplaces. For some students the course became a destination to their jobs, they got the jobs because of taking the course.

While talking about the impact of the course and specifically its service-learning aspect, different skills described above are highlighted as the major factors for getting the job, or performing certain activities as well as advancing in their careers. Technological skills are the major ones to have influenced the careers of students working both in technology and non-technology related jobs.

Knowing the technical language and jargon along with a basic understanding of networks helped some students to feel empowered to deal with IT people in their workplaces and be involved in some decision-making processes related to technology. Because of the knowledge and skills gained in the class, some students are looked upon as technical
experts and gurus. As indicated earlier the respondents use the skills in different types of libraries: public, school, corporate, university and community college. The course also had an impact on subsequent careers and progression of the careers of many students as well using the skills on a day-to-day basis. In some instances the course influenced career decisions. Quite often after taking the course students applied for jobs that they would not have applied for otherwise, and they actually ended up getting those jobs.

Along with technological skills all the other skills described earlier as well as critical thinking, problem solving; practical, social, and logical skills have had a great impact on the careers of many students. A very important aspect of the impact of the course is the fact that beyond the skills that the students have been applying to their careers many also adopted a vision and philosophy of the service-learning model used in the course. Some of them actually try to replicate different parts of it at their workplaces: some teach or plan to teach computer literacy courses and conduct training in low income areas or get involved in outreach. Some plan to do a community project of the same kind. Some of the students believe that the social aspect of the course was much stronger than its technical aspects, because students were exposed to the issues of digital divide. For some students the impact of the experiences of the course was not only professional but personal as well.

5.2 Significance of the Study

This study is a major contribution to the study of service learning in a graduate professional field not only in terms of the focus on career impacts but also in terms of the scale. It is a retrospective study of more than 200 graduates and their subsequent careers. There are not many studies looking into sustained service-learning experiences over many years or providing data to show long-term impact on attitudes, understanding, and behavior. The significance of this study is also in its ability to provide a clear description of what the students actually experienced during service-learning programs (Eyler, 2002).

Through this study the students received the opportunity to talk about their experiences in retrospect. As indicated earlier one of the strengths of the study is the opportunity to look at
retrospective results: dealing with different cohorts of students who had a common experience in the INIS course at different times, trying to find certain patterns.

This study refines the model of service-learning impacts. Various models of service learning, including the model presented by Eyler at al. (2001), define career impact as a separate category. The results here show that career impact cannot be isolated from personal outcomes of service learning, such as personal efficacy, ability to work well with others, leadership and communication skills, or from social impacts such as commitment to service, or learning outcomes, such as ability to apply what has been learned in the real world, problem solving and critical thinking. These outcomes are all an integral to career development.

While this study was not looking specifically into technology education, it also made a significant contribution in how efficiently the technology can be taught through service learning. At the same time a major emphasis of the course was on its social aspect rather than technical. As one of the students noted, it is important “to see technology as a means (i.e., to improve people's lives) rather than as an end in itself.” which confirms the statement of the instructor who believes that “technology is not a solution. It is just a tool, which is not different from a hammer…” In addition to technological skills, problem solving, critical thinking, teamwork, communication, and leadership etc. are the skills that the students developed as a part of the course and which they apply in their careers. The job titles of graduates are illustrative of the wide variety of career paths LIS graduates pursue in the 21st century.

This study has also made a contribution to Web survey methodology. The experience of achieving a high response rate (92%) is worth sharing. Interaction and follow-up with respondents contributed to the high response rate, as well as perseverance in using multiple strategies to track down current contact information.
Finally, this study confirms the value of close integration of service with learning.

According to Roy (2001):

“There is more to LIS education than what happens in the classroom. The founders of formalized LIS education recognized the field’s potential for extending systems of knowledge into systems for change. Dewey used the phrase “library spirit” to represent “the idealism, the enthusiasm and the unshakable belief in the far reaching mission of libraries which runs as an undercurrent to the work of daily routine. Library and information science education is undergoing great change in the midst of great criticism. As schools of LIS are rethinking their missions and crafting vision statements, they will rediscover service as a key to “transforming information into knowledge” This is how LIS educators will find themselves involved in the process of “changing lives”.

INIS is the course which through service learning is preparing the “librarians of future” –

“the professional who encompasses a set of standards and values that operate smoothly and seamlessly in a technology driven environment. It is a professional who is multifaceted and multitasked. It is a professional with the characteristics of willingness to change; varied experience in training and background; adaptability to a quickly changing environment; ‘shareability’ between disciplines; and commitment. It is, finally, a professional we will not recognize as a librarian in the usual sense. If we do, then we have failed to evolve.”(Salter, 2003).

There is something special about the skills gained in the INIS course, that special part is apparently the fact that those skills are acquired through service learning. Their educative experiences are based on the fact that the projects they were involved in as a part of the class generated interest, were worthwhile, presented problems and created a demand for information, and covered a considerable time span of one semester. It is a classic case of linking the principles of continuity and interaction which add a unique quality to the people who experience that.
5.3 Limitations of the Study
One of the major limitations of the study is that most of the data is based on the self-reports of the students. This is in contrast to the recent dissertation by An (2007) who used participant class observation, collection of artifacts, pre- and post-course student surveys, and formal and informal in-depth interviews. In addition graduates were surveyed at one point in time, so that it was not possible to trace in detail their longitudinal career development.

The fact that this study looked at one particular course within one school could also be considered limitation, restricting generalizability of the finding to other courses, LIS schools, and graduate professional programs.

5.4 Directions for Future Research
A number of productive lines of research are suggested by this study. One is to further investigate factors that contribute to success of the service-learning component of LIS courses. Using this dissertation as a model, a closer look could be taken at the courses as a part of other programs which have implemented service learning in their curricula (e.g. Indiana University-Purdue University Indianapolis (IUPUI), Texas, Albany, Iowa, Maryland, Michigan, Pratt, South Florida, Wayne State, Michigan).

While this study shed some light on careers in LIS and community informatics, further research on LIS careers within a service-learning framework might be quite useful. The annual Library Journal placement and salary survey as well as the studies conducted by professional associations with participation of the LIS schools mostly look at salary and employment trends for recent graduates as well as the situation with the job market. Such surveys do not provide a detailed analysis of the reasons behind how certain skills have been acquired by the graduates and are limited to a specific year. This dissertation developed further could actually make some connections between the skills developed based on service learning and pursuing certain careers. It could be extended to include a
longitudinal analysis of career development if surveys and/or interviews are conducted periodically.

While this study refined an established model of service-learning outcomes, further work on the development of a new model with all the types of impacts mixed and matched together as a part of career impact would be of possible interest.

During the years covered in this study, the course was not a part of the Community Informatics specialization or the Community Informatics Initiative at GSLIS that has been developed for the last 2.5 years. The course sites have been expanded to new communities both nationally (a new site at Paseo Boricua Community Center in Chicago) and internationally (the African state of Sao Tome). There have been a lot of new elements added to the course which made an even bigger impact on the students taking the course. Future research can investigate the impacts of these developments on the careers of graduates who may be working in more diverse and global contexts.
BIBLIOGRAPHY


Available at http://www.groundedtheory.com/soc14.html


Morton, K., Troppe, M. (1996). From the margin of the mainstream: Campus Compact’s project on integrating service with academic study. In M. Troppe (Ed.), *Two cases of institutionalizing service learning*. (pp. 3-16). Providence: Campus Compact.


Program Presentation to the ALA Committee on Accreditation. University of Illinois at Urbana Champaign. Graduate School of Library and Information Science. Master of Science Program. October, 2004. Available at http://accreditation.lis.uiuc.edu/


Unit Strategic Plan for the Graduate School of Library and Information Science, May 10, 2006. Available at http://www.lis.uiuc.edu/about/pdfs/GSLIS_StrategicPlan.5-10-06.pdf


Available at [http://jcmc.indiana.edu/vol6/issue1/yun.html](http://jcmc.indiana.edu/vol6/issue1/yun.html)

Reflections on the Development of Introduction to Networked Information Systems as an Example of the Merging of Instructional Goals with Service Learning

By Martin Wolske

The Graduate School of Library and Information Science course "Introduction to Networked Information Systems" has undergone a number of changes over the last six years. It has gone from a lecture-oriented course offering with a few strategically interspersed hands-on lab experiences to a lab/lecture-oriented course offering, with equal exposure to lectures and hands-on labs. As a result, emphasis has moved from a more theoretical discussion of the topics to a more practical review of the materials while maintaining an overall goal of conceptual learning. However, equally significant has been change in the final project, from a virtual design of a networked information systems infrastructure to an actual design and implementation of such a facility in a community setting. This service learning aspect of the course, while requiring extra effort on the part of both instructor and students, has proven to be a very rewarding experience for instructor, students, and community recipients of the systems. The students come away with a great sense of accomplishment as skills gained throughout the semester are used practically to serve others in need. In addition to the sense of fulfillment service projects provide, the instructor also gains a valuable tool for skills instruction and assessment. As importantly, the community organization receives useful tools that they in turn use to serve their surrounding community.

This document is a reflection of how the development of the course Introduction to Networked Information Systems (INIS) led to a natural implementation of the final project as a service-learning activity. It also documents some of the outside influences that have been an important part in this development and implementation. Finally, it documents some of the lessons learned to date regarding successful implementation of the service learning projects. This document was written as a step towards further refining the service learning aspect of INIS. However, as more emphasis is being placed on using service learning projects as part of class instruction, it is hoped that these reflections might also be useful for others who work towards such implementations.

The Objectives of INIS

The overall objective of INIS is to not only provide a clear technical understanding of the computer hardware, operating systems, and networks that make up networked information systems, but also to prepare students to take a lead as information technology managers. To this end, the course is structured to provide students with:

- a basic working knowledge of computer hardware, operating systems, and networks through hands-on training;
- insights into the strengths and weaknesses of computers and networks as tools used to meet the needs of "the community" in which they find themselves;
• skills that allow them to assess more effectively the total cost of ownership, from planning, to implementing, to maintaining, different network information systems models;
• facilitating their ability to design systems that will not only serve today's needs but setup an infrastructure for tomorrow's needs by anticipating tomorrow's technologies.

**Historical Developments of INIS Labs**

While the course has undergone considerable change over the 4+ years I have taught it, one constant has been that it has always included hands-on learning. These opportunities for students to come into direct contact with technology, helping to bring home the lessons of lectures and readings in very direct ways. The nature of the labs has changed, however. The structure of early labs would not have been conducive to the service learning projects now offered. However, as they have evolved, they naturally led to the implementation of service learning projects.

During my first offerings of INIS, isolated labs in a primarily lecture-oriented offering of the course was used. Labs focused on giving practical experience with basic computer tasks such as connecting up a computer, upgrading a hard drive and memory, installing Windows, and connecting a workstation to a server. Instructions for labs were provided during lecture and students signed up for lab time to work on each project with little supervision. While valuable, student reviews of the class strongly suggested increasing hands-on exposure in a more structured environment.

Eventually, most lectures involved moving chairs out of the way and setting up tables in the classroom to allow systems to be brought out and setup. Resources needed to be found to allow each student to have an opportunity to work hands-on with equipment. Generally, this meant having enough monitors, mice, keyboards, computers, and network equipment for students to work in pairs, as well as sufficient table space and tools to accomplish the tasks. Students gained a side benefit in learning all the problems that arise during setup and tear-down in a very dynamic environment.

While the course was now evolving to provide increased hands-on experience, the various lab projects were still fairly isolated tasks. Over time, the order of lecture materials was modified to allow for a more methodical implementation of the lab components of the course. An interlude with teaching INIS as a hands-on course for the distance education students at GSLIS further sped up the redesign of labs. Because the students were to have two full days, mid-semester, when they could have actual (as opposed to virtual) hands-on exposure to technology, considerable effort was placed in providing a highly methodical look the technology. Students were introduced to a working lab at the beginning of the two day period. They then set about tearing down the lab, observing the various components. Finally, they were tasked with building a new lab, building on what they had been learning to improve the setup. In a number of practical ways, this experience highlighted the value of intense hands-on exposure with the technology as it relates to the objectives of INIS as well as the challenges faced in preparing for and implementing such exposure.

The course next went through a formal redefinition, from a lecture format to a lecture-lab format, with a 2 hour weekly lecture and a 2 hour weekly lab. A lab designed for working with computers was used. The class was divided into 4 lab sections, each meeting at separate times.
This was an important step as it allowed for more individualized interaction between instructor and students. This also helped formalize the role of the lab as an instructional tool. Lecture material was reduced or redesigned, and more instruction as opposed to just hands-on practice occurred during lab periods.

**Influences of Prairienet**

A number of INIS students went on to do practicums, independent studies, and assistantships with Prairienet. This highlighted the value of additional hands-on experience with the technology as a learning tool.

While the main evolution of the lab section of INIS was occurring, Prairienet was involved in an initiative to refurbish donated computers in order to distribute them to homes throughout the local community. Prairienet had also begun setting up Public Access Labs throughout the local community. The lessons learned from these experiences became an important part of the lessons taught throughout INIS. Indeed, the course offering slowly became a course in how to design, develop, implement, and manage the use of computer tools in such community settings. Again, while this progression had been occurring throughout the redesign of INIS, many of these ideas came into focus during the offering of INIS as a LEEP course. This was especially the case as Jen Ward, an independent study student, took on the task of understanding the steps used by Prairienet to refurbish computers in mass production and create clear documentation that could be used by LEEP students during their mid-semester hands-on exposure to the technology.

Once the lab sections were so closely intertwined with the techniques used by Prairienet to refurbish computers and setup Public Access Labs, it was natural extensions to begin having students actually apply these newly gained skills towards service projects for Prairienet.

**Choice of a Final Project**

The initial final project implemented for INIS was to break students into "consulting firms". Each consulting firm was allowed to choose a scenario describing a not-for-profit group that wanted to upgrade their technical facilities. Consulting firms were responsible for clarifying the needs and wants of their "clients", understanding the facilities currently available, and developing a plan for implementation and maintenance of a networked information system. Students presented their findings and plan both as a presentation and a formal paper.

In looking towards a final project that also served as a service project for Prairienet, it was important to keep the two core of the virtual project, the site survey and the design of a networked facility. Adding an actual implementation of such a planned network was the ultimate goal in selecting a new final project. While refurbishing of computers for distribution to individual homes would certainly be appropriate for the section of labs dealing with computer hardware, it did not meet the broader criterion of the desired final project.

