

## CHAPTER 1

### Introduction to the Study

“New technological knowledge creates new ignorance.” Joseph F. Coates

#### The Problem in Brief

Many libraries state that a part of their mission is to ensure that all patrons have an opportunity to utilize educational research programs and services on an equal basis. Weingand (1998) describes how the academic library as a mystique of hushed learning has often been a barrier to anyone whose learning style was not print-centered.

According to the National Center for Education Statistics (1999) report, approximately 80% of the college students with disabilities have a print disability (Horn & Berktold, 1999). The Cooperative Institutional Research Program (CIRP), is a national longitudinal study. CIRP is the largest and longest empirical study of higher education, involving 1,400 institutions, over eight million students and over 100,000 faculty. According to the 1995 CIRP 9.2% of all freshmen reported having some type of disability, compared with 2.6% in 1978. The largest growth, both in numbers and proportion, has occurred among students with learning disabilities (LD). The percentage of freshmen with disabilities who reported a LD more than doubled between 1988 and 1994, increasing from 15.3% to 32.2%.

The Higher Education Research Institute (HERI) publishes an annual national survey report of college freshmen cohort data. The most recent freshmen cohort data from the HERI report (1998) indicate that the population of students with print disabilities (visual and LD) is continuing to increase. According to this data, over half of the total population of freshmen with disabilities are students with print disabilities. The

HERI report (1998) and the National Center for Education Statistics (1999) report indicate that more than half of the total population of the students with print disabilities graduating from high school each year will go on to some form of postsecondary education. The National Center for Education Statistics (1999) states that approximately 50% of the students with print disabilities will be enrolled in four-year public institutions.

Many students with disabilities must be provided with assistive technologies (AT) in order to utilize library resources on an equal basis with their non-disabled peers. AT includes both technologies and special services (Assistive Technology Act of 1998) (ATA). Pontau (1996) points out that most AT are people-related and include information and referral assistance, training for students, consumers and service providers, equipment exchange programs, development of guides and materials, and peer support programs.

More and more libraries are recognizing the need to purchase AT and to provide personnel to support AT services. Guidelines are needed to assist with developing and evaluating AT services. Stewart & Shamdasani (1980) discuss the difficulties in planning for changes in technology and its implications for research and the usefulness of the Delphi Technique for providing exploratory research on the impact of new technologies.

Isaac & Michael (1997) insist that research and evaluation in education is timely and important in educational assessment and decision making because it is the only way to make rational choices between alternative practices, to validate educational improvements, and to build a stable foundation of effective practices as a safeguard against faddish but inferior innovations. Research and evaluation in the area of AT is crucial at this point as more and more postsecondary institutions are utilizing AT as an

accommodation under the Americans with Disabilities Act (ADA).

Waetjen (1991) builds a case for technology research that would certainly apply to AT research in academic libraries. Die-hards claim that research is not needed and offer up dozens of anecdotal accounts of students who have benefited from technology. No matter how titillating the anecdotes, they simply do not convince administrators. Research has moved from the periphery to the core of the educational process and has established itself as the primary vehicle by which change is promoted and effected in education. Research now has a major impact on the focus, direction, and development of all aspects of education (p. 59).

The problem in brief, for this study was to determine the substantive issues and critical problems involved with incorporating AT in academic libraries and to suggest guidelines for addressing these issues and problems. The Delphi Technique was utilized to accomplish these goals.

#### The Purpose & Importance of the Study

The purpose of this study was to identify the substantive issues and critical problems in incorporating AT in academic libraries and to develop corresponding guidelines to address these issues. Responding to a Delphi survey, AT, disability services and academic library experts were asked to respond to an overarching question: What are the substantive issues and critical problems involved with incorporating AT in academic libraries and what guidelines can be established to effectively address these issues?

Substantive issues were defined as issues that are of crucial importance to the implementation of AT in a library setting. Critical problems were defined as problems

that impede progress toward implementing AT or that negatively impact individuals with disabilities in a library setting.

This study was intended to achieve some of the following outcomes:

1. To provide exploratory research in the area of AT services and guidelines for academic libraries.
2. To provide a conceptual framework for evaluating AT services (Appendix A).
3. To define relevant AT issues and problems in academic libraries.
4. To provide data for follow-up studies in the areas of AT, library special services, and the Delphi process in educational research.

