

ABSTRACT

Title of dissertation: ACADEMIC AND SOCIAL INTEGRATION OF DEAF
AND HARD-OF-HEARING STUDENTS IN A
CARNEGIE RESEARCH-I UNIVERSITY

Anne Gray Liversidge, Doctor of Philosophy, 2003

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Of the small number of deaf and hard-of-hearing students who enroll in mainstream colleges and universities, between 60% and 80% do not persist to attain a college degree. Reasons for the high attrition rate are several, including academic and social difficulties and dissatisfactory experience with college life. This study uses case study methods to illustrate the complex phenomenon of how deaf and hard-of-hearing students are integrated academically and socially into college life at a Carnegie Research-I university. Data gathered from surveys, open-ended interviews, and focus groups are analyzed and used to describe the perspectives of 10 study participants, five undergraduates and five graduates. Documentary evidence and theoretical sampling are other methods used. Data were collected during three semesters. The findings showed that when deaf and hard-of-hearing students are positively integrated into college life, they are more likely to maintain a high level of commitment to college and persist. Pre- and within-college factors that assist the students in their dynamic decision-making

process of enrolling and staying in a mainstream university include the following factors: previous mainstream experience, development of study skills and support systems, ability to self-advocate, and level of commitment to attaining a college degree. Additional influence on persistence was the availability of support from the office of disabled student services (DSS) through services such as sign language interpreters and note-takers. The findings are compared to existing literature and theory and are used to raise additional questions for further study. Recommendations for colleges and universities as well as policy-makers working with this student population are provided.

ACADEMIC AND SOCIAL INTEGRATION OF DEAF AND HARD-OF-HEARING
STUDENTS IN A CARNEGIE RESEARCH-I UNIVERSITY

by

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DEDICATION

In Loving Memory of Robert Passmore Liversidge III, 1963–2002

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CHAPTER 1: INTRODUCTION

Introduction

During the last 30 years, the quantity and quality of postsecondary opportunities for deaf and hard-of-hearing students have increased dramatically. Due in part to federal legislation, such as the Rehabilitation Act of 1973, as amended in 1978 (Public Law 94-142), and the Americans with Disabilities Act of 1990, guaranteeing support services such as sign language interpreters and note-takers in colleges and universities, deaf and hard-of-hearing students have enjoyed extended access to a variety of undergraduate and graduate degree programs. Despite this promising trend, what may be perceived to be equal access has not always led to equal outcomes. Of the small number of deaf and hard-of-hearing students who manage to graduate from high school and enroll in college, between 60% and 80% will drop out before attaining a college degree (Saur & Stinson, 1986; Stinson, Scherer, & Walter, 1987; Stinson & Walter, 1991; Stinson & Walter, 1997; Walter & DeCaro, 1986). Comparatively, withdrawal rates for hearing students average 58% for two-year colleges and 30% for four-year colleges (Tinto, 1987). A 2001 study by the National Center on Educational Statistics (NCES) reported that among all students who began college at four-year institutions in 1995–96, 55% completed a bachelor's degree at the institution where they had started within six years. This total rises to 63% when including the number of transfer students who completed their bachelor's degrees at a different four-year institution (NCES, 2001a). In the same study, of three-fourths of students who began in two-year institutions, 31% completed either an associate's or a bachelor's degree within six years. Among those students who transferred

from a community college to a four-year institution, 36% attained a bachelor's degree within six years (NCES, 2001b).

Reasons for the low retention rate of deaf and hard-of-hearing students have not been widely researched, but the literature available shows that several academic and social factors may contribute to this phenomenon. In both areas of academic and social skills, deaf and hard-of-hearing students struggle to maintain pace with their hearing peers. A disproportionate number of students with hearing loss exhibit limited proficiency in written and spoken English, as well as other basic academic skills. The median reading level of deaf students ages 17 and 18 is reported to be about the fourth or fifth grade (Allen, 1994; King & Quigley, 1985). Although there is no direct comparison of this fact with hearing students, the National Assessment of Educational Progress Report Card on nationwide reading assessments indicated that 77% of 12th graders performed at or above the basic reading level for their age range in 1998 (Donahue, Voelkl, Campbell, & Mazzeo, 1999). Barriers to communication and social integration imposed by having a hearing loss often lead to identity conflicts, loneliness, and social isolation (Leigh & Stinson, 1991). As a consequence of the academic and social problems listed, as many as 50% of deaf students will not attain a high school diploma (Moore, 1996; Schildroth, Rawlings, & Allen, 1991), greatly reducing the pool of candidates eligible for college. Comparatively, Greene (2002) reported that 74% of hearing high school students graduated from high school in 1998.