At this time, ESLARP approached Paul Adams, director of Prairienet. They had been doing Action Research and service learning projects in East St. Louis, IL for 10 years. Research and Learning projects had centered around Architecture, Urban Planning and Landscape Architecture in order to help ESL residents revitalize the hard-struck urban area. Residents were now asking for help to take a step in implementing technology. A plan was developed to setup Computer Technical Centers (CTCs) in strategic locations throughout ESL and surrounding communities. The ultimate goal is to have a CTC available within 5 minutes walk of any
residence in the community.

While considering strategies on how to implement such an aggressive goal, the efficacy of using this opportunity as a final project for INIS students began to evolve. It was eventually decided that each INIS lab section would be responsible for doing a site survey, designing a computer lab, and implementing such a lab using donated equipment, for one organization within ESL. With the current offering of 4 lab sections, this has meant that each semester 4 more organizations are able to receive functioning, custom-designed, computer labs in their building.

The Structure of the Service Learning Project

Structured labs: Skill development in conjunction with testing of donated equipment. Early lecture material and lab exercises are strongly geared towards teaching basic skills in computer technologies. Heavy emphasis is placed on basic terms and concepts through strategic coordination of readings, lectures, and labs. Further, during lab exercises, students perform initial tests on donated equipment as they inventory and perform basic upgrades of systems.

Site visit #1: Site survey and getting to know the community through non-technical service. During the 10th week of lab, students travel to ESL to visit their sites and perform a site survey. Each lab has two hours during which they sit down with the instructor and site coordinator at the site to gain an understanding of the vision and goals for the organization both broadly and as it applies to the use of the technology. They also make a careful assessment of the existing facilities in preparation for designing a computer lab. Surrounding the site survey, students are given a tour of the ESL area and are assigned to non-technical work projects happening in the ESL area. An important aspect of designing an effective computer lab for community use not only in the short term but for the long term is to have a good understanding of the broader community issues. The tour and non-technical work helps put the individual project in a broader context, helping to bring about a stronger computer lab design.

Open labs: Project design and resource preparation. Students return to Champaign for an intensive period of project design and resource preparation. With the fall and spring breaks also occurring during this period, only four weeks of open labs are available to the students. Required readings are reduced during this period as are written assignments. Still students time commitment to the course increases during this period in order to accomplish the tasks required for project design and preparation. Ongoing discussions are held within the lab group, between the lab group and the instructor, and between the lab group and the recipient site coordinator to create a lab design. Concurrently, final tests of computers, downloading and testing of possible software, and operating system and network installation are occurring. The goal during this period is to create a functioning computer lab that only remains to be transported to the ESL recipient site.

Site visit #2: Implementation of lab. Labs that were designed and prepared in Champaign are delivered to their target ESL sites. In spite of all the work in preparing fully functioning labs, many challenges are faced as the systems are installed in the field environment of the recipient site. This final application of skills and troubleshooting techniques in the field is the real capstone of the service learning project. Since each lab is working concurrently throughout the entirety of the day and a half site visit, the instructor and assistants use targeted site visits as well as telecommunications to coordinate and advise. Meetings Friday evening and Saturday morning are also critical in working through various the challenges encountered.
Lessons Learned To Date

In redesigning the course as a lecture/lab offering, difficult decisions had to be made regarding what topics needed to be dropped to provide increased time for hands-on exposure. The need to further focus on fewer topics became doubly a problem as students now needed to be provided the skills need to successfully perform a site survey, systems design, and systems implementation within the time frame of the semester. Therefore, as the redesign of the course as a lecture-lab offering was being completed, a new redesign of the course to methodically provide students with the skills needed, when they were needed, to perform the final project. That is to say, not only has the service learning project become an important hands-on experience for students, it has become the primary focus of the entire class offering.

Preparations for the final projects need to begin early and need to be ongoing. For the INIS final project, finding new sites to work with, getting the donated resources needed to implement the labs, and adopting techniques (and therefore training material) to match the upcoming sites and resources begins months before the semester begins. Early in the semester, a scouting visit sans students is made to each site to clarify their needs, wants, and current facilities. Students self-select their lab partners by choosing a lab section. Each lab group has a unique character and skill set. Matching lab groups with technical resources and sites is performed during the early parts of the semester. While matching technical skills of each lab with the anticipated challenges to be faced for each site is one criterion in paring up lab groups and sites, other factors such as the social makeup and overall interests of the lab group also play a critical part. Observations of the lab groups each week during lab exercises is matched with knowledge gained from the scouting session to optimize the degree of success students will experience in implementing the final project.

Successfully implementing the service learning project is facilitated by partnering with existing service-oriented organizations. Using existing entities like Prairienet and ESLARP has greatly facilitated the INIS final project. Prairienet, and it is parent organization the Graduate School of Library and Information Science, provides the underlying infrastructure for carrying out the technical implementation of the project. This includes lab resources, obtaining and storing equipment to be used, and the personnel infrastructure needed to carry out a large-scale service project. ESLARP does the bulk of the trip planning and implementation for the two site visits, from transportation to lodging, to food. They also greatly facilitate as the logistics of visiting 4 sites in a day and a half are worked out. Finally, they setup the opportunities for non-technical service the students are able to experience as they gain a better understanding of the overall community with which they will be working.

Successfully implementing the service learning project requires active participation by, and interaction with, the recipients of the project. Beyond just a fact finding mission, an important part of the initial scouting visit by the instructor is to help set the stage for a successful service project by preparing the site coordinators regarding their responsibilities during the project period. They need to have dedicated time set aside for the students during both student visits. During the first visit, they need to come prepared to present: 1) their vision for the overall facility and community as well as their vision for the technical facilities; and 2) they need to be prepared to clearly define their immediate, as well as long term goals regarding the technical facilities. Also during the first, visit, students need to have access to the building as they perform a site survey. Between visits, site coordinators need to be available to correspond with students as the students develop the project implementations. During the second visit, site coordinators are active participants as final details are worked out and accommodations are made as problems are encountered and solutions are sought.
Successfully implementing the service learning project requires buy-in from the students. Service learning projects require a greater commitment on the part of the students than traditional final projects. As implemented in INIS, the scope of the project has proven to be sufficient to give the students a real sense of accomplishment. It has proven to be an exceptionally effective final exam of the extent of knowledge gained by students. The scale of the project is also large enough that students will not be able to successfully carry it out unless the whole lab group puts in a concerted effort. Failure to do so would not only result in a lost lab in the community, but in real ways can have broader effects on other work performed by the partnering service-oriented organizations.

Successfully implementing the service learning project requires buy-in from the instructor and school. Carrying out the preparations and implementation listed above requires considerable effort on the part of the instructor. Adaptation of ongoing service projects by the service-oriented partners to provide a clearly defined, well organized, implement-able service project for students requires many hours of consultation with partner organizations and site coordinators at the recipient sites. At least some adaptation of the course material to best prepare the students for the upcoming projects is required. Preparing the students for the upcoming commitment required to carry out the service learning project is required. Considerable time is also spent coordinating the efforts of partner organizations with the work of the instructor during the semester as the work of implementing the project is ongoing. An observation of individual students and lab groups in order to effectively match students, resources, and sites is a critical part early in the semester. Keeping projects moving as students become frustrated because of the various challenges faced is critical. While teaching assistants can be very useful in carrying out a variety of individual tasks, for overall success, the instructor needs to take a hands-on role throughout the process.

Projects that have a narrow, clearly defined focus are much more likely to succeed than those that are broad in focus or those that rely heavily on students to define. Early attempts at service learning projects had students searching for recipients of the project and defining the scope of the project. As reviewed above, the amount of effort that is required for the preparation of a service project is beyond what a student can accomplish during the semester, let alone to carry out and implement. Indeed, it is beyond what the instructor himself can accomplish. It requires broad support and a coordinated effort. Likewise, when instructor selected projects were broad in scope (e.g., develop a groupware package to be used on Prairienet), most of the semesters effort was directed towards defining what tasks needed to be accomplished to carry out the project. It was only when service projects were tied into ongoing, narrowly defined service projects did service learning become an effective teaching tool and fully rewarding activity.

Summary

Incorporating service learning into the Introduction to Networked Information Systems course has been a natural evolution rather than a simple add-on. As it is now designed, the entire course is a preparatory effort for the final project. This is possible because the selected service learning projects reflect a capstone of the course, wrapping up the course objectives and lessons learned into a clearly, narrowly defined activity. While requiring extra effort on the part of instructor and students, the results of the service projects have proven to be invaluable.
These include:

- an opportunity on the part of the students to review past lessons through putting them into practice;
- a chance for the instructor to teach through practice;
- a chance for the instructor to assess the skills gained by individuals within the class;
- a very real and significant sense of accomplishment as an important service is provided to the community.

Last Updated: 11/14/01 by Martin Wolske
Course Overview

This course is a hands-on introduction to technology systems for use in information environments. The course will cover four main topics:

- hardware;
- operating systems;
- networking;
- issues in implementation.

For each topic, we will review the terminology, discuss the advantages/disadvantages of different options, and gain hands-on experience with the technology. The course will include both lecture and lab time. At the end of the semester, students will be better prepared to both perform day-to-day hands-on administration of a networked information system and to manage those who are performing such day-to-day administration.
Students are expected to have basic computer competencies per the GSLIS admissions requirements. While LIS370 or comparable experience is helpful, the goal of the course to provide practical detailed knowledge of the technology for all levels of competency.

Readings:

Readings should be completed by the class day on which they are assigned as listed in the class schedule. Required texts will be referenced on the class schedule. Optional texts can be used for additional readings on the topic. Students may choose to use the optional texts as their only text, but will be responsible for identifying appropriate pages to match those from the required readings.

The Norton text is provided primarily for those who find they cannot read The PC Guide online. While I have both, I find that I refer almost exclusively to The PC Guide.

The Thomas book is excellent for those who have had little exposure to networking. The Minasi, et. al. text is provided as a more comprehensive look at networking and is targeted at those who expect to pursue hands-on work as a significant portion of their career. I own both books and find I refer to both at different times, depending on the type of information and level of detail I am looking for.

Primary texts for the course are: Computer Hardware:

Required:

Networking:

Required:
Optional:

Additional online materials will be used from time to time and can be found on the class schedule.

Labs:

A primary objective of the course is to provide hands-on experience with the technology systems used in information environments. Therefore, students will meet 2 hours weekly for hand-on lab sessions. Students sign up for one of four lab sessions when they sign up for the class. It is expected that students will meet at their assigned times for each lab session found on the class schedule. Unless otherwise noted, labs will be held in the workshop in the basement of 510 E. Daniel.

In general, each group will work on the lab components as a group. Each lab section will be comprised of 2 or 3 lab groups, with 3 to 4 students per group. Lab groups will be formed during the first lab session. While labs will be accomplished within the groups, students will be responsible for documenting lab exercise individually. Four lab reports will be due throughout the semester and will be due as noted on the class schedule. Reports turned in 1-7 days late will have 25% deducted from their assigned scores. Reports turned in 8-14 days late will have 50% deducted from their assigned scores. No assignments will be accepted for a grade after 14 days.
Students will be given points for lab participation during each non-open lab session. Even as students work within groups, it is expected that each student take an active part and be given the opportunity to take an active part. Participation points will only be given if the student is actively involved in the group work but is not dominating the activities of the group.

The instructor reserves the right to modify the exercises during the semester to better meet the interests of the students.

**Final Project and Presentation:**

Each lab group will be choose a final project that will use the information and skills gained throughout the semester. The project will consider issues including:

- which hardware, operating systems, and software will be used in implementing a networked environment;
- day-to-day administration issues;
- personnel; and
- budget

The final project will be due on December 4th at the end of the day. In addition, each group will give a presentation highlighting the main points of the project during their assigned lab period the week of December 4th.

Each student should participate actively in both the final project and final presentation. Students will be given a chance to anonymously rate the involvement of fellow group members on a 0-5 scale, with an average rating being considered in the final evaluation.

Students may choose between one of two final projects this year. The first is the traditional final project that develops a bid to network a hypothetical library that would like to install a networked information system. This project will result in a formal bid to an RFP that outlines the steps in networking a system and the associated costs.

The second final project option will be to actually design and implement a lab at one of several sites in the East St. Louis area as part of the University's East St. Louis Action Research Project (ESLARP) project. Trips to East St. Louis (major expenses paid) will be made Oct. 26 and 27 to have a first look at the labs and research lab needs, and again December 1 and 2 to set up the computers. Groups who choose the second final project option should plan on having most of the group make both trips to East St. Louis. The final project will be the actual implementation of the lab, and the presentation will report on the steps taken, problems encountered, and solutions tried and implemented, as well as lessons learned through the process.

**Evaluation:**

Students will be graded on a 90% (A), 80% (B), 70% (C), 60% (D) scale. Scores will be recorded under the Gradebook page for LIS315 (You can find more information about Gradebook and the different clients that are available to access Gradebook at [http://www.uiuc.edu/ccso/gradebook/](http://www.uiuc.edu/ccso/gradebook/)). Graded assignments and the total percent of the grade for each are listed below:
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<td>Final Project</td>
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<td>Final Presentation</td>
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<td>Student Evaluations</td>
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**Disclaimer:** The instructor reserves the right to make modifications to any part of the class syllabus or schedule to better accommodate the needs of the students within the course. Students will be given advance notice of relevant changes in class or via email.
LIS 315 * Final Project Summaries Fall 2000

Instructor: Martin Wolske, Ph.D.

Luddite Public Library RFP

- Lab A1 (OFFLINE): ……., ……., ……., ……., and …….
- Lab A2 (Broberg and Liu Consulting): ……., and …….
- Lab A3 (JBV Consulting): ……., ……., and …….

East St. Louis Action Research Project (ESLARP)

- Mt Calvary Tech Center and NTAC - replace 12 486 networked computers with pentiums at Mt. Calvary; place 2 public access computers at NTAC.
  - Lab A1 (P.A.N.T.s): ……., ……., ……., ……., and …….
- Bride of Christ - replace two existing 486 public access computers with 3 pentium computers; upgrade office computer; create a 10 computer training lab.
  - Lab A2 (Lugnuts Consulting): ……., ……., ……., ……., ……., and …….
- New Beginnings - replace 15 486 computers with networked pentiums and add Internet; prepare replaced 486's for community distribution.
  - Lab A3 (Prometheus Consulting): ……., ……., ……., ……., ……., and …….
- Action in Motivation (AIM) - network 5 existing pentium computers; create a 20 computer training lab; prepare donated 486 computers for community distribution.
  - Lab A4 (Network Action Team; NAT): ……., ……., ……., ……., ……., and …….