Educators have long held to the belief that the academic library is the heart of the institution. Seamans (personal communication, Feb.4, 1999) indicated that libraries were the nexus of learning activity at research universities in this country. The American Library Association (ALA) standards (1995) echo the importance of the library to the overall mission of the institution. The library is of central importance to the institution. Information and knowledge are central to the attainment of any university's goals.

The ways in which information is selected, acquired, stored or accessed, and distributed within the institution will, in large measure, determine the level and success of teaching, scholarship, and research. The institution needs clear policies concerning access to and provision of information. (ALA, 1995) The ALA, 1995 standards state that the library shall establish, promote, and maintain a range and quality of services that will support the academic program of the institution and encourage optimal library use. Services should be developed for and made available to all members of the academic community, including persons with disabilities. (Standard 5)

It will be helpful for academic library administrators to know the AT that are available, their strengths and weaknesses, and how to best match the AT to the needs of the user. Library administrators should be aware of substantive issues involving accommodations and access to effectively serve students with disabilities.

The timeliness of this study was suggested by Weingand (1998) in her comments regarding the libraries' mission and philosophy. Weingand (1998) discusses a philosophical continuum that ranges from the conservative position of the library as a building or warehouse of materials to the proactive position of the library as the sum of its services in an advocacy role. White (1985) discusses the necessity of developing clear objectives in library planning to avoid aimlessness and to make a case for the fiscal and personnel resources that are needed to accomplish those objectives.

This study can assist libraries and professional organizations in developing guidelines for AT services. The consensus reached through the Delphi Technique should foster excellence and relevance in developing individual library AT policy.

The results of this study will benefit college administrators, academic librarians, AT personnel and AT users in academic libraries. College administrators, AT personnel and librarians may use the guidelines as a basis for making ongoing personnel and purchasing decisions and for evaluating the effectiveness of AT services. AT personnel and librarians will benefit from the guidelines as a tool for developing AT policies and training sessions. Finally, AT users will benefit from the competencies gained by library and AT staff members who have effectively implemented guidelines illustrating excellence and relevance in the delivery of AT services.

### Research Questions (Delphic Probes)

Gup (1979) envisioned strategic planning as an activity focused on three basic questions, 1) Where are we going?; 2) What is the environment?; and 3) How do we get there? These three questions may be applied to planning for special services in academic libraries. All of these questions relate to clearly identifying the purpose or mission of an organization, determining those factors which impact on the organization and identifying approaches that could be used to successfully accomplish the mission (Wicklein, 1999). The following research questions sought to provide such a focus for academic librarians.

1. What is the consensus of a panel of AT and library experts about the specific AT issues and problems in academic libraries?
2. What is the consensus of a panel of AT & library experts about the guidelines that should exist for implementing and evaluating AT in academic libraries?

The expert panel was presented with a probe question in Round One of the survey: What are the substantive issues involved with incorporating AT in academic libraries and what guidelines can be established to effectively address these issues? The panelists' suggestions primarily involved issues of equity, eligibility, program accommodations and responsive library services.

#### Equity

Library administrators are responsible to all patrons. Serving the needs of all patrons involves following clearly established guidelines when developing, implementing and evaluating services for everyone.

Some of the equity issues related to this study were the need for training opportunities to learn about AT services and disability issues, the need to include

individuals with disabilities in AT decisions, providing training and support for individuals with disabilities who use AT, providing AT funding and funding for training, maintenance and upgrades, the need for regular assessment of AT services and the need for equal access for all library patrons. These issues are important areas of concern in the postsecondary setting because of the need for all students to have equal access to library materials in order to succeed academically. They are also important because equal access is legally mandated under Section 504 and the ADA.

### Eligibility

Librarians are not responsible for determining eligibility for services in an academic library setting. Students are responsible for providing the library staff with a letter from the services for students with disabilities office on campus stating the accommodation that they will need in the library. An individual with a disability is not automatically entitled to an accommodation. When a student discloses that he/she has a disability, the institution should notify the student of the institutions' disability policies. Students should seek accommodations in a timely fashion and are expected to document a disability at most institutions.