Research shows that positive academic and social integration in college is possible for deaf and hard-of-hearing students (Menchel, 1995; Stinson, Scherer, & Walter, 1987; Stinson & Walter, 1997). With previous ability adapting to a hearing

environment, self-determination, commitment to college, involvement in college activities, and support from the college, a deaf or hard-of-hearing student in a mainstream college or university can be more or less successfully integrated in the college community (Menchel, 1995; Stinson & Walter, 1991) and attain a college degree. Due to the low retention rate for deaf and hard-of-hearing students, however, it can be concluded that having positive academic and social integration experiences in college is less likely for students who are deaf or hard of hearing, particularly those from minority and low socioeconomic backgrounds, compared to their hearing counterparts (Anderson & Grace, 1991; Cohen, Fischgrund, & Redding, 1990).

Problem Statement

Though increasing numbers of deaf and hard-of-hearing students are entering mainstream colleges and are often accessing a variety of support services such as interpreters, note-takers, and computer-assisted transcription of lectures, these students still encounter many difficulties and challenges in mainstream settings (Lewes, Farris, & Greene, 1994). The common assumption that the availability of support services for these students leads to positive academic and social integrative experiences reflects a lack of knowledge about these students' perspectives and continuous struggles to overcome the barriers that undermine their overall campus experience.

Bills, Ferrari, Foster, Long, and Snell (1998) illuminated various examples of the academic difficulties confronted by students even when they have access to support services. First, deaf and hard-of-hearing students who rely on interpreters are unable to participate fully in class discussions, because it takes the interpreter 5 to 10 seconds to sign what the instructor has said. The time delay, or "lag time," thus does not provide

deaf students sufficient time to engage in the class discussion before the instructor calls on another student or moves to another topic. Second, deaf students who rely on lip reading will encounter difficulties when instructors block the students' line of sight unintentionally by holding papers too close to their faces, turning their faces away to write on the chalkboard, and pacing the room while lecturing. Third, laboratory courses that involve lecturing and classroom demonstrations pose a distinctive challenge for deaf and hard-of-hearing students. The students must divide their attention among the interpreter, the instructor, and the demonstration. In such situations, it is evident that deaf students may miss out on important information or actions that can undermine their ability to perform tasks adequately. Finally, outside of the classroom, because of their communication difficulties, deaf students are often relegated to the periphery of informal social exchanges that take place among hearing peers. Thus, they are excluded from opportunities to learn about important or "insider" information such as study tips and rules of classroom behavior.

Apart from the formal learning aspects of college life, deaf and hard-of-hearing students are also deprived of the rich and vibrant range of social activities that are easily accessible by their hearing counterparts. As with their hearing peers, deaf and hard-of-hearing students need to be able to participate fully in these social programs and utilize campus resources meaningfully to enhance their overall college experience. However, their ability to benefit from the vitality of campus life is undermined by many barriers. According to Porter, Camerlengo, DePuye, and Sommer (1999), these barriers can be grouped under two major categories:

First, colleges often do not provide total communication and language access that will allow effective communication among hearing, deaf, and hard-of-hearing students in various settings that cater to specific situations and events. For instance, services and auxiliary aids such as interpreters, assistive listening devices, written materials, televisions with provisions for closed captions, telecommunication devices for the deaf (TDDs), teletypewriters (TTYs), and telephones compatible with hearing aids are seldom available in all places at all times. Campus-wide events such as ceremonies or guest speakers and extracurricular activities that are not accompanied by interpreters or assistive listening systems essentially exclude the participation of deaf and hard-of-hearing students.

Often, students who have varying levels of hearing loss are not provided with the options that best cater to their individual needs in the classroom. These options may include communication-access real-time translation (CART); C-Print, another form of computer-assisted transcription; cued speech transliterators (CSTs); and oral interpreters. Deaf and hard-of-hearing students using support services also heavily rely on the skills of the person or persons providing the service. Services received from unskilled providers lead to incomplete or distorted information that the students otherwise would have received from qualified, skilled providers.