Luddite Public Library RFP:
On behalf of Luddite Public Library, I would like to extend our gratitude to your company for agreeing to submit a proposal for the design of a new LAN and Internet access for our library. As you know, we currently have only three office computers (2-486 and 1-Pentium 100 and a dot-matrix printer that is connected to our Pentium computer. Our staff usage of these computers has grown, and we find that many of our staff now request to work from home for at least part of their day to allow them access to computers. As file size has increased, using a sneaker-net has become increasingly difficult as a single file now must be stored across multiple floppy edition, many of our patrons have expressed interest in accessing the Internet, and our staff has been anxious to have a way to perform the searches they do from home while on-the-job at the library.

Therefore, we would like you to create a LAN for our staff. We would expect that 10 office computers would be sufficient to accommodate the 25 full and part time staff that we currently
employ. We would like to have three printers, one for each floor, connected to the LAN so that any computer could print to any printer. Security is an issue, since we are open to the public and since this will store confidential staff and patron information. Therefore, we are anxious that this be a secure LAN environment. We would also like to provide Internet access at a reasonable speed, something more than is achievable at home, but within our budget. I would expect that at any given time, only a handful of staff will be online.

As part of our move to a digital world, we would like to make sure that each of our staff has a work-related email address. The library will cover this cost. We would also like to put web pages online, as well as allowing a place for community organizations to put their web page online. We will dedicate one full-time staff member to creating and maintaining the library's web pages, as well as to train community organizations on how to create their own web pages. Given that we have several good ISPs in town, we are interested in seeing a cost comparison between setting up our own web server and contracting out for space with one of the local ISPs.

Another important aspect of our new system design is to have ten kiosks throughout the library providing Internet access to our patrons. It will be important to provide room for growth in the event that the demand for this service grows. Concerns have been raised about youth access to inappropriate material. We would therefore like to have a login on the kiosks which is tied into our patron database. Within the database, we will add a field that describes the level of Internet access granted to each patron. For youth, they will be required to use browsers with filtering software enabled, while adults and youth with parental permission will be able to browse the web without use of such filtering software. Finally, we would like to add kiosks in our local mall and in city hall. Each location will have three additional terminals with setups identical to the kiosks in the library.

The Iowa State legislature seems very interested in funding such initiatives, and we have begun putting together a three year grant proposal. We would like your firm to develop a detailed list of equipment, software, and personnel, with cost estimates by year for three years, that we can include in the proposal. We have been told that grants under $250,000 for the three year period have a greater likelihood of being approved. We welcome recommendations for alternative funding if you find it is necessary to exceed this funding limit.

To allow us to finish the grant by the deadline of December 21st, we ask that you have the report, along with a 20-30 minute presentation, by December 8th. We have asked a total of four consulting firms to submit proposals. If we do obtain the grant, as we expect we will, we will award a contract to implement the technical aspects of the proposal to the firm with the proposal that best meets our needs. While cost is certainly an issue, quality and thoroughness are important considerations as well.

You may contact me in person, by phone at 244-8094, or via email at mwolske@prairienet.org as questions arise, or if you would like to review potential ideas for the network.

**East St. Louis Action Research Project (ESLARP)**

The goal of ESLARP is to help revitalize the East St. Louis area through direct University of Illinois interaction. They have been involved in the East St. Louis (ESL) area for 10 years. The early departments involved in ESLARP were Urban Planning and Landscape Architecture. You can find more regarding an overview of ESLARP, including their history, at [http://www.eslarp.uiuc.edu/](http://www.eslarp.uiuc.edu/).
This is the first project involving GSLIS. The project will comprise of 4 major steps:

1. Skills development and initial systems preparation
2. Initial site visits and initial site preparation (October 27th and 28th)
3. Network design and development, final system preparation
4. Second site visit to deliver computers and perform basic training of recipients in system maintenance (December 1st and 2nd)

The networks will be comprised of workstations, network cards and cables, hubs, Linux Internet router, and networked printers. System design will include choice of operating system and management strategy, design of network topology, and maintenance strategy. Deployment will include creating of images and imaging disks, file servers, print servers, Linux routers, network cables, and documentation.

In addition, ESL project participants will have an opportunity to help run network and phone cabling at the new NTAC building, the primary ESL facility used by ESLARP.

Pictures from the two trips to ESL can be found at http://www.prairienet.org/~mwolske/lis315/fall2000/ESLImages. Eventually they will be brought together with some organization, but for now, they're there for the browsing.

There are four specific projects this semester, one for each lab section:

**Mt. Calvary Tech Center**

Mt. Calvary currently has a well used training facility with 10-12 486 computers, each with 16 MB of memory and small hard drives. These computers are already networked, but are not on the Internet. The program is well staffed with members of the congregation who have technology-based jobs. They offer community wide skills development courses ranging from basic computing to application specific programs. Computer courses are offered at various times, including during the Wednesday evening youth night, when they teach parents computer skills. They would like to expand their after school program and are looking to upgrade computers to allow kids programs to run on systems.

**Bride of Christ**

Rev. and Mrs. Prude left comfortable positions to take on the challenge of turning an old vandalized building into a place of worship and an active community center. Through lots of love, patience, and elbow grease they, along with the help of the ESLARP project, have done just that. I have been impressed with the vibrancy of the facility. They serve free lunches to children in the summer and act as a second home for community children. They have various community activities for adults as well, including sewing classes.

Bride of Christ would now like to begin offering computer classes to the community, as well as have a public access center. They have a brother and sister who have computer knowledge and are willing to train others. The sister, K.K., is a local school teacher who has won an award for computer use in the classroom. We will replace two older computers currently in a small basement room with 3 Pentiums to be used as public access computers. The office computer needs to be
replaced. And they have a large room that will house at least a 15 computer training lab, although
they'd like to start with 10 computers there. Computers will be spread over 3 floors, so networking
to the Internet router will be a challenge. I have spoken with the brother, Greg, who will begin
work on adding the necessary electrical outlets.

**New Beginnings**

While a very small church in a very hard hit neighborhood, this is a church with a vision. Within 5
years they would like to have an education building with a 25 computer lab. For now, they have
gone out on a limb to just establish a 15 computer facility in their existing church. The primarily
486 computers have been obtained from a variety of sources but have been successfully used to
train community members computer and Windows basics. They are also teaching Word and
budgeting using Excel. Dr. Scott-Lesk, the pastor of the church, has a background in health and
education and has done quite a job getting as far as she has. She is excited about the possibility of
upgrading the 486's to Pentiums. She plans to give the 486's out to community members.

The final report for this group can be found at:

**Adventures in Motivation (AIM)**

East St. Louis is making a conscious effort to bring the community together to advance and revive
its infrastructure. One of the core ideas is to motivate and inspire the children in the community in
positive directions, give them opportunities to show their talents and strive for accomplishment
rather than take an undesirable road to destruction towards themselves and the community. One
way AIM strives to do this is through training computer skills. Mr. Scott, director of AIM, has
managed to bring in a wide range of computer donations. Currently he has 4 Dell Optiplex GXMT
5166 (sample service tag # 7bz00) computers and 2 Dell Optiplex GXi (sample service tag #96r5j)
computers, as well as one generic pentium. These are located in an upstairs public access lab but
need to be networked together. He also has a variety of 386 and 486 computers that could be
handed out to community members if they can be made to work. In addition, he has a large
downstairs area that he would like to turn into a full computer training lab. We will place 20
networked systems into this location.

The final report for this group can be found at: [http://courseweb.lis.uiuc.edu/~nat/aimhome.htm](http://courseweb.lis.uiuc.edu/~nat/aimhome.htm)
Course Overview
This course is a hands-on introduction to technology systems for use in information environments. The course will cover four main topics:

- hardware;
- operating systems;
- networking;
- issues in implementation and managing.

For each topic, we will review the terminology, discuss the advantages/disadvantages of different options, and gain hands-on experience with the technology. The course will include both lecture and lab time. The course also includes a service learning component that provides students the opportunity to design, develop, and install a community technology center for an underserved population. At the end of the semester, students will be better prepared to both perform day-to-day hands-on administration of a networked information system and to manage those who are performing such day-to-day administration.

While students are expected to have basic computer competencies per the GSLIS admissions requirements, the goal of the course to provide practical detailed knowledge of the technology for all levels of competency.

Course Objectives
The overall objective of the course is to both provide a clear conceptual understanding of the computer hardware, operating systems, and networks that make up networked information systems and also to prepare students to take a lead as information technology managers. To this end, the course is structured to provide students with:

1. skills that enable them to design systems that will not only serve today's needs but setup an infrastructure for tomorrow's needs by anticipating tomorrow's technologies;
2. insights into the strengths and weaknesses of computers and networks as tools used to meet the needs of "the community" in which they find themselves;
3. skills that allow them to effectively assess and manage the "total cost of ownership" by looking at the planning, implementation, and maintenance phases of different network information systems models;  
4. a basic working knowledge of computer hardware, operating systems, and networks through hands-on training.

It is important to note that while this course contains a considerable amount of practical, hands-on learning, it is not a "trade" course on the topic. An underlying assumption on the part of the instructor is that while technology is constantly changing, the underlying concepts of its implementation and use are fairly constant. By learning the underlying concepts, students will be better prepared to help design networked systems that not only work well today, but also develop systems that can be easily adapted for the needs and technologies of tomorrow. The primary objective is to provide a conceptual understanding of the topics on hand through concrete hands-on examples of implementation.

**Weekly Course Structure:**
Each week a new concept will be covered during the various phases of the class. After a review of the previous week's concept, including addressing any unresolved or unclear concepts, the week's lecture period will provide an introductory look at the week's assigned concept. Then, during week's 1-7, the lab will provide a concrete, hands-on experience meant to illustrate the current concept. (During week's 8-15, the lab periods will be directed towards preparing the final project community technology center.) The assigned readings for each week are meant to provide additional conceptual knowledge as well as a more detailed understanding of today's implemented technology.

**Course Fee:**
A $25 fee is part of the course to recover the costs for lab equipment and the travel that is part of the course. This fee is charged directly to the student as part of the overall tuition and fee schedule.

**Readings:**
Readings are divided into those that are considered required for the student to achieve the core objectives of the course, and additional readings that students may find valuable to gain further information in areas of special interest to them. Required readings should be completed by the end of the week on which they are listed. These may include both chapters from the primary texts listed below, and also from various online sources.

**Primary texts for the course are:**
**Hardware:**

**Networking:**
Labs:
A primary objective of the course is to provide hands-on experience with the technology systems used in information environments as a way of illustrating the underlying concepts that enable these systems to function. Therefore, students will meet 2 hours weekly for hands-on lab sessions. Students sign up for one of two lab sessions when they sign up for the class. It is expected that students will meet at their assigned times for each lab session. Unless otherwise noted, labs will be held in the workshop in the basement of 510 E. Daniel.

As mentioned above, the goal of the course is to develop a conceptual knowledge of the various topics. To this end, step-by-step instructions are not provided during lab periods. Instead, the instructor will step students through the lab exercises while pointing out various conceptual issues when appropriate.

Final Project:
Service Learning Project Overview

In cooperation with the East St. Louis Action Research Project (ESLARP) lab groups will be divided into working groups to setup a community technology center (CTC) at one of several different community sites in East St. Louis. ESLARP is a community assistance and development project. Work is done in collaboration with other campus units and with East St. Louis neighborhood groups. Often sites outside of East St. Louis are also selected each semester. While some sites may be within a short distance of East St. Louis, others may be closer to Champaign-Urbana. Regardless, all students will travel to East St. Louis mid-semester. However, only students setting up sites in or near East St. Louis will travel on Friday/Saturday the last full week of the semester.

Regardless of location, the work performed by students represents both action research and service learning directed towards meeting the immediate and long-term needs of some of the area's most distressed communities. Students are available as a resource to serve those in the community who working on the front lines to address the needs of the community.

Required Trips

Students will visit their assigned site twice during the semester. Students will leave Champaign early Friday morning and return late Saturday evening. Students will need to plan their schedules for the semester accordingly, including:

- Contacting instructors of courses with instruction times on Fridays to make alternate arrangements;
- Adjusting professional/personal obligations to free up these dates;
- Work on major assignments of other courses in advance to avoid deadline conflicts.

Final project trips are a required part of 451. Students who have unavoidable scheduling conflicts for these trips might consider taking 451 at a later time. It is important that students meet with the instructors of conflicting courses prior to, or at the latest, the beginning of the semester if any scheduling conflicts are foreseen during the semester.
Trip Agendas

During the first visit students will interview people from the site to determine their needs and wants. They will also survey the site to determine possibilities and obstacles in implementing a lab. Also, while in the area during the first visit, students will have an opportunity to further interact with citizens in the community by helping with various non-technology based community projects. Examples of past projects 451 students have helped with include:

- refurbish computers for distribution to individuals;
- cleaning up parks (raking leaves, picking up trash);
- landscaping (planting trees, bushes, flowers; pulling weeds; mulching);
- construction (building benches, signs);
- interior and/or exterior painting;
- passing out flyers to community members.

Projects are assigned by Prairienet and ESLARP staff. Assignments are made by working group. All students are expected to participate in these additional service projects. Besides helping the community, the work in the community is an aid in understanding the lab setup within the broader context of the community.

After returning from the first visit, the students will be responsible for using lab resources to implement the lab. This will require work both during scheduled lab time and during additional open lab hours. Finally, the students will make a second trip to their assigned sites to install the lab and give basic instructions on its use to site administrators.

Additional Trip Logistics

Travel: all students travel in University vehicles to and from their assigned area unless other arrangements are made with the instructor.

Lodging: rooms at the Ramada Inn, Fairview Heights, IL are provided for students. Students stay four per room and will have an opportunity to indicate preferred roommates prior to the trip. Special arrangements in accordance with the Americans with Disabilities Act will be made upon request when possible.

Food: Lunch and supper are provided Friday, as well as breakfast and lunch on Saturday. Attempts are made to accommodate various dietary concerns. In some instances, lunch might be provided by a community technology center for those students assigned to work at that site. In those cases, students should plan to provide their own food if they have special dietary concerns.