### Program Accommodations

Accommodations may include individual assistance with book retrieval or circulation services, optical scanning devices, closed captioned videos, large print or audiotapes. Scherer (1991) advocates using the Matching Person and Technology (MPT) Model when selecting an appropriate accommodation for an individual with disabilities. This model suggests that the consumer consider the following:

1. characteristics of the Milieu (environment) in which the AT is to be used;

2. pertinent features of the individual's Personality, preference, and temperament;
3. salient characteristics of the AT itself (p.15).

### Responsive Library Services

Librarians are responsible to provide equal access to all patrons. Cooperative efforts with students with disabilities providers and AT experts in addition to utilizing careful evaluation techniques will be essential for effectively serving the needs of students with disabilities.

### Overall Design (Pythia's Triangle)

An initial understanding of the Delphi Method within the context of this study is important in interpreting the results. Denzin & Lincoln (1985) indicate that the Delphi Method as an exploratory planning tool can be a useful technique for identifying issues and for developing educational guidelines. Frey & Fontana (1993) suggest that the Delphi Technique is useful in policy formation as an exploratory planning tool. The primary objective of a Delphi inquiry is to obtain a consensus of opinion among a group of experts (Rojewski & Meers, 1991). Delbecq, Van de Ven & Gustafson (1975) state that a "Delphi is a group process which utilizes written responses as opposed to bringing individuals together" (p. 83). Consensus is typically determined according to Rojewski and Meers (1991) using the interquartile range of each research priority statement.

Historically higher education planning and evaluation activities have been conducted by committees. The extra time involved with committee meetings often creates frustration on the part of committee members. Personality differences and other conflicts are often problematic in face-to-face committee settings where consensus must

be reached. The committee often reaches consensus based on the opinions expressed by the most vocal or dominant personalities in the group.

Unlike the committee setting, a Delphi study is conducted with experts who are in different locations. These experts remain anonymous to each other throughout the study and to the reader of the study.

Linstone and Turoff (1975, p.4) list the following uses for the Delphi Technique that are related to this study: (a) gathering current information not accurately known or available; (b) evaluating possible budget allocations; (c) exploring planning options; (d) planning university campus and curriculum development; (e) putting together the structure of a model; (f) delineating the pros and cons associated with potential policy options, distinguishing; (g) and clarifying real and perceived human motivations; and (h) exposing priorities of personal values and social goals. Delbecq, Van de Ven & Gustafson (1975) describe the benefits of the Delphi in planning. Some of these benefits that relate to this study include: (a) determining a range of possible program alternatives; seeking information that may generate consensus; (b) correlating judgments on topics spanning many disciplines; and (c) educating participants about diverse and interrelated aspects of topics. Moore (1987) states that the Delphi Method is useful for identifying goals and objectives, establishing priorities, and revealing group values.

#### Limitations of Study

This study was limited to library experts, assistive technologists and postsecondary disability services providers who have published special services research or who are employed in settings where AT services are available. The experts were qualified to discuss AT, however, they may not represent the most articulate policy-

makers in their respective fields. Some of the panelists' suggestions reflect a reliance on budgetary resources that may not be available in some settings. Anonymity is one of the characteristics of the Delphi Technique. This characteristic may detract from the credibility of the study and can make the experts inaccessible to future researchers.

### Definition of Terms

The following definitions and terms were utilized in this study:

1. Academic Librarians. Professionals who are employed in college libraries, are retired college librarians, or who have served as college librarians or have taught academic library courses.
2. Academic Libraries. College libraries
3. Assistive Technology Device. Any item, piece of equipment or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities (ATA).
4. Assistive Technology. The technologies and services needed by individuals with disabilities to function on an equal basis with their non-disabled peers.
5. Assistive Technology Service. Any service that directly assists an individual with a disability in the selection, acquisition, or use of an AT device. The term includes evaluation of the AT needs of the individual, services involved with providing for the acquisition of the AT, selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing or replacing AT and the coordination and use of necessary interventions or services with AT, training or technical assistance for an individual with disabilities and training

and technical assistance for professionals (ATA).