The second category of problem, as described by Porter et al. (1999), is a more subtle, but no less significant problem faced by deaf and hard-of-hearing students in mainstream settings. Learning and living among hearing students and faculty members, deaf and hard-of-hearing students are outsiders in a college community that is governed by the rules and practices of the “hearing” culture. Access to the insider culture by

outsiders is highly challenging, because the insider culture extends invisible privileges to the insiders and endorses their perspectives and skills, while disregarding those of the outsiders. Unless the outsiders are able to suppress their differences and follow the rules of the insiders, they are dismissed to the sidelines or labeled as troublemakers.

In higher education, colleges' policies of including outsiders is generally limited to additional programs that cater to the outsiders as long as they do not disrupt the overall status quo. For example, deaf and hard-of-hearing students are expected to be content with receiving services from Disabled Student Services (DSS) or the Office of Special Services for Students with Disabilities. However, in reality, these services or programs are given a marginal portion of the budget and relegated to the periphery of college life. Services are therefore not always sufficient. More significantly, the marginalization of the needs and interests of these outsiders means that the values and perspectives of the insider culture are not questioned or examined. In this manner, colleges are less responsive to the evolving demands of the new college community that now involves an increasingly diverse student population. Confronted with the systematic intransigence of the colleges, "outsiders" such as deaf and hard-of-hearing students can become angry and cynical, often leading to disillusionment with education in mainstream settings (Porter et al., 1999) and, in some cases, leading to their withdrawal.

Whether deaf and hard-of-hearing students persist in completing their studies in mainstream settings highly depends on these institutional factors, relationships with peers and faculty members, and the environmental situation. To understand fully the challenges of deaf and hard-of-hearing students studying in these mainstream settings, it is imperative to learn about their unique perspectives. Only by acknowledging student

perspectives will institutions be able to make changes and transform their values and practices to enhance opportunities for all students to enjoy a more meaningful college experience.

Purpose of the Study

Many researchers agree that more studies on the retention of deaf college students and open-ended data on their unique perspectives are needed. However, the researchers conclude that the complexity of the research and number of variables can be confusing (Stinson & Walter, 1997). This is exhibited by the fact that the process of academic and social integration and student retention in college is a multidimensional phenomenon incorporating many academic, psychosocial, and other factors (Pascarella & Terenzini, 1991).

The academic and social integration experience of students with hearing loss in higher education is a complex phenomenon upon which little research has been conducted (Brown & Foster, 1991). Mertens (1989) and other researchers added that insufficient research has been conducted to examine the effect of mainstreaming from the perspective of the deaf student. Furthermore, some of these research studies do not utilize an unstructured, open-ended approach to collecting data. This study will fill this gap in the research by documenting the perceptions that deaf and hard-of-hearing college students have regarding their experiences in the academic and social life of a large university. This is a qualitative case study examining the social and academic experiences of a sample of 10 deaf and hard-of-hearing students who have received the assistance of the DSS office at a large university. The findings of the study have implications for

understanding how access to college life might be improved for these students and are relevant to related research, policy, and practice.

From a policy perspective, an important consideration for college personnel, particularly DSS personnel working with deaf and hard-of-hearing students, is to improve their understanding of this student population so that they are able to provide services that will enhance greater access to college life for these students. Broad-based knowledge and sensitivity must be used when working with a wide range of students with varying educational histories, communication preferences, and ethnic and racial backgrounds. A common assumption made by educators is that students with hearing loss are part of a homogeneous group (Bullis, Bull, Johnson, & Peters, 1995). This may be “attributed to the tendency to assume, no matter how well intentioned, that what is known about deaf adolescents, in general, is applicable to all deaf adolescents irrespective of their racial, ethnic, and cultural backgrounds” (Anderson & Grace, 1991, p. 73). The other common assumption, that students who receive services have full access to all aspects of college life, must also be demythologized by collecting and investigating in-depth descriptions of the perspectives of deaf and hard-of-hearing students regarding their academic and social integrative experiences in college.

Descriptive research on this topic can provide a valuable contribution to current understanding of how the college experience is perceived by a range of deaf and hard-of-hearing students.