Overall, every attempt is made to provide reasonable accommodations on a limited budget. However, it is important to remember that these trips are service oriented and are not meant to be cozy vacations ;-) 

Final Project Summary

The design, development, and implementation of community technology centers in the disadvantaged areas of Illinois represents an important community service as well as a unique learning opportunity. The focus of the early part of the semester is geared towards development of the skills necessary to carry out the final project. The underlying assumption is that development and implementation of a
community technology center is a representative project of the general skill set required to setup a small to medium sized networked information system.

Because the final project is an actual implementation that will be immediately used to address important social needs, a wide range of GSLIS, Prairienet, ESLARP, and University resources are directed towards facilitating students to accomplish the task at hand. However, it remains for the students to actually carry out the design and implementation within a working team. Course evaluations have indicated that this requires a greater than normal commitment of time and energies by the students. However, it is hoped that the resulting rewards, not only to the community served but also to the students who are serving and learning, will justify this increased commitment.

Overall, feedback regarding the final project has been extremely favorable. Students have found it a very useful tool that provides practical experience in the implementation of a computer lab whose target usership is community members. In addition, students have found the experience of serving those in need rewarding. My goal as an instructor is to do whatever it takes to assure that each student taking the class this semester will also find the final project a highlight of their academic career at GSLIS.

Evaluation:
Students will be graded on a 90% (A), 80% (B), 70% (C), 60% (D) scale. Graded assignments and the total percent of the grade for each are listed below:

One Minute Papers (8% of total grade):
Each week students will be asked to fill out a short web-based "one minute paper". The idea behind the one minute paper (OMP) is to provide rapid feedback to the instructor regarding each student's understanding of the topics at hand. The web form asks for the main thing learned from the week's lecture, lab, and readings. As such, it should be completed after the assigned readings for the week have been completed by the student. It also asks for any issues that remain unclear for the student. The instructor will either respond to these points via email or during the first part of the following week's lecture.

Students are required to turn in eight OMPs, each worth 1 point, one after each of the first eight weeks. Students are encouraged to turn in papers for the second half of the semester, although only a maximum of eight points will be assigned for OMPs.

One minute papers must be turned in within 6 days of the lecture. So if lecture were on Tuesday, the OMP must be submitted by Sunday of the next week. No one minute papers will be accepted late for a grade, although students may decide to turn in a paper late for informational value.

Concept Papers (40% of total grade):
There will be 5 concept papers due during the course of the semester. The concept papers will be related to the lab exercises performed during weeks 3-7. The goal of these concept papers is to gauge the level of conceptual learning of the tasks at hand. Students will indicate the general principles used to accomplish the assigned task, the types of equipment and software needed to accomplish the tasks, and general problems that might be encountered and techniques and solutions used to address these problems.
NOTE: while lab exercises will typically be performed with a lab partner, concept papers will be turned in individually. Reports turned in 1-7 days late will have one point deducted from their assigned scores. Reports turned in 8-14 days late will have two points deducted from their assigned scores. No assignments will be accepted for a grade after 14 days late. The instructor reserves the right to modify the exercises during the semester to better meet the interests of the students.

Final Project Evaluation (47% of total grade):

During the assigned exam period for the class, each group will give an informal oral debriefing of their final project in front of the full class and invited guests. Presentations will be approximately 15 minutes in length and should include a description of the physical site, the people running the community technology center (CTC), and the primary target usership for the CTC. It should also present the major work done to setup the CTC. Each student within the group should take an active roll in the presentation.

A written report is due at the time of the presentation. The written report should include:

- a description of the site;
- a digest of major internal and external group communications, including a review of the initial site survey interview, subsequent communications with the recipient site, minutes from group planning sessions, and a review of any other relevant communications;
- a synopsis of the implementation plan and rejected alternatives;
- an inventory of equipment and software placed in the community technology center;
- a schematic of the final floor plan implemented;
- a summary of major problems encountered, solutions tried, and solutions implemented; and
- a review of lessons learned by the group and by individuals within the group throughout the course of the final project.

Student Evaluations (5% of total grade):

Each student should participate actively in both the final project execution and the final debriefing and paper. Students will be given a chance to anonymously rate the involvement of fellow final project group members on a 0-5 scale (5 being the top score assigned to those who provided significant help on all phases of the group work; 0 being the bottom score reserved for those who had no involvement at all in any phase of the group work). This is not a rating of a students' technical ability, but a rating of their overall contribution to the project. Scores from each student will be averaged for the final point value.

As such, it should be completed after the assigned readings for the week have been completed by the student. It also asks for any issues that remain unclear for the student. The instructor will either respond to these points via email or during the first part of the following week's lecture.

Students are required to turn in eight OMPs, each worth 1 point, one after each of the first eight weeks. Students are encouraged to turn in papers for the second half of the semester, although only a maximum of eight points will be assigned for OMPs.

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NOTE: while lab exercises will typically be performed with a lab partner, concept papers will be turned in individually. Reports turned in 1-7 days late will have one point deducted from their assigned scores. Reports turned in 8-14 days late will have two points deducted from their assigned scores. No assignments will be accepted for a grade after 14 days late. The instructor reserves the right to modify the exercises during the semester to better meet the interests of the students.

Final Project Evaluation (47% of total grade):

During the assigned exam period for the class, each group will give an informal oral debriefing of their final project in front of the full class and invited guests. Presentations will be approximately 15 minutes in length and should include a description of the physical site, the people running the community technology center (CTC), and the primary target usership for the CTC. It should also present the major work done to setup the CTC. Each student within the group should take an active roll in the presentation.

A written report is due at the time of the presentation. The written report should include:

- a description of the site;
- a digest of major internal and external group communications, including a review of the initial site survey interview, subsequent communications with the recipient site, minutes from group planning sessions, and a review of any other relevant communications;
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Each student should participate actively in both the final project execution and the final debriefing and paper. Students will be given a chance to anonymously rate the involvement of fellow final project group members on a 0-5 scale (5 being the top score assigned to those who provided significant help on all phases of the group work; 0 being the bottom score reserved for those who had no involvement at all in any phase of the group work). This is not a rating of students’ technical ability, but a rating of their overall contribution to the project. Scores from each student will be averaged for the final point value.
Computer Lab Sites

In East St. Louis and surrounding communities:

Site 1: The Family Resource Center
6801 Clarita, Washington Park
Contact: Thelma Williams (618) 337-5275/thlmwilliams@yahoo.com

This site operates as an after school homework facility, a library and an activity center for seniors. Right now they have five working computer in a 10x15 space. They hold capacity for 8 computers. Most of those who frequent the center come from the surrounding housing development. Thelma is interested in basic computer training classes, computer assisted homework help software, educational games for kids and developing intergenerational learning opportunities between senior citizens and high school students.

Site visit: Saturday October 14, 8:30 am

Project Team (lis451all-frc@lists.lis.uiuc.edu):

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• .......
• ....... (primarily Sao Tome)
• ....... (primarily Sao Tome)

Site 2: New Macedonia MB Church
5721 Church Rd., Washington Park
Contact: Alma Sillas (618) 593-6372/silltcz7@sbcglobal.net

Once an old school, the New Macedonia Church has creatively renovated this space into a sanctuary and fellowship center. The room intended for the computer lab is a full size classroom and has the capacity for 15 computers. They would like to convert the space into a library/computer center for the congregation and are interested in providing Wednesday night tutoring, basic training classes, and educational software for kids.

Site visit: Saturday October 14, 10:30 am

Project Team (lis451all-macedonia@lists.lis.uiuc.edu):

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• .......
• .......
• ....... (primarily Sao Tome)

Site 3: Grace Tabernacle Church
2640 St. Louis Ave, East St. Louis
Contact: Rev. Richard Temple (618) 274-5530/retpastor@aol.com
This church has a smaller congregation is located in East St. Louis. The space available for the computer lab was once the choir room. It has a capacity of 8 computers and if necessary, can be a Pentium 2 Lab. Mostly interested in providing after school tutoring and Sunday morning basic training classes.

Site Visit: Friday October 13, 1pm

Project Team ([lis451all-grace@lists.lis.uiuc.edu](mailto:lis451all-grace@lists.lis.uiuc.edu)):

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Site 4: Greater Glory Christian Church

2840 Camp Jackson Rd  
Contact: Pastor Curtis Malone (618) 781-8747/cmalone@holtenmeat.com

Formerly a motel, the Greater Glory Christian Church has successfully renovated the space into a small chapel. The space available for the lab can house 8 computers, plus two additional computers needed for the church office located in an adjoining room. The pastor is very interested in making the computer lab almost exclusively for youth services. It will be used mostly for tutoring, and after school activities. He would also like there to be games available for the children.

Site Visit: Friday October 13, 3 pm

Project Team ([lis451all-glory@lists.lis.uiuc.edu](mailto:lis451all-glory@lists.lis.uiuc.edu)):

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In Champaign

**Alpha & Omega Development – new partner**

A&O Development is a nonprofit under the A & O Church of Jesus Christ. It is located between Bradley and Bloomington Road. The site has a room in the basement that currently has several computers. The room is large enough to hold a midsize lab. The Church office has a DSL connection. The lab is not currently connected. The intended use of the computer lab is after school programs and some Sunday School classes. The contact is Uzze Payton.

Project Team ([lis451all-ao@lists.lis.uiuc.edu](mailto:lis451all-ao@lists.lis.uiuc.edu)):

- ....
- ....
Cultural Club - new partner

The Cultural Club is a mission of the Church of the Brethren located on North Neil Street. The site has two potential areas for the lab, in the basement (on a stage area) and on the main floor. The classroom on the main floor currently has 5 very old computers with varied OS and software applications. The majority of the software are games that they would like to keep if possible. The club has between 6-10 children that participate on a daily basis after school. During the summer there between 10-15 children that participate in an all day program. Their interest is in providing after school support and entertainment. There is room for 8 computers in the lab areas and they would like a computer for the education station. This computer should have a large hard drive to accommodate the amount of software they would like to load. They will be acquiring DSL. There is also a computer in an upstairs office that they would like to connect to the Internet. This can be done through the phone line (Prairienet account) or connected to the DSL router (if not too difficult to set up). The contact is Dawn Blackman.

Project Team (lis451al1-cc@lists.lis.uiuc.edu):

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• .......
• .......
• .......

In Sao Tome and Principe

Unfortunately, travel costs preclude this group from actually delivering these computers. Instead, this group will focus on development of a model for computer labs in these African island countries. Considerations will include language support, computer maintenance, and other factors that relate to establishment of labs in foreign countries. Research into the viability of both Windows and Linux in such labs would need to be performed in addition to the actual creation of two computer labs. The computer labs themselves are tentatively scheduled to be delivered and installed into libraries the first two weeks of January, 2007 pending funding approval. Students in this group would have the option of traveling during the second trip to East St. Louis or working with one of the two Champaign groups to assist in other lab setups.

Project Team (lis451al1-saotome@lists.lis.uiuc.edu):

• ....... (secondary New Macedonia)
• ....... (secondary Family Resource Center)

Disclaimer: The instructor reserves the right to make modifications to any part of the class syllabus or schedule to better accommodate the needs of the students within the course. Students will be given advance notice of relevant changes in class or via email.
# Brief Historical Timeline of Service Learning

http://www.learnandserve.gov/about/lsa/history_timeline.asp

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1903</td>
<td>Cooperative Education Movement founded at the University of Cincinnati</td>
</tr>
<tr>
<td>Circa 1905</td>
<td>William James, John Dewey developing intellectual foundations to service-based learning</td>
</tr>
<tr>
<td>1910</td>
<td>American philosopher William James envisions non-military national service in his essay &quot;The Moral Equivalent of War&quot;</td>
</tr>
<tr>
<td>Circa 1915</td>
<td>Some Folk Schools in Appalachia become two- and four-year colleges with work, service, and learning connected</td>
</tr>
<tr>
<td>1933-1942</td>
<td>Through the Civilian Conservation Corps (CCC), created by Franklin D. Roosevelt, millions of young people serve terms of 6 to 18 months to help restore the nation’s parks, revitalize the economy, and support their families and themselves</td>
</tr>
<tr>
<td>1935</td>
<td>Work Projects Administration established (needed public work for people who needed jobs)</td>
</tr>
<tr>
<td>1944</td>
<td>The GI Bill links service and education, offering Americans educational opportunity in return for service to their country</td>
</tr>
<tr>
<td>1960s</td>
<td>The Retired and Senior Volunteer Program (RSVP), the Foster Grandparent Program, and the Senior Companion Program are developed to engage older Americans in the work of improving the nation</td>
</tr>
<tr>
<td>1961</td>
<td>President John F. Kennedy establishes the Peace Corps, with authorizing legislation approved by Congress on September 22, 1961</td>
</tr>
<tr>
<td>1964</td>
<td>As part of the &quot;War on Poverty,&quot; President Lyndon B. Johnson creates VISTA (Volunteers in Service to America), a National Teacher Corps, the Job Corps, and University Year of Action providing opportunities for Americans to serve full-time to help thousands of low-income communities. White House Fellows program established</td>
</tr>
</tbody>
</table>
1965
College work-study programs established

1966
Urban Corps emerged, funded with federal work-study dollars

1966-1967
"Service-learning" phrase used to describe a TVA-funded project in East Tennessee with Oak Ridge Associated Universities, linking students and faculty with tributary area development organizations

1968
National Service Secretariat Conference on National Service held in Washington, D.C

1969
Atlanta Service-Learning Conference (sponsors included Southern Regional Education Board, U.S. Dept. HEW, City of Atlanta, Atlanta Urban Corps, Peace Corps, and VISTA)

1970
The Youth Conservation Corps engages 38,000 people age 14 to 18 in summer environmental programs

1971
White House Conference on Youth report full of calls for linking service and learning. Also, the National Center for Public Service Internships was established, and the Society for Field Experience Education (these two merged in 1978 to become the National Society for Internships and Experiential Education)

Circa 1971
National Student Volunteer Program (became the National Center for Service-Learning in 1979) established. Published Synergist, a journal promoting linking service and learning

1976
California Governor Jerry Brown establishes the California Conservation Corps, the first non-federal youth corps at the state level

1978
The Young Adult Conservation Corps creates small conservation corps in the states with 22,500 participants age 16 to 23

1979
"Three Principles of Service-Learning" published in the Synergist

1980s
National service efforts are launched at the grassroots level, including the Campus Outreach Opportunity League (1984) and Campus Compact (1985), which help mobilize service programs in higher education; the National Association of Service and
Conservation Corps (1985), which helps replicate youth corps in states and cities; National Youth Leadership Council (1982), which helps to prepare future leaders; and Youth Service America (1985), through which many young people are given a chance to serve.