6. Consensus. An agreement reached as indicated by measures of central tendency after repeated iterations of the Delphi questionnaire. The purpose of consensus is to focus attention on the most relevant issues in the study.
7. Critical Problem. A problem that impedes progress toward implementing AT or that negatively impacts individuals with disabilities in a library setting.
8. Delphi Method or Technique. An anonymous group communication structure aimed at producing detailed critical examination and discussion. Consensus is generally considered a property of this technique. However, reaching consensus is only for the purpose of identifying and focusing attention on areas of agreement and disagreement (Turoff & Hiltz, 1996).
9. Disability. A physical or mental impairment that substantially limits one or more of the major life activities of an individual, an individual who has a record of such an impairment or is regarded as having such an impairment (ADA, 1990).
10. Facilitator(s) or Moderator(s). The individual(s) who are responsible for selecting the panelists, issuing the Delphi probe, designing the questionnaire, providing feedback to the panelists, coordinating the results and interpreting the final consensus for the reader.
11. Hard Technologies. AT devices. Synonymous with high technology.
12. High Technology. AT devices that are expensive, more difficult to produce and to obtain. Some examples of high technology devices would be electronic communication devices and computers (Cook & Hussey, 1995).

13. Low Technology. AT devices that are inexpensive, simple to produce and to obtain. Some examples would be pencil and paper communication boards and modified eating utensils (Cook & Hussey, 1995).
14. Mode. A measure of central tendency indicating that an item occurs with the most frequency.
15. Print Disability. Any physical or cognitive disability that interferes with a literate individual's ability to use print sources. Print disabilities may include visual impairments, cognitive disabilities such as dyslexia, and disabilities that affect motor control (McNulty, 1993). This study will focus primarily on technologies and services for visually impaired readers and readers with cognitive disabilities such as dyslexia.
16. Soft Technologies. Human areas of decision-making, strategies, training and concept formation. Soft technologies are generally captured in one of three forms: (1.) people; (2.) written information; and (3.) computer skills (Bailey, 1989). Soft technologies may be distinguished from AT services in that they often involve administrative functions to obtain AT instead of AT services.
17. State-of-the-Art. A term used to describe best practice at a given point in time. It implies the use of the best tools, materials, and knowledge available at a given time (Cook & Hussey, 1995).
18. Substantive Issue. Issues that are of crucial importance to the implementation of AT in a library setting.

### Summary

As more and more libraries are recognizing the need to purchase AT and to provide AT personnel, it is imperative that guidelines are established to assist with developing and evaluating AT services. A Delphi study provides initial exploratory data for establishing guidelines for effective AT services in academic libraries.

Consensus in this study does not imply completion. This data was triangulated with existing research using the canons of credibility, transferability, dependability and confirmability suggested by Lincoln & Guba (1985). The guidelines suggested by this study are intended for use in conjunction with careful planning in the individual library setting involving individuals with disabilities, disabilities services providers, instructional design specialists and assistive technologists.

The mirrored research conceptual framework (see Appendix A), is a framework that reflects the importance of previous research in interpreting a Delphi study and views the findings of the Delphi in light of accepted instructional design principles, the social milieu or campus environment and respects the views of non-experts who will be involved in the decision-making process. Continued use of these guidelines in the manner described will insure that AT users will receive equal access to academic library services. Furthermore, service using these guidelines and proper institutional planning, will be based on standards of excellence and relevance for the needs of the individual.

Chapter 2 contains an overview of the study, a review of the related literature on print disabilities and AT, and definitions of AT devices and services from the Assistive Technology Act of 1998 (ATA), AT studies in postsecondary education and demographic information about college students with disabilities. The ATA, the ADA (1990) and

Section 504 of the Rehabilitation Act (1973) provide a basis for the legal mandates for equal library services for individuals with disabilities. The historical background and the appropriateness of the Delphi Method for this study are discussed within the context of a conceptual framework of this study. Chapter 3 outlines the procedures for using the Delphi Method and their particular applications for this study. Additionally, chapter 3 discusses the advantages and limitations of the Delphi Method and their implications for this study. Chapter 4 presents the findings of the Delphi study and discusses the responses from each round. The panelists agreed that providing adequate funding, support and training, making sound AT selection and evaluation decisions and making equipment accessible in the most integrated setting were all important issues. Additionally, the panelists emphasized the importance of marketing AT services. Chapter 5 discusses the findings of the final round of the Delphi study and provides conclusions that may be drawn from these results. Recommendations for further study relevant to AT, special library services and using the Delphi Technique in educational research are suggested. In conclusion, chapter 6 presents the researchers reflections.