A Pilot Study

One dimension that broadened and systematized the conceptual framework and informed the research questions used for this dissertation was a pilot study. A pilot study

was conducted two years before this research study, as part of an assignment for a qualitative research class. The study investigated constructs of social isolation and identity development as experienced by a single participant named “Bob,” a hard-of-hearing adult who had been mainstreamed in public schools and received a master’s degree in education. The study was created with the purpose of further investigating and discussing how these constructs affected students’ emotional, social, and academic development, with the goal of providing useful information for professionals working with this student population.

An initial review of the literature for the pilot study documented the existence of factors such as self-concept, loneliness, lack of familial and educational support, and coping strategies among hard-of-hearing and deaf students. However, it was noted that the literature lacked comprehensive research on how the interplay of these factors facilitated the development of social isolation and identity constructs and how social isolation among mainstreamed hard-of-hearing and deaf students might be prevented or managed.

A conceptual framework was then developed to describe (a) possible factors that underlie social isolation in this population and study participant; (b) phenomena that arose from these factors; and (c) coping strategies that the study participant used that can be disseminated as information for professionals working with the hard-of-hearing and deaf student population.

Three generative questions were used for the pilot study:

1. Do adults who are hard of hearing feel that their schooling experiences meet their academic, social and emotional needs—why or why not?

2. In what ways are these individuals able to cope in integrated academic settings?

3. Based on the data collected, what information can prove useful for

professionals working with this student population to increase access for these students?

In-depth interviews, a follow-up participant check, and collaborative analysis were used as data collection methods. The phenomena of being hard of hearing and mainstreamed were coded and analyzed.

A background data interview conducted with the study participant concluded that the participant had a high level of motivation for learning, a key factor in his ability to cope in a mainstream academic environment. This personal attribute helped the participant to persist in school despite a few negative environmental conditions such as the lack of support services except for speech therapy and discouraging relationships such as the rejection by peers and teachers who did not understand his needs in grade school.

Nonetheless, some of Bob's negative past experiences affected his subsequent social and academic development. For example, when a few of Bob's peers in third grade threw rocks at him because he was deaf, he became ashamed of his hearing loss. He grew his hair long to cover his hearing aids so as not to be identified as being deaf and subsequently withdrew from participation in social and academic activities in school. He refused note-takers, shied away from classroom discussions, and isolated himself from other students. These negative experiences ultimately affected his college and career decisions. While contemplating a career related to soil analysis or the paper industry, Bob felt daunted by the science and math preparation that was required for careers in these fields, including courses in physics, chemistry, and calculus. Because his teachers did not always face him when they spoke (particularly in math and science classes when they

primarily faced the blackboard to write), and because Bob lacked support services that might have helped him understand the subject content, he lacked confidence in his math and science abilities. When he was weighing his college and career options, he opted to become a teacher of the deaf instead and had some regret that he did not pursue his initially chosen fields.

The findings of the pilot study supported those of other studies documenting several factors that contribute to positive social and academic mainstream experiences for deaf and hard-of-hearing students, such as positive self-concept; self-motivation; support from family, friends, and teachers; and helpful coping strategies (Charlson, Strong, & Gold, 1984; Foster, 1988). The findings also showed, however, that the onset and degree of hearing loss, the individual's subsequent communicative and linguistic ability and acceptance of his hearing loss, and the availability and quality of support services were factors that negatively affected the outcome of Bob's mainstream experience.

Bob's narrative in this pilot study is not unlike those of hard-of-hearing and deaf students interviewed in similar studies, who stated that they often lacked access to academic information, due to limited support services and communicative and linguistic barriers. They also encountered social difficulties, due to not feeling accepted as part of a group. Some developed feelings of low self-esteem and experienced social isolation that, in turn, negatively affected their academic and social integration in mainstream academic settings.

Based on the findings from the pilot study, it was determined that a more thorough investigation of the phenomena in question was needed. Due to the number and complexity of variables that were shown in the study and the literature to affect the

quality of hard-of-hearing and deaf students' academic and social experiences in integrated academic settings, it was determined that a new research study needed to be developed that would clarify the characteristics and dimensions of the phenomena or the case being studied.