1981
National Center for Service-Learning for Early Adolescents established

1989
Wingspread Principles of Good Practice in Service-Learning written more than seventy organizations collaborate to produce the ten principles

1989-1990
President George Bush creates the Office of National Service in the White House and the Points of Light Foundation to foster volunteering

1990
Congress Passes, and President Bush signs, the National and Community Service Act of 1990. The legislation authorizes grants to schools to support service-learning and demonstration grants for national service programs to youth corps, nonprofits, and colleges and universities. Learn and Serve America established (as Serve-America)

1992
The Maryland State Board of Education adopts mandatory service requirement which becomes effective in 1993 and affects the graduating class of 1997 and beyond

1993
Association of Supervision and Curriculum Development endorse the importance of linking service with learning

Sept. 1993
President Bill Clinton signs the National and Community Service Trust Act of 1993, creating AmeriCorps and the Corporation for National Service. The legislation unites Senior Corps, AmeriCorps, VISTA and Learn and Serve America into one independent federal agency

1994
Congress passes the King Holiday and Service Act of 1994, charging the Corporation for National Service with taking the lead in organizing the Martin Luther King Day as a day of service. The Stanford Service-Learning Institute created. The Ford Foundation/United Negro College Fund Community Service Partnership Project (a 10-college program linking direct service and learning) begun

1995
Service-Learning network on the internet, via the University of Colorado Peace Studies Center

April 1997
The Presidents’ Summit for America's Future, chaired by General Colin Powell, brings
together President Clinton, former Presidents Bush, Ford, and Carter, and Mrs. Reagan to recognize and expand the role of AmeriCorps and other service programs in meeting the needs of America's youth

1997
Fourth of July Declaration on the Civic Responsibility of Higher Education published
Wingspread Declaration Renewing the Civic Mission of the American University published

2001
First International Conference on Service-Learning Research Wingspread conference on student civic engagement held

2002
The USA Freedom Corps, a coordinating council and White House office, was launched to help Americans answer President George W. Bush’s nationwide call to service

2003
President Bush created the President’s Council on Service and Civic Participation to find ways to recognize the valuable contributions volunteers are making in our Nation. The council created the President's Volunteer Service Award program as a way to thank honor Americans who, by their demonstrated commitment

Good quality service-learning programs are based on the Principles of Good Practice for Combining Service and Learning, finalized at the American Wingspread Conference in 1989. These principles represent a two-year collaborative effort by more than seventy-five national and regional organizations committed to community service and experiential education. They are regarded as the foundation for all effective service-learning programs, and they state that an effective program:

- engages people in responsible and challenging actions for the common good
- provides structured opportunities for people to reflect critically on their service
- articulates clear service and learning goals for everyone involved
- allows for those with needs to define those needs
- clarifies the responsibilities of each person and organization involved
- matches service providers and service needs through a process that recognizes changing circumstances
- expects genuine, active, and sustained organizational commitment
- includes training, supervision, monitoring, support, recognition, and evaluation to meet service and learning goals
- insures that the time commitment for service and learning is flexible, appropriate, and in the best interests of all involved
- is committed to program participation by and with diverse populations.

APPENDIX G

Principles for the Design of Web Surveys and Their Relationship to Traditional Sources of Survey Error

<table>
<thead>
<tr>
<th>Type of Error</th>
<th>Sampling</th>
<th>Coverage</th>
<th>Measurement</th>
<th>Non-response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduce the Web questionnaire with a welcome screen that is motivational, emphasizes the ease of responding, and instructs respondents on the action needed for proceeding to the next page.</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>2. Provide a PIN number for limiting access only to people in the sample</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Choose for the first question an item that is likely to be interesting to most respondents, easily answered, and fully visible on the first screen of the questionnaire</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Present each question in a conventional format similar to that normally used on paper self-administered questionnaires</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5. Restrain the use of color so that figure/ground consistency and read-ability are maintained, navigational flow is unimpeded, and measurement properties of questions are maintained</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>6. Avoid differences in the visual appearance of questions that result from different screen configurations, operating systems, browsers, partial screen displays and wrap-around text</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7. Provide specific instructions on how to take each necessary computer action for responding to the questionnaire and other necessary instructions at the point where they are needed.</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>8. Use drop-down boxes sparingly, consider the mode implications, and identify each with a “click here” instruction</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>9. Do not require respondents to provide an answer to each question before being allowed to answer any subsequent ones.</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>10. Provide skip directions in a way that encourages marking of answers and being able to click to</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Construct Web questionnaires so they scroll from question to question unless order effects are a major concern, and/or telephone and Web survey results are being combined</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>12. When the number of answer choices exceeds the number that can be displayed in a single column on one screen, consider double-banking with an appropriate grouping device to link them together.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>13. Use graphical symbols or words that convey a sense of where the respondent is in the completion process, but avoid ones that require significant increases in computer memory.</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>14. Exercise restraint in the use of question structures that have known measurement problems on paper questionnaires, e.g., check-all that apply and open-ended questions.</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

(Dillman, Tortora and Bowker, 1998; Dillman, 2000)
APPENDIX H

Initial Draft of the Survey (Version #1)

I. First I would like to know some information about you.

What is your age group? □ Under 25 □ 25-34 □ 35-44 □ 45-54 □ 55 or over

What is your gender? □ Male □ Female

Semester/Year Graduated from GSLIS

□ FALL 2000 □ SPRING 2000 □ SUMMER 2000
□ FALL 2001 □ SPRING 2001 □ SUMMER 2001
□ FALL 2002 □ SPRING 2002 □ SUMMER 2002
□ FALL 2003 □ SPRING 2003 □ SUMMER 2003
□ FALL 2004 □ SPRING 2004 □ SUMMER 2004
□ FALL 2005 □ SPRING 2005 □ SUMMER 2005
□ FALL 2006 □ SPRING 2006 □ SUMMER 2006

Current location City________________ State________________

Current Position Title______________________________

Type of organization Library □ Academic □ School □ Public
□ Other______________________________
Non-Library (Please specify)

II. Next, I would like to gain your perspective about LIS 315/451 Introduction to Networked Information Systems (INIS) class taught by Martin Wolske, in which you participated.

How did you learn about the class? □ Course catalog □ Recommended by other students
□ Found info on GSLIS Website □ Through Prairienet
□ Adviser □ Other______________________________

Your biggest motivation for taking the class (Choose one)

□ Learn technology
□ Opportunity to work in a real community
□ Other______________________________
Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th>Participation in this class greatly increased my knowledge of technology, and especially computer networking</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in the class increased my comfort level in working with technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation in the class has increased my technology problem solving and trouble shooting skills in a real world setting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The community participation aspect of this class increased my interest in participating in community-related activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that the work I did in this class benefited the community and made me more aware of its needs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Service learning experience in this class enhanced your:
- ability to work well with others
- leadership skills
- communication skills
- team building/working skills

The work I performed in the community enhanced my ability to communicate my ideas in a real world context.

III. Next, I would like to know the influence of your service-learning on your future career/professional work.

Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th>Doing work in the community helped me to better understand my personal strengths and weaknesses</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

Performing work in the community helped me to clarify my career choice. □ □ □ □ □ □

I have integrated community service into my career plans. □ □ □ □ □ □

Which aspect of the class was the most valuable experience for you?

Please indicate if a site for your service-learning project (East St. Louis etc.) had an impact on your “learning” in this class?

Please describe how the experience in this class is different from your other community service-related experiences?

Please describe how this class is different from your other community service oriented academic experiences (other courses, practicum etc.)?

Please indicate if this course has had an impact on your career choice/career development. YES □ NO □

If YES, please explain how

Please indicate if this course has had an impact on your personal development YES □ NO □

If YES, please explain how

Please indicate if you benefited from self-reflection (your weekly write-ups and other papers) in this class. YES □ NO □

If YES, please explain how
APPENDIX I

A New Version of the Survey Created after the First Pretest Based on Feedback from the Pilot Students as well as Consulting with the Committee Members (Version #2)

LIS 315/451 Introduction to Networked Information Systems (INIS) Course

As a part of my dissertation research I would like to know what was an impact of this course on your lives and especially your career path and career development

1. What motivated you to take the class? (Choose one)
   - □ Learn technology?
   - □ Opportunity to work in a real community
   - □ Other

2. How did you learn about the class?
   - □ Course catalog
   - □ Recommended by other students
   - □ Found info on GSLIS Website
   - □ Through Prairienet
   - □ Adviser
   - □ Other

Please indicate your level of agreement with the following statements.

3. Participation in this class:
   - □ increased my understanding about computers;
   - □ increased my knowledge of computer networking
   - □ increased my comfort level with computers

4. The closer connection with the community:
   - □ changed your view about library and information services;
   - □ changed my understanding about people living in poverty;
   - □ changed a way to think about LIS profession

5. The experience in this class:
   - □ improved your ability to work well with others
   - □ improved your leadership skills
   - □ improved your communication skills
   - □ improved your teamwork skills

6. Doing work in the community helped me to better understand my personal strengths and weaknesses
7. Performing work in the community influenced □  □  □  □  □  □ my career plans.

8. Which aspect of the class was the most valuable experience for you?

9. How the site for the project did affect your learning?

10. Was this class different from your other service-related experiences (church, Peace Corps etc)? If, YES please describe.

11. Was this class different from the other classes you took? If, YES please describe.

12. Was it unique? Why?

13. Please indicate if this course has had an impact on your career choice/career development. YES □ NO □ If YES, please explain how

14. Please indicate if this course has had an impact on your personal development YES □ NO □ If YES, please explain how

15. Did this class make a unique contribution to your overall education?

16. What do you remember?

17. Age □ Under 25 □ 25-34 □ 35-44 □ 45-54 □ 55 or over

18. Gender □ Male □ Female

19. Semester/Year Graduated from GSLIS

FALL 2000  □  SPRING 2000  □  SUMMER 2000
FALL 2001  □  SPRING 2001  □  SUMMER 2001
FALL 2002  □  SPRING 2002  □  SUMMER 2002
FALL 2003  □  SPRING 2003  □  SUMMER 2003
FALL 2004  □  SPRING 2004  □  SUMMER 2004
FALL 2005  □  SPRING 2005  □  SUMMER 2005
FALL 2006  □  SPRING 2006  □  SUMMER 2006

20. Current location City __________________ State________________

21. Current Position Title_____________________________________

22. Type of organization Library □ Academic □ School □ Public
□ Other __________________________
Non-Library (Please specify) ________________
The Last Version of the Survey Used for a Second Pretest Based on Discussions with Committee Members (Version #3)

LIS 315/451 Introduction to Networked Information Systems (INIS) Course

As a part of my dissertation research I am investigating the nature of the impact of this course on the students who completed it.

1. What motivated you to take this course? (Choose one)
   - Learn technology
   - Opportunity to work in a real community setting
   - Reputation of Instructor
   - Time the course was offered
   - Other ______________________________

2. How did you learn about the course?
   - Course catalog
   - Recommended by other students
   - Found information on GSLIS Website
   - Through Prairienet
   - Recommended by Adviser
   - Other ________________

Please indicate your level of agreement with the following statements.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

3. Participation in this class:
   - Increased my understanding about computers;
   - Increased my knowledge of computer networking;
   - Increased my comfort level with computers

4. The community-based project:
   - Changed my view of library and information services;
   - Changed my understanding about people living in poverty;
   - Changed the way I think about LIS professions

5. The experience in this class:
   - Improved my ability to work well with others;
   - Improved my leadership skills;
   - Improved my communication skills;
   - Improved my teamwork skills

6. Doing work in the community helped me:
   - To better understand my personal strengths and weaknesses
7. Please briefly characterize your experiences in the course, highlighting both positive and negative aspects:

8. Did your academic experiences at GSLIS include any other community service activities?
   YES □   NO □
   If YES please describe

9. What type of experience working in community settings (either as an employee or a volunteer) did you have before entering GSLIS?

10. What type of experience working in community settings (either as an employee or a volunteer) have you had since graduating from GSLIS?

11. Please indicate if this course has had an impact on your career choice/career development.
    YES □   NO □
    If YES, please explain how

12. As you look back now and think about the course what do you remember most?

13. Are there any other comments you would like to add about the impact the course had on you?

14. Age  □ Under 25  □ 25-34  □ 35-44  □ 45-54  □ 55 or over

15. Gender  □ Male  □ Female

16. Term you took the course?  □ Don’t remember

17. Semester/Year Graduated
   □ FALL 2000 □ SPRING 2000 □ SUMMER 2000
   □ FALL 2001 □ SPRING 2001 □ SUMMER 2001
   □ FALL 2002 □ SPRING 2002 □ SUMMER 2002
   □ FALL 2003 □ SPRING 2003 □ SUMMER 2003
   □ FALL 2004 □ SPRING 2004 □ SUMMER 2004
   □ FALL 2005 □ SPRING 2005 □ SUMMER 2005
   □ FALL 2006 □ SPRING 2006 □ SUMMER 2006

18. Current location  Metropolitan__________________________
                      Suburban ______________________________
                      Rural ______________________________

19. Current Position  Title______________________________

20. Type of organization  Library □ Academic □ School □ Public
                             □ Other ______________________________
                             Non-Library (Please specify) __________________

21. What was the site and geographical location for your project in this class? (f.e. Church in East St.Louis, Community Center in Danville etc.)
    If it was in East St.Louis area, how similar is your current work setting to it??

22. How long ago did you begin your professional work?

23. May I contact you for a follow-up interview?
APPENDIX K

The Web Survey Created by the Survey Builder in Inquisite Software System and Used as a Major Instrument in the Study

Dear GSLIS Alumni,

My name is Nazihan Nazarova. I am a Ph.D Candidate at the Graduate School of Library and Information Science (GSLIS) at the University of Illinois at Urbana-Champaign (UIUC) and am currently working on my dissertation research under the supervision of Dr. Linda Smith, Professor and Associate Dean at GSLIS, who is the principal investigator for this study.

As a part of my dissertation research I am investigating the experience of students who completed LIS 315/452 Introduction to Networked Information Systems (INIS) course, which was taught by Martin Wolske for the last 6 years and included a significant service learning component. I am looking into the students’ outcomes from the course with possible implications for their career orientation.

I am requesting your help in gathering information about your experiences in the course and completing this electronic survey. Your responses are anonymous and will be kept confidential. None of the survey results will identify you by name. Individual responses will be treated confidentially and the results will be reported as group results only.

There are expected to be no risks to participation beyond those that exist in everyday life. Participation in the survey is voluntary and you may choose not to participate. The survey should not require more than 20 minutes of your time. You can choose to skip questions you prefer not to answer.

While you may not benefit personally from your participation, the results of this survey will be used to review our academic program at GSLIS and specifically the courses with a service-learning component or hands-on experience. This study will be a valuable contribution to research on service learning in Library and Information Science.

I greatly appreciate your taking time to participate. I hope to get your responses before Thanksgiving. Please feel free to print a copy of this consent document for your records if you desire.

If you have any further questions about the study, please contact Linda Smith, Associate Dean (217-333-7742, lsmith@uiuc.edu) or me (217-721-9600, nazarova@uiuc.edu).

If you have any general questions about your rights as a participant in this study, please contact the University of Illinois Institutional Review Board at 217-333-1679 (you may call collect) or via email at irb@uiuc.edu

By clicking on “Next” button below and completing and submitting this online survey, I am consenting to participate in this research.
5. What were the least valuable aspects of the LIS 315/451 course?

6. What were the most valuable aspects of the LIS 315/451 course?

7. As you look back now and think about the course, what do you remember most?

8. How would you describe the impact the course had on you and your subsequent career?
LIS 315451 Introduction to Networked Information Systems (NIS) Course

9. Age

<table>
<thead>
<tr>
<th></th>
<th>55 or over</th>
<th>45-54</th>
<th>35-44</th>
<th>25-34</th>
<th>under 25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Gender

- Male
- Female

11. Semester/Year Graduated from GSLIS

12. When did you begin your professional work? (Please indicate year)

13. Your current location:

- Urban
- Suburban
- Rural

14. At the time of graduation, what type of organization did you prefer to work in? (Choose one)

- Academic Library
- Public Library
- School Library
- Special Library (including corporate library)
- Government Library
- Archives
- Library Vendors
- Computer Industry
- Information Industry
- Library/Information Science higher education
- Library Cooperatives
- Museums
- Government Agency
- Non-profit Organization
- Self-employed
- Other (please specify)

15. Please indicate the type of organization you work in now?

- Academic Library
- Public Library
- School Library
- Special Library (including corporate library)
- Government Library
- Archives
- Library Vendors
- Computer Industry
- Information Industry
- Library/Information Science higher education
- Library Cooperatives
- Museums
- Government Agency
- Non-profit Organization
- Self-employed
- Other (please specify)
Please click on "finish" button below to complete the survey.

Thank You!!!!
Dear [FIRST NAME],

This e-mail is sent to all GSLIS graduates who completed LIS 315/451 Introduction to Networked Information Systems (INIS) course taught by Martin Wolske for the last 6 years with a significant service learning component.

My name is Muzhgan Nazarova. I am a Ph.D Candidate at GSLIS and am currently working on my dissertation research under the supervision of Professor Linda Smith. As part of my research I am conducting a Web-based survey to look into outcomes of students who completed the INIS course. The link provided below will take you to the Web survey starting with an informed consent form which contains additional information about the study. The Library Research Center (LRC) at GSLIS has provided software support for the survey.

Based on the results of the recent survey conducted by GSLIS, graduates of the past two years considered fieldwork to be the number one most important experience in obtaining their first professional position. I am hoping that my research will provide additional insight into the experiences of our graduates.

Please don't hesitate to contact Linda Smith (217-333-7742, lcsmith@uiuc.edu) or me (217-721-0608, nazarova@uiuc.edu ) for additional information.

Please click the following link to start...
[SURVEY LINK]

Thanks a lot for you cooperation!

Sincerely,

Muzhgan Nazarova
# APPENDIX M

## An Excerpt from the Invitations Log Table

<table>
<thead>
<tr>
<th>Time</th>
<th>Email Address</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
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APPENDIX N

The Categories That Emerged as a Result of Open Coding When the Responses were Grouped into Categories in Question #8

8. How would you describe the impact the course had on you and your subsequent career?

BASIC UNDERSTANDING OF TECHNOLOGY/SPEAK ABOUT COMPUTERS

- Although I do not work in networking or systems, I do have a basic understanding of the technology that many of my colleagues do not have.
- It has also allowed me to speak more confidently about computers and networks.
- It has made me more fluent and able to relate and communicate with my organization's technology department.
- Gaining the idea of how computers and network system work.
- It enhanced my interest in computers/technology.
- In general, it didn't have much impact. However, it did make me generally aware of networks. So, while I don't understand them, I understand a bit more of what I don't understand. If that makes sense. I am comfortable with computers partly due to the class and also look back and know I learned some about teamwork.
- Understand how a basic network of computers work.
- I haven't used any of my networking skills in a professional capacity and am not in a position where I need such skills. If it came down to it, I feel like I have a basic competency.
- It did demystify computers for me.
- The course helps me in troubleshooting computer problems (I do cataloging in my daily work).
- I feel much more comfortable with technology and troubleshooting. In my first job at a public library I was able to help troubleshoot with computer problems. Also, Martin did not teach us a series of steps to install programs, etc, but he taught us how to solve problems and work together. These skills have been invaluable in my career.
- It has made me less afraid of technology and although I have not had cause to build a network, I can understand what is going on.
- Although I have never got a chance to apply the technological skills gained in this course in my career, I am not afraid of the technology anymore. I became much more confident in my ability to deal with technological aspects if at some point in my career I need to do it. I've learned the jargon, and now I can much better understand IT specialists when we need to discuss technological issues.
- It gave a good introduction to the planning and implementation of IT hardware/network projects.
- It gave me confidence on computer skills.
- Basic networking knowledge has helped me to be able to troubleshoot basic computer problems at work without having to contact tech services.
- While the course didn't affect my career choice, I think that being comfortable with networks and technology more generally has been extremely helpful. I'm not ever afraid to jump in and try to troubleshoot or figure out a new technology.
- It gave me more confidence in working with some of the technology I use daily.
- It was very helpful in giving me a general understanding of networked systems.
- It opened the door to the world of hardware, and I can not only just use the computer, but
control it in some degree. It does not lead me to a technical career road though.

- Allowed me to apply technical skills
- I have exponentially more confidence in dealing with the (ubiquitous) computers and networks I encounter. I am more likely to try various solutions without fear of breaking the equipment or making the problem worse. This willingness alone sometimes makes the difference between being able to solve a problem and having to wait for "the experts."

FAR MORE AT EASE WITH COMPUTER/COMFORTABILITY

- I'm far more at ease with computer hardware after taking Martin's class. I like experimenting with new things (built my own computer last year!), and I enjoy troubleshooting computers and applications for other people, too. I've become pretty patient with that sort of thing;
- Immense. I attribute my comfortability with the hardware and software we have at our library to this course alone.
- I know a little more about computers.

COMFORTABLE WITH TECHNOLOGY/CONFIDENCE/TROUBLESHOOTING SKILLS

- I'm comfortable with tackling technology problems and experimenting with new technologies
- It probably doesn't help out my job much (being a children's librarian) but I know that my confidence around computers does help.
- It made me feel more confident working with technology professionals because I recognized the "language" they were using.
- The course and St.Louis experience helped build my self confidence in working with technology, especially the hardware side
- I am better troubleshooter when it comes to computers and network in general
- I am confident enough to set up networks and troubleshoot problems
- LIS 315 prepared me to work with network systems, and gave me the vocabulary to speak with systems and computer services staff.
- It made me less afraid of computers and more confident in my ability to figure out what might be wrong with them.
- It made me realize that even though I'm not particularly prone to computer maintenance, I can still figure things out by troubleshooting and maybe even fix the problem.
- Believe it or not, I'm doing quite a bit of technology on my job. I can talk somewhat intelligently with the geek squad here and am usually pretty fearless trying things on the computer.
- I'd say that I regret to admit forgetting a lot of the details of what I learned but the confidence it gave me was key and I retained the details for at least two years into my current path. This was very important as I dealt with an IT department who didn't think librarians knew anything and played it to a lazy advantage. When I asked for things knowing what was and wasn't possible, using "the" language. You could see the whole room go *blink, blink* and reconsider what kind of access I was going to get to the network.
- Basically even though I don't quite remember how to get into the DMOS mode I know enough to be confident about asking for what I need and more. It's definitely made me a more competent (or at least appear very competent ) in several key library environments, including meetings when we are making decisions about the purchase of online tools or databases, restructuring parts of the website etc.
- The course provided a deep foundation of technological skills which I had not had previously and subsequently gave me the confidence to learn more and explore more technology in my career. I know do a lot of technology training and teach with digital tools. I find that knowing more about the hardware helps in my teaching.
- Well, I haven't yet been employed in this field, having taken off time to be a stay-at-home parent, so that's hard to say at this point. I do feel more confident about my abilities to understand networking and technology in general. I found out that I really liked messing with the hardware side of the computers.
- I am not currently employed in the library profession; however, I can imagine my comfort level in doing hardware troubleshooting on the job would be enhanced.
• I feel more confident about troubleshooting (which is very helpful in my career). But since I never work directly with network admin, most of the concrete knowledge is forgotten. However should a future job call for me to take on more responsibilities for managing a network I am confident that I could learn the skills to do so.
• I am no longer intimidated by new systems. After taking the course, I realize that each system has basic components and once you learn the sequences, you can link your terminal to other systems.
• it lessened my fear a bit about computers. I know that if I try I could probably understand and work with computers.
• I'm more comfortable with hardware, and that comes in handy at work
• It made me more confident in terms of hardware and networking.
• It made me feel very confident in technology. I understand the terms used when I am involved in a conversation about technology. I am able to troubleshoot basic computer problems
• This course helped build my confidence with technology.
• Not much overall, but it was definitely a positive learning experience;
• I am not directly working with computers or networked systems at this point, but once in a while I am able to help fix some small problem with our LAN.
• It has reinforced my interest in working with service groups, it has made me (slightly) less afraid that I'm going to break the computer if I touch it
• Demystified the concept of computers and gave me more confidence to figure out things on my own.
• It improved my comfort level with computers and systems which has allowed me to better helped patrons in a public library setting.
• More confident in my ability to troubleshoot with comps
• Computer hardware is not a mystery, always handy when you have to do quick troubleshooting before calling the big guns down in IT.
• Overall, not much. However, I think I am more willing to figure out my own computer problems at work (as a librarian in an acad lib), as well as more adept at learning new software.
• It challenged me to approach technology as a constant learner; I realized that things would continually change, and I would need to get used to that. However, I also realized that there are concepts that do not changed, and can even be applied beyond "tech" situations; these include prioritization, delegation of responsibility, and teamwork.

TECHNICAL VOCABULARY
• It has given me a vocabulary and a confidence to be involved in conversations, planning and projects with our IT department. It has also made me a better consumer of technology in my personal life.
• Able to communicate with tech folks in my library a little better
• Mostly, it just gave me enough to follow discussions in the area, but not enough to actively participate.
• I think I'm more effective at communicating with others about software, hardware, and network issues
• It helps me understand what the IT people are talking about and I can set up a basic computer network.
• Well, I haven't used the actually technical skills yet, but my supervisors have noticed that I can talk the talk.
• Gave me the ability to discuss technical issues with IT people.
• have the correct vocabulary to talk to IT professionals about the needed repairs if I can't do it myself.
• feel much more confident in troubleshooting technology problems, and if I can't solve the problem, I can at least understand what the person who can is saying.
• Well, (un)fortunately, it my current career I'm not doing any type of networking. But when the techie "guys" start throwing verbage around, I can somewhat understand what they are talking about.
• am more familiar with tech terms and can speak with better authority about networking systems and hardware. I can understand our technology coordinator (I work at a high school) and discuss problems and troubleshooting with him to head off serious issues.

PERSONAL USE/BENEFIT
• It further motivated me to work with hardware and build my own computers. I have not purchased a computer in a long time; I just change parts or upgrade parts when something breaks.
• fond memories--a *bit* more comfortable tackling technological issues on my own.
• 451 has given me the confidence to try to fix any desktop computer system that I will encounter. I’ve already put what I learned to use by repairing/upgrading several systems for family members, and I know that I can fall back on my training to at least track down problems and diagnose what is going wrong.

MADE EXTRA MONEY
• I have even made a little money setting up networks

VERIFICATION THAT I TOOK THE CLASS
• I already knew all of the technical stuff. I wanted the paper to show I’d had that class. It was a really great experience. However, I never intended to go into the field of GSLIS.

NOT FOR ME
• I realized that I was not made for technical stuff...:)
• ... that I won’t be a systems librarian? :-)

GREAT IMPACT

TOTAL CAREER CHANGE
• Ultimately it gave me confidence to pursue computer programming and POSIX systems administration, which in turn opened up a general interest in applied science which had never been cultivated previously. Long term, this led me back to graduate school in engineering after two years or so working with computers in an information management context.
• It has come to emblemize the switch I made from other professions to the library world. It drove home to me what being a librarian can be.