The findings of the pilot study are highly relevant to the conceptual framework guiding this dissertation in several ways. First, the three research questions of the pilot study helped inform the research questions posed in this dissertation. Essentially, they helped address the key issues that constitute the focus of the study: (a) the academic and social integration experiences of deaf students in mainstream settings, (b) the sources of help and the strategies that students employ in helping them cope with the challenges of mainstream settings, and (c) ways in which institutions may improve their support services to facilitate the learning experience for students in mainstream settings. For the purposes of this dissertation, relevant themes and categories were identified for each of these questions, such as background factors and the focus on the institutional and informal environment at "State University" (hereafter called "State U"), where the study took place.

Second, the pilot study findings that were an important precursor to this research study were not only described, but their relationship to the current study was established also. The interview with one deaf student studying in a mainstream setting provided the impetus for expanding the study to involve 10 participants in this dissertation. The use of the qualitative research methodology that was employed in the pilot study was also used in this dissertation. As with the pilot study, this study was focused on obtaining the unique viewpoints of the respondents based on their past and current experiences.

Similarly, the objective of this dissertation was to enable the study respondents to express their perspectives on their academic and social integration experiences at State U, based on their background and experiences at State U and in other institutions. The number of participants was expanded from 1 to 10 to identify patterns or relationships among the responses of the participants. In addition, the focus on the participants' common experiences at State U also provided an analysis of State U's provision of support services to its deaf student population and the services' subsequent effect on the students' academic and social integration experiences. Third, to ensure the validity of the findings of the pilot study, the researcher consulted with Bob with regard to the interpretation of the findings. Similarly, in this dissertation, the researcher also worked with the participants and solicited their interpretation of the findings. The methodology for this dissertation involved using member checking and focus groups to evaluate the findings of this study, providing further evaluation and validation of the data.

Significance of the Study

Findings from this study will have significant implications for the fields of educational policy, administration, and research. The identification of personal attributes, skills, and other factors that help deaf and hard-of-hearing students become well integrated socially and academically in college environments as well as the knowledge of how and why these factors contribute to better integrative experiences will prove useful to college personnel, such as DSS staff, professors, administrators, policy-makers, and others working directly or indirectly with these students. This study will also provide valuable information for deaf and hard-of-hearing students themselves seeking to enroll and succeed in higher education. Finally, findings from this study will add valuable

information to the small body of literature available, contribute significantly to existing theory, and generate new theory that will prove useful for future study.

Increased knowledge about how to improve access for these students may improve the students' chances for academic and social success in college. By imparting this knowledge to the intended audience, it is hoped that better decisions may be made regarding access to college life for these students, including improving the quality of services available and persistence and retention efforts. As a result, more students who are deaf or hard of hearing will be able to enjoy and participate in academic and social activities in mainstream colleges and universities and sustain or increase their level of commitment toward persisting and attaining a college degree.

Scope of the Study

The investigation of the effect of relevant background factors, the supportive network of people and services, and other factors influencing the persistence and retention of deaf and hard-of-hearing students in mainstream educational institutions will have significant ramifications for the administrative policies of colleges and universities. As increasing numbers of students with various types of disabilities enter into mainstream settings, the students' ability not only to access the type of services needed to pursue their academic studies, but also to become integrated into the campus community will reflect the flexibility of academic institutions to cater to the changing needs of a diverse student population. Walter (1987) adds, "while college doors have been opened to [deaf and hard-of-hearing students], the question of whether students are able to graduate with a degree is one way of evaluating if colleges and universities are accommodating to the special needs of these persons" (p. 1).

In this study, the researcher examined the dynamic interaction between the precollege experiences of deaf and hard-of-hearing students and their challenges and successes in coping with college life in a mainstream setting. Because the needs of the deaf and hard-of-hearing students, as well as other minority populations, are often marginalized, this study will provide a voice to those who are comparatively powerless and marginalized by describing their perspectives on their experiences in mainstream settings.

Personal Interest

As a teacher of the deaf and hard of hearing for 10 years, and one of a small number of doctoral candidates with a hearing loss, the researcher is concerned about the low enrollment and retention rate of fellow deaf and hard-of-hearing students in higher education, as well as the difficulties these students face with academic and social integration in college. By having a broad-based knowledge of issues in deaf education and an ability to communicate in sign as well as speech, the researcher was uniquely qualified to conduct this study. The researcher intends to use the findings of this study to help increase the success rate of these students and identify ways in which access to college life and the quality of social and academic integration in college might be improved for this student population.