TREMENDOUS AFFECT IN A SUBSEQUENT CAREER
• It had a tremendous affect in my subsequent career. It got me very interested in technology (especially free software) in librarianship. I use tools and skills I learned in this and similar classes almost daily in my job.
• The course turned out to be very important to me because I managed to learn things I would not think of before and that still helps me in my current position.
• Well I run a Help Desk and several computer labs on a college campus so it definitely was relevant.
• I have had several positions -- both public services and IT -- and this course got me on track to be more effective in both arenas.
• I have become the tech troubleshooter of the department. Before this course, I was quite timid around computers. This course demystified technology and encouraged me to dive in and try things. Eventually, I started knowing what to try first. I wish I could take this course again.
• the course has been invaluable to the progression of my career. I consistently find myself referring back to the experiences I had and using the technical and problem solving skills that I learned. The course provided a technical and social foundation that I would otherwise never have gained.
• Tremendous. With IT personnel working in various locations, and patron needs being quite immediate, the skills I learned have managed to quell many volatile situations, due to the heavy reliance on technology within libraries and society at large.
• I use those skills everyday. Having IT skills at my academic library gives me lots of clout with the IT staff, and this only helps me bridge the gap between libraries and the rest of the campus.
• I was immediately able to handle most tech problems and actually was able to consult other teachers in the building. I was not the most knowledgeable person on technology in my building, but I knew some things others didn't know. I was not afraid to try to problem-solve and I did not give up.
• I am now looked to as a technology expert, which isn't true, but I know that I have the ability to figure things out, so I don't give up when technology issues arise, and I approach problems with confidence.
• The course itself had a great impact on my development in technology. It was a first introduction to developing technological skills for me and afterwards, I chose to pursue a technologically inclined career in libraries.
• Troubleshooting networking issues on PCs

CHANGE OF A CAREER FOCUS BECAUSE OF THE COURSE
• I started out with an idea to go into Children's librarianship. It was due to the combination of this course with Using Networked Information Systems that caused me to make a career changed into a more technical focus.
• I've been able to enter a new job and be known as a good resource for computer problems. This has helped open opportunities and now I'm working as a web designer in my new library...and also retained as a resource for solving computer issues. In a profession where many aren't familiar with computers, this class was extremely helpful.
• It shepherded me towards IT;
• The course has had a tremendous impact since I became an "accidental" systems librarian due to the knowledge gained. I have moved to other positions but I take with me a technical understanding of how systems work.
• Immense. I would never have taken on a job w/ such a technical component if I hadn't enrolled in 315. I'm even a manager of a computer help desk. My future career plans involve hoping to assist rural communities set up libraries and computer labs.
• As a result of this class and other technology experiences at GSLIS, I am a technology leader at my school.
• I have had the courage to apply for jobs that required technology knowledge. I have often been the first line of defense to figure out a problem.

HUGE IMPACT
• This one class had a huge impact personally & professionally, more so than any other class I took at GSLIS.
• In my current career, because of my basic technical background (mostly acquired through LIS 315), I am asked to perform routine troubleshooting and help with all technology-related issues at the high school at which I work. I also have the opportunity to work with the tech team and influence purchasing and other technology decisions.
• I cannot state too strongly how useful the networking course has been to my career. My first job out of graduate school is in a vibrant but rather underfunded library where we are using aging computers that continuously need TLC. I have replaced memory, worked out glitches in the networked computers, helped computer science graduate students set up servers for our web pages, and served as translator between professors and IT professionals when problems occur on faculty's personal computers.
• Its impact was much greater than I would have expected. I didn't realize when I excepted my position in a tiny school district that I would be responsible for so much networking and other
computer related issues. This course provided me with the basic understanding to work through some problems and the understanding that it is okay to ask for guidance and help. I am often amazed at how much I remember from this course and how often I look back at my 315 lab notebook.

- I went to GSLIS with the intention of a career in public libraries, and this course reinforced that notion. The "real life" experience of going to a public library and installing needed technology was invaluable. People often use public libraries to fill a gap within their own lives, be it a lack of information or a lack of means to technology. Free public-use computers are a necessity, and I was happy to be part of fulfilling that need for one community. It was a small glimpse into what I now see every day in my work with the Milwaukee Public Library.

Internationally
- The course changed my vision of LIS profession from library centered to patron's needs oriented. Also I found out the LIS people in USA are involved in community and other public initiatives much more than in my home country, where librarians most of the time remain in the library buildings and very rear go out to people and offer their services and expertise. As a information specialist now I work a lot with rural libraries in my home country and encourage librarians to be leaders of their communities and involve as many organizations and institutions in their projects as they can.
- I would say that this course had more of an impact on me than any other course at UIUC. Even though I am in reference and instruction, I find myself pulling on that knowledge often.
- It was a big part of first job as electronic services librarian—it gave me lots to talk about and use during the interview to make my experience come to life. The service nature of the project also helped.

INVALUABLE
- Invaluable. The impact was beyond my career. From a career standpoint, I am now the person who troubleshoots computer and other technology issues at my branch. Often, when I am not present, a branch staff member, including the branch manager, will face problems with a computer or even the copy machine, and will put an "Out of Order" sign. Then, when I come in, I almost always fix the problem. When I do need to call our Computer Services department, I am well prepared to give them all possible information and to communicate efficiently and effectively. If it wasn't for this course, many of our technology issues would be directly felt by patrons. Because of the knowledge learned, however, our patrons rarely have to deal with "Out of order" computers or copy machines.

But that's not all. shortly after graduation, me and my father went to reinforce the ceiling of a bedroom in a work-in-progress house that he owns in Wisconsin. Now, this normally the type of project that I am not at all good at. However, because of the skills learned in LIS 315, I exuded excellent analytical and problem solving skills that made the process much easier. My dad was quite impressed with the way I approached problems. This was an entirely new skill set for me. I've also learned not to rush through things and to take a pause here and there to collect myself and do things the right way rather than just finish them quickly.

PROVIDED COMPETITIVE ADVANTAGE
- I found the job two months after graduating from the university. I was fresh out of school with 2 years of graduate assistanship as my only work experience. The description of the position I applied for listed mostly cataloging skills but, as became evident from the interview, they were equally interested in my other skills. And computer skills were very high on the list of priorities. I had to compete against a person with nearly 15 years of experience and I am sure that I landed this job (they eventually hired us both) due to my "technical" skills. LIS315 was not the only course that helped me to gain needed skills but it was definitely one of them. I had a lot of opportunities to apply those skills in my day-to-day work.
- Positive resume material probably helped as I moved into an IT related position.
MADE BETTER AT THE JOB/FOREGROUNDED THE IMPORTANCE OF TECHNOLOGY

- It didn't change my career choice, but it's made me much better at my job. Most computer problems encountered by the students and teachers in my building are really pretty simple, and can be solved using the info. and skills I got in Martin's class. My learning curve for new hardware and software is also less steep since I understand more of what's going on behind the scenes;
- It foregrounded the importance of technology in my professional life;
- It didn't change my career path of becoming a school librarian, but I am more than willing to tackle tech problems at my school
- However, I value everything I experienced & learned & took components from the class to build into my professional career.
- I have gained knowledge and applied the skills in my career.
- The course gave me a certain amount of confidence with technology that I did not have before. This enabled me to take a leading role at my institutions in website redesign and digitizing of music materials
- It has helped me working in a public library. I feel the skills I learned help me to understand technology, and I am a member of my library's technology committee and lead technical developments at my branch. It also was great experience for working with the public and with a community, as well as experience working with a team;
- I am working with e-resources and knowledge I gained in this course helps me in troubleshooting patron's access problems. I also feel more confident when I talk to tech support of various e-resource providers when we have to troubleshoot problems.
- It helped to add more skills for my current career
- I don't really do anything with the networking side of the library, but I am also not afraid of technology like I was prior to the class. I also understand (most of the time) what the IT staff is talking about. I would say it has made me better able to adapt to new technology and to troubleshoot when IT staff is unavailable. Working at a public library we do not have IT staff on site. I am comfortable with dealing with day to day issues and I don't think that would have been the case had I not taken this course.
- While my library has a couple tech folks, I get called on as well, especially when I'm close or when the others aren't there. I gained much practical knowledge.
- A strong impact. I am not afraid to dive right into tech issues at the school I work at; even if I'm not entirely sure what I'm doing. The other teachers at my school see me as a tech guru which is really funny because I am so not but am willing to trouble shoot. Martin's class contributed to my growing confidence in these areas.

EXPLORE A DIFFERENT ASPECT OF INFORMATION PROFESSION/CHANGED VISION OF LIS PROFESSION

- It allowed me to explore a different aspect of the information profession & helped me realized that it wasn't for me;
- “The course changed my vision of LIS profession from library centered to patron's needs oriented.”
- Gave me a new perspective on how I can apply practical skills relating to computer hardware and networking in any workplace.
- It didn't have a great impact on my career, but it did help me come to terms with what I feel are some of the great on-going practical and theoretical concerns in my profession
- The fact that our lab was designed for children also made me more aware of their technological needs while working as a Children's librarian
- More aware of the role of computer technology in possible careers
- It was also helpful in showing me that I am not cut out for a job in that field!
- It definitely made me more confident in dealing with technology and network environments. I currently work at a university with a strong service learning component and have recently been trying to devise a program where the library could assist in helping one of our target sites (a
poor area in the state similar to East St. Louis) have more access to technology for health-related information as well as to develop job skills. So far we haven't gotten very far in the planning but I find my experiences with this class to be a constant source of inspiration.

NON-TECHNOLOGICAL CAREER
- My career is not technological, but it gave me a good base of computer knowledge that I didn't have before

MADE DECIDE TO GO INTO NON-PROFIT COMPUTER NETWORKING
- The course almost made me decide to go into more of a non-profit computer networking career track, but I ended up in a public library

WAS OFFERED/GOT A JOB
- Very drastic. I was offered a job as a direct result of my work in this class.
- I can't say it had a direct impact. I did find a job at an organization that attempts to provide better info access to info-poor countries. (I had to leave because of lack of funding, but they have promised to bring me back as soon as the find more funding). Perhaps this course had something to do with this in part but I would attribute it more to my overall LIS experience and the fact that I have technical skills as well as an ability to assess information problems from a LIS perspective.

CHANGE CAREER
- I'm not sure that it influenced me to switch careers. But it did make me more confident going into my current job.

MOST USEFUL COURSE
- This course was one of the most useful courses I took towards my current career (see previous answer about speaking with tech personnel). It also made me completely unafraid to try and solve issues on my own.

NOT MUCH GAINED
- Also I wanted to gain more skills with computers but didn't feel I learned or retained pertinent information about computers and networking;
- I have not used it in my career and a year after the course I barely retained any knowledge since I did not use it. After a family member died I was asked to look at a number of his computers to determine if they work, but was unsuccessful in making the assessment.

NOT MUCH USE AT PRESENT POSITION
- I haven't used any of my networking skills in a professional capacity and am not in a position where I need such skills;
- It has not carried over too much into my current position.

AWARENESS ON HOW EXTENSION PROGRAM WORKS
- I more aware of how extension programs, like the one in East St. Louis, work and how they impact the community. I also learned how an information field like LIS can play a role in extension programs

IMPACTED POLICY ADOPTION AT A JOB
- It's also influenced my actions/arguments with respect to our computer use policy. I've struggled against opinions in order to free up the computers to the use of teens without permission from their parents. I've also argued against judging our patrons’ use of the computers (resumes vs. games, for example), as well as restricting them from uses that are tough on our software (such as social networking sites that seem to cause problems with our patron management software). These values were influenced by the lessons and the project of 315.
USE ON A JOB
• I use tools and skills I learned in this and similar classes almost daily in my job.
• I am currently using the knowledge in a part time job
• I work in the Children's Dept. of a public library, and while we have a Computer Dude on call to help, I find that I am a much, MUCH better problem solver when something goes wrong with one of the computers.
• It has been helpful in the day to day troubleshooting that comes up in an academic library.
• I learned enough about systems that I was able to troubleshoot when I was 'on the job.'

TECHNOLOGY INSTRUCTION /TEACHING AS A PART OF THE JOB
• As a public librarian, the class has significantly changed the way in which I teach my patrons about technology. It's no longer a secret set of skills, out of reach to the layperson. Instead technology is simply a fear to be conquered. By embracing this attitude, and helping to convince patrons that there is actually very little they can do to break a machine, I've made my own training sessions more interesting and effective.
• I am no longer afraid of computers. I can explain to people how they work, and how the internet works. I do this at least a couple a times a month, when I teach people basic internet classes at my library.

ETHICAL ISSUES IN THE PROFESSION
• It made me aware of the ethical issues facing librarians, as well as the variety of technology skills needed.

SEE YOUR OWN STRENGTHS
• Very strongly positive. Help me see my own strengths.

TEAMWORK/LEADERSHIP
• I learned that by working as a team, a project can be accomplished in a specific timeframe.
• It increased my leadership and teamworking skills.
• And, a large amount of the work that I do is in a group context. The experience and practice of working in a group on a large project has helped me be a more effective group member.
• Gave me good leadership experience
• Made me really appreciate being an active team member.
• Leadership skills

PROBLEM SOLVING SKILLS/PATIENCE/ADDRESSING DIFFERENT SITUATIONS/troubleshooting in a different context
• The course helped me hone my problem solving skills, which is useful both with technology issues, but also with almost all aspects of my current position, from working at the reference desk, teaching, working with faculty, students, and library colleagues.
• Regarding technical (and sometimes non-technical) related issues, I learned from Martin to look at things from a different perspective and to break down certain problems/tasks into more logical steps. Thereby achieving success in the end.
• “Also, Martin did not teach us a series of steps to install programs, etc, but he taught us how to solve problems and work together. These skills have been invaluable in my career”;
• While I don't have a position that enables me to apply the technical skills I gained in the class, I am able to apply all of the project planning, problem-solving, team building skills that I learned on a daily basis. I always remember - "measure your cable, add 5 feet, add another 10, and then add 5 more".
• analytical and problem solving skills
• I learned to be more and more patient not only to take this course and learn about computer stuff, but also in doing my job, and address different patrons, and situations.
• It has had a very positive impact on the way I troubleshoot things on the job whether computer related or not. I use those evaluation and diagnostic skills everyday.

NOT MUCH IMPACT/VERY LITTLE/NONE
• Unfortunately, I had enough exposure to know some things, but not enough to get into something like systems librarianship. At the time, I was more interested in Knowledge Management, but took a research/reference job as I was not able to find the kind work I was looking for.
• It has had very little impact, although I do not work in IT or IS and have never been responsible for the creation or maintenance of workplace networks.
• Nonexistent;
• While I enjoyed the hands-on experience and the knowledge I gained, the course has had little to no impact on my career since I left GSLIS;
• while the course gave me a strong sense of satisfaction, it had little impact on my career.
• NONE;
• No real noticeable impact, as of yet.
• would characterize the explicit impact as minimal.
• Absolutely zero.
• Little to none.
• Not direct impact on a career
• It is hard to say what impact the course had on me. It did not particularly change the path that I was already on.
• don't think it changed the direction of my career.
• It had no positive impact on my career. I became successful in spite of that class. But I do still talk about it to other GSLIS people who took the class with me. It's sort of a joke now.
• Well, given that I am in academic reference, the direct impact is rather small. BUT, I have a profound respect for the tech people - all they have to do and their need to remain current in an ever changing landscape.
• The course content has little impact on my career. My research area employs barely any knowledge that I have learnt from the course.
• Minimal
• I don't think the course had too much of an effect on my career.
• n/a thus far.
• very little. technical skills are always important, but i don't set up IT networks as a job responsibility.
• little to none
• non-existent. I currently do no hardware work

SKILLS LOST IN A PRESENT CAREER
• Sadly, these skills feel lost in my current career, as I am employed by a large public library system that has been "behind the times" for so long, and is not interested in the fresh ideas and knowledge that come with new hires.