Relevance of the Menchel (1995) Dissertation

A major inspiration for this dissertation was Menchel's 1995 dissertation, entitled "Deaf Students Attending Regular Four-Year Colleges and Universities." Menchel interviewed 18 undergraduate deaf and hard-of-hearing students attending 33 regular

four-year colleges and universities. The two dissertations are similar, except for three main distinctions. First, this dissertation primarily described the perspectives of the student participants, while Menchel also interviewed and investigated the perspectives of disabled student support personnel at the colleges. Thus, one of his research questions was, “How do [the students’] descriptions of the quality and adequacy of support services match or differ from the descriptions provided by the service providers in their colleges?” Secondly, the two samples were different in terms of student standing and diversity of communication modes: for example, the sample in this dissertation consisted of five graduate students (including four Ph.D. students) in addition to five undergraduate students; Menchel’s respondents were all undergraduates. Finally, this dissertation expanded on the relevance of persistence and retention theory in the review of the literature as well as in its conceptual framework.

Menchel’s three remaining research questions included these:

1. Why do some deaf students decide to attend a regular college or university instead of a special program?
2. After a year or more of enrollment in a regular college or university, what reasons do these students give for being satisfied or dissatisfied with their decision?
3. How do they describe their academic and social experiences in college, and what, if any, adaptive strategies have they developed in relation to their deafness? (p.15)

A comparison of findings between Menchel’s and this dissertation will be summarized further in the final chapter of this dissertation.

Research Questions for this Dissertation

Four main research questions were considered for this study. The questions were formulated to investigate how deaf and hard-of-hearing students experience college life

and, specifically, how they perceive their academic and social integration within one selected mainstream university. These propositions were formulated within the bounds of the “case,” the phenomenon being studied. As stated by Yin (1994), “how” and “why” questions are particularly appropriate for a case study (pp. 20–21). The research questions follow:

Because background factors such as motivation, coping skills, support systems, and support services have been shown to be important to deaf and hard-of-hearing students’ success in higher education, the first research question involves pertinent background data from each study participant. The first question is, *What are the various background factors (such as prior mainstreaming experience and personal attributes such as motivation and level of commitment to college) that are relevant to the quality of the students’ academic and social integration experiences in college, and how are they relevant?* The data were collected by using the Background Data Questionnaire, as presented in appendix A, and during interviews.

The quality of college life that a student experiences may be described by a qualitative account of the social, academic, and extracurricular activities in which the student is involved. Data collection methods such as documentary evidence, participant interviews, and focus groups are used to describe the quality and extent to which a student is involved in everyday college life. Thus, the second research question is, *How are these students involved in college life with their peers as well as the staff/faculty at college, and how does this involvement affect the quality of the students’ academic and social integration experiences?*

The third research question for the study addresses the role that the Disabled Student Services (DSS) office and other support services have at the academic institution in which the study participants are enrolled (State U). Because the quality and appropriateness of services that a student receives may facilitate or hinder the ability of a deaf or hard-of-hearing student to achieve academic, social, and extracurricular access in college life, this dimension of the investigation is required. The third question, therefore, consists of two related parts: *(a) What services or people at State U have been supportive of the students' college experiences?, and (b) How have these services affected the quality of these students' academic and social integration experiences?*

Finally, it is important to determine how these students cope with having a hearing loss in a mainstream university and how they are able to persist despite academic and social barriers. Because little is known about the experiences of deaf and hard-of-hearing students in mainstream settings, rich, in-depth data are needed to help inform college personnel, policy-makers, and prospective students regarding how these students successfully navigate college life. These in-depth data were collected during the personal interviews, focus groups, and collaborative analysis, including member checking, with the participants. The fourth question is also in two parts: *(a) Why do deaf and hard-of-hearing students decide to stay in a mainstream university?, and (b) What suggestions do they offer to improve their situation?*

Assumptions

The objective of this study is to describe and analyze the academic and social integration of deaf and hard-of-hearing students in a mainstream setting. It is based on the primary assumption that these students are able to participate meaningfully in these types

of environments, particularly with the provision of support services. In addition, the study is also constructed on the belief that the in-depth interviews of deaf and hard-of-hearing students, coupled with the comparison of their perspectives with existing theories, will be illustrative of the experiences of deaf and hard-of-hearing students in mainstream colleges. Consequently, relevant ideas and strategies for enhancing the quality of life and accessibility to services may be formulated and implemented to help increase the persistence and retention rates of deaf and hard-of-hearing students in these learning environments.