NOT LIS CAREER
• I haven't had a career in LIS;
• Non related career

INTEREST IN SYSTEM ADMINISTRATION
• It has increased my interest in learning about system administration
LISTING IN A RESUME/GETTING JOBS
- I listed this course in my resume, which will indicate my technical skills somehow.
- It's been the most helpful in getting jobs, even non-library jobs.

SOCIAL IMPACT GREATER THAN TECHNOLOGICAL/GIVING BACK/INTEREST IN COMMUNITY SERVICE
- Guess the social impact of the course was greater than technological one.
- I think the intangible stuff has had the most impact - learning about giving back, working with a team, etc.
- Also, outreach has been a major theme throughout my career so far. Nothing as dramatic as what I experienced in East St. Louis, but while working at universities I have always tried to give back to the community through workshops and presentations to the public libraries/librarians.
- It also was great experience for working with the public and with a community, as well as experience working with a team
- After this course, I became aware of the great need for active CTC's and computer training for underserved populations, and the impact technology can have on people's lives. I went on to work with Prairienet and the ESLARP group while I finished up my MS at GSLIS, and am still involved in CTCom. While I'm not sure 451 had a direct impact on my career path, it definitely affected who I am and my community involvement.
- Demonstrated possible avenues for community service projects
- On a social level it made me more aware of the poverty within my own state. I am still involved with various community development projects, but i don't have a career
- I am currently the coordinator for a grant project which provides digitization equipment and training to at-risk historical archives in the Caribbean. Much of the outreach and training we do very closely resembles what I was first exposed to in the course. I would say the course had a very strong impact on me
- It emphasized what I already knew about the impact technology can have on a person's opportunities (if you have access to it, and if you don't), but I was not prepared for how hard it was for me to work in such a varied group, with different goals and different skill levels
- It showed me the importance of collaboration and community outreach;
- Thinking big even with small means
- It also definitely gave me a point of reference if I am ever involved in a community project of that kind. I think I would definitely have a better idea going into a project of that kind what worked and what I would do differently.
- I'm still not a techi by any means, but the social work experience strengthened by commitment to working with people through creating pathways to information, and convincing people they had a right to access to information. Library school is a good place to be, and the class affirmed my convictions
- I think about how to reach out to parents and community members rather than just on focusing on children
- Personally, I still feel a sense of accomplishment from working closely with the people at the church, building a relationship and appreciating the importance of our work to the community.
- Outreach becomes a meaning concept for me.

NOT DIRECT IMPACT BUT STILL
- The course did not have a direct impact on the position I took right after graduation. However, I have always had a strong interest in community outreach and empowerment, and I hope that I
• will be able to incorporate these interests more into my career down the road. One of the reasons I took the course in the first place was that I wanted to participate in a community project;
• It made me less afraid to tinker with my own computer, and I think it gave me the confidence to accept a more tech-oriented job than I otherwise would have (although I'm not directly using what I learned in the course and have since forgotten most of it!)

GREATER IMPACT AS A PERSON
• While I have benefited from understanding the basics about how computers work, I have had little use for the networking. The experience in East St. Louis wonderful, but I think it had a greater impact on me as a person than it has been applicable in my career.

DIGITAL DIVIDE
• I think that the course changed my attitude in two ways. One, it changed my attitude about people who don't have access to computers, and how many different strategies can be used to help provide them access to computers and the Internet in their lives and communities. And two, it changed my attitude about computers and how they aren't the mysterious scary boxes I thought they were, and how to help other people understand how to use them.
• helped me think more about the information/economic divide at the same time made me question other issues including the very service we were doing
• The course made me recognize the "digital divide" in a real, physical way. I knew underserved communities were out there, but I'd never worked in one. Now I have real life experience. It has come in handy talking to folks who think that everybody has a laptop and high-speed, on-demand access to the internet.
• As an international student, before taking the course I was unaware that there were communities in US that desperately needed help; I learned that even in the most underdeveloped and seemingly abandoned areas there always are people who care and who work hard to revive their communities, and that it is possible to do this.
• It made me think about poor communities that I had not imagined before
• Made me think of the big picture--of the people our programs impact.
• Not much; it didn't change my focus of what I wanted to do. Nevertheless, it did reinforce some sneaking suspicions of access to technology (that still, despite the drop in computer prices), many don't have access to a computer (and/or the skills and resources to maintain their computer system)
• I don't think it had any impact at all on the direction of my career - that said, however, I do believe that it was a great eye-opener as to the haves and have-nots regarding technology as well as the basic necessities of life.
• I don't think it has directly impacted my career. However outside my work I am involved in groups doing grassroots community work, one that includes book donations. So I think LIS 315 reinforced my interest and commitment to community activism and work.

INFORMATION ORGANIZATION AND ACCESS
• I think about this course and my course in cataloging in a similar way. I do not use any of these direct skills on a daily basis, but they have significantly increased my ability to understand and appreciate how information is organized and is made accessible and made me able to better formulate strategies for tracking down information.

INSTRUCTOR
• It certainly has helped, especially in the beginning. I learned a lot from Martin and appreciate the knowledge I gained in the course.
HANDS-ON COURSE
• I always remember this course because it was one of my only "hands on" courses. We got to travel and a lot was expected of us.

POSITIVE LEARNING EXPERIENCE
• Not much overall, but it was definitely a positive learning experience.

DIFFERENT LEARNING EXPERIENCE
• I’ve learned as much from those around me and reading and picking things up on my own as I did from the course.

ALL UNIVERSITIES SHOULD DO
• I will always think about this course as something that all universities should do and hence where ever I go I will talk about it and try to get people interested in this type of activity.

COMMUNICATION SKILLS
• I don't use the networking skills very often, but the communication skills I developed prove useful every day.
APPENDIX  O

The Job Titles Listed by the Respondents as a Response
to Question 16 of the Survey What is your job title?

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<thead>
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<th>Job Title</th>
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<tbody>
<tr>
<td>Academic Hourly Assistant in Reference and Cataloging</td>
</tr>
<tr>
<td>Admin</td>
</tr>
<tr>
<td>Adult Librarian</td>
</tr>
<tr>
<td>Adult Reference Librarian</td>
</tr>
<tr>
<td>Adult Services Librarian</td>
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<tr>
<td>Adult Services Librarian</td>
</tr>
<tr>
<td>Archival Operations and Reference Specialist</td>
</tr>
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<td>Assistant Catalog Librarian</td>
</tr>
<tr>
<td>Assistant Director, Information and Research Services</td>
</tr>
<tr>
<td>Assistant Librarian</td>
</tr>
<tr>
<td>Assistant Professor/Reference and Instruction Librarian</td>
</tr>
<tr>
<td>Assistant to the Curator of Special Collections</td>
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<tr>
<td>Assistant Youth Services Manager/Interim Young Adult Services Coordinator</td>
</tr>
<tr>
<td>Associate Director and Reference Librarian</td>
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<tr>
<td>Asst. Director, Program Support Services</td>
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<tr>
<td>Asst. Engineering and Technology Librarian</td>
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<tr>
<td>Asst. Prof. of Lib. Admin.</td>
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<tr>
<td>Business Analyst</td>
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<tr>
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<tr>
<td>Business Librarian</td>
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<tr>
<td>Business Librarian</td>
</tr>
<tr>
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<tr>
<td>Cataloger</td>
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<tr>
<td>Cataloger</td>
</tr>
<tr>
<td>Cataloging Librarian</td>
</tr>
<tr>
<td>Cataloging Librarian</td>
</tr>
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<td>Cataloging Librarian</td>
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<td>Children's Department Manager</td>
</tr>
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<tr>
<td>Children's Librarian / Librarian I</td>
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<tr>
<td>Collection Development Librarian</td>
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<tr>
<td>Collection Development Specialist</td>
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<tr>
<td>Collections Analysis &amp; Planning Librarian</td>
</tr>
<tr>
<td>Communication Liaison/Reference Librarian</td>
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<tr>
<td>Computer Assisted Instruction Specialist</td>
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<tr>
<td>Coordinator of Acquisitions</td>
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<tr>
<td>Coordinator of Instruction</td>
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<tr>
<td>Coordinator of PC Support</td>
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<tr>
<td>Corporate Librarian</td>
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<tr>
<td>Daddy</td>
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<tr>
<td>Database Application Developer</td>
</tr>
<tr>
<td>Database Design Analyst</td>
</tr>
<tr>
<td>Director of Electronic Services and Communications</td>
</tr>
<tr>
<td>Director of Malware Research</td>
</tr>
<tr>
<td>Donation Pricer</td>
</tr>
<tr>
<td>Education/Volunteer Coordinator</td>
</tr>
<tr>
<td>Electronic Resource Librarian</td>
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<td>Electronic Resources Librarian</td>
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</table>
Engineering Librarian
Entrepreneur
Fine Arts Librarian
Geek Squad Agent (Best Buy)
Government Documents Librarian
Government information librarian
Graduate Assistant
Graduate Research Assistant
Graduate Student
Grant Administrator
Head Librarian
Head of Children's Services
Head of Instruction
Head of Reference
Head of Technical Services
Head, Music Library
Health Information Services Librarian
High School Librarian
Information and Education Services Librarian
Information Researcher
Information Services Librarian
Information Specialist
Instructional Services Coordinator
Interim Director
International Documents Librarian
Learning Commons Coordinator and Visiting Assistant Professor of Library Administration
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian
Librarian and Technology Consultant
Librarian II
Librarian II - Adult Services
Librarian, Assistant Professor
Librarian/Media Specialist
Librarian/Media Specialist
Library Director
Library Media Specialist
Library Media Specialist
Library Media Specialist
Library Media Technology Center Director
Library Operation Specialist
Library Operations Associate
Library Program Coordinator
Library Coordinator (User Services)
Managing Editor
Media Specialist
Media Specialist
Media Specialist
Metadata Catalog Librarian
Mom
Mommy
<table>
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<tr>
<th>Multimdea Production Advisor</th>
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<tbody>
<tr>
<td>Network Assistant/Adult Reference Librarian</td>
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<td>News Librarian</td>
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<tr>
<td>Office Management</td>
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<tr>
<td>Outreach and Reference Librarian</td>
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<tr>
<td>Pastry Chef</td>
</tr>
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<td>PhD Candidate</td>
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<tr>
<td>PhD Student in LIS</td>
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<tr>
<td>Program Manager</td>
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<tr>
<td>Project Assistant, International Resources</td>
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<td>Project Coordinator, Digital Library of the Caribbean</td>
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<td>Project Manager</td>
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<td>Property Manager</td>
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<td>Public Service Librarian (Teen)</td>
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<td>Records &amp; Information Manager</td>
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<td>Reference &amp; Instruction Coordinator</td>
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<td>Reference and Electronic Resources Librarian</td>
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<td>Reference and Instruction Librarian</td>
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<td>Reference and Instruction Librarian for the Humanities</td>
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<td>Reference and Operations Specialist</td>
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<td>Reference and Young Adult Librarian</td>
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<td>Reference Coordinator</td>
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<tr>
<td>Reference Librarian</td>
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<td>Reference Librarian &amp; Bibliographer</td>
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<td>Reference Librarian, Arts &amp; Humanities</td>
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<td>Reference Librarian/Asst. Prof</td>
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<td>Reference/Instruction Librarian</td>
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<td>Reference/Instruction Librarian &amp; Electronic Resources Librarian</td>
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<td>Reference/Reader's Services Librarian</td>
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<td>Research Analyst</td>
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<td>Research Attorney and Lecturer in Law</td>
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<td>Security Outreach Coordinator</td>
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<td>Team Leader, Circulation and Reserves</td>
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APPENDIX P

Students’ Level of Agreement of the Major Outcomes (Q3, Q4)

FIGURE P.1
Communication Skills

The experience in this class enhanced my skills in communication leadership

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<tr>
<th></th>
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<th>Agree</th>
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FIGURE P.2
Leadership Skills

The experience in this class enhanced my skills in leadership

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<th>Agree</th>
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<th>Total Responses</th>
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<tr>
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FIGURE P.3
Teamwork Skills

*The experience in this class enhanced my teamwork skills*

![Pie chart showing teamwork skills]

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FIGURE P.4
Technological Skills

*The experience in this class enhanced my technological skills*

![Pie chart showing technological skills]

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FIGURE P.5
Working with Community Organizations and Members

*The experience in this class enhanced my ability to work with community organizations and members*

FIGURE P.6
Thinking about LIS Profession

*The hands-on project in the community changed the way I think about LIS professions*
Muzhgan Israfil Nazarova was born and grew up in Baku, the capital of Azerbaijan. She graduated with a Diploma in English Language from Azerbaijan State Institute of Foreign Languages in 1982. Muzhgan worked as a cataloger and foreign languages bibliographer at the State Medical Library of Azerbaijan for 11 years before she started a Certificate in Management Program of the Nottingham Trent University (formerly Nottingham Polytechnic) Business School in 1993. Upon successful completion of the program with an emphasis on Information Management, she was hired by the United States Information Service (USIS) at the US Embassy in Baku to start a library. Starting as a solo librarian performing multiple tasks, she later worked as information specialist and then was promoted to Director of the Information Resource Center (IRC) of the US Embassy in Baku. Muzhgan Nazarova is the first librarian in the country with a population of 8 million including 10,000 librarians to receive the MLS and Ph.D. degrees from the top library schools in North America. She pursued her MLS at the University of North Carolina at Chapel Hill in 1996-1998. In 1998 she returned to Azerbaijan and continued to work at the US Embassy. She founded the Azerbaijani Library Association and serves as its Vice-President at present. In 2000, Muzhgan was admitted to the Ph.D. program at the Graduate School of Library and Information Science (GSLIS) at the University of Illinois at Urbana Champaign (UIUC) and moved to Champaign with her family to pursue doctoral studies.

Muzhgan Nazarova is an active member of the American Library Association (ALA). She is a longstanding member and served as a Chair of the Eurasia and Central Asia Subcommittee of the ALA. She also is a member of the International Federation of Library Associations and Institutions (IFLA).

Muzhgan’s research interests include: LIS education; service learning; social and community informatics; use and users of information; international librarianship.