Limitations

Due to the constraints of time and cost, as well as the need to establish boundaries for the scope of the study, it had several limitations. Because the study was focused on a few students attending one specific type of university instead of a large cross-section of colleges and universities including two-, four-year, and small private colleges, the experiences of participants of this study cannot be considered to be representative of the overall population of deaf and hard-of-hearing students in higher education. The applicability of these findings to other contexts is thus limited.

However, as Yin (1994) explained, case study research inquiries (employed in this study) are generalizable to conceptual propositions, but not to populations. In other words, “the investigator’s goal is to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalizing)” (p.10). Because the research on deaf and hard-of-hearing students in higher education is restricted, heavy emphasis must be placed on the development of a conceptual framework that can provide the context in which a case study inquiry may be conducted. Although

there are no adequate guides for transforming observations into assertions (Stake, 1995), attempts were made to follow the accepted standards for qualitative inquiry, particularly case study inquiry. The study, therefore, provides a rich case study with conceptual implications that readers may interpret and transfer to other contexts.

Organization of the Remainder of the Study

“Chapter 2: Literature Review” begins with a review of the history and demographic profile of this student population. Afterwards, the conceptual frameworks and studies that are applicable to the academic and social integration experiences of deaf and hard-of-hearing students in institutions of higher education are presented. First, Tinto’s (1987) model of student departure or retention is examined. This model describes how the background factors and the students’ interaction with their college setting affect whether they decide to persist with their studies or withdraw from college. Second, the adaptation of the model by Stinson and his colleagues (1987, 1991, 1997) is presented as it applies specifically to the deaf and hard-of-hearing student population. Points made by Braxton (2000) with regard to student persistence models, particularly Tinto’s, are also considered. Finally, a conceptual framework of student persistence as devised by Draper (2002) is presented and analyzed.

Studies on student persistence are discussed because they investigate the relationships among certain variables such as academic performance before and during college, as well as their relation to student persistence. Furthermore, these studies highlighted the challenges and barriers that reduce the quality of the academic and social integration experiences of deaf and hard-of-hearing students, particularly in mainstream settings. Mainstream college settings are particularly difficult for deaf and hard-of-

hearing students because they are unable to gain consistent access to support services to help them perform academically or socialize with their hearing peers.

The discussion of the studies of student persistence helped formulate the guiding conceptual framework for this dissertation, which improves on the conceptual frameworks of student persistence by Tinto (1987, 1993), Stinson et al. (1987, 1991, 1997), Braxton (2000), and Draper (2002). This dissertation includes various themes, categories, and relationships relevant to the academic and social integration of deaf and hard-of-hearing students attending mainstream colleges and universities. Although the conceptual framework of this dissertation is applicable to deaf and hard-of-hearing students, it follows the qualitative approach of Tinto's (1987, 1993) framework and model on student persistence. On the other hand, the framework and model created by Stinson et al. (1987, 1997) are based primarily on quantitative assessments. Another difference between the Stinson et al. (1987, 1997) framework and the conceptual framework used for this dissertation is that the former examined students within a college designed specifically for deaf and hard-of-hearing students, the National Technical Institute for the Deaf (NTID) in Rochester, NY, while the latter addressed the unique challenges posed by students attending a mainstream university. The conceptual framework for this dissertation incorporated both Tinto's (1987) and Stinson's et al. (1987, 1997) models and considers other authors' suggestions for revisions of Tinto's (1987, 1993) models. To some extent, all guided the collection and analysis of qualitative data.

In other words, both Tinto (1987) and Stinson et al. (1987, 1997) developed theories and models on student persistence. The theories explained how certain

background factors lead to students' academic and social integration and level of commitment to persist in a mainstream university. Stinson (1987, 1997) applied Tinto's (1987) theory to deaf students at NTID, where plenty of social opportunities and support services for the students are in place. Draper (2002) and Braxton (2000) improved on Tinto's (1987, 1993) theories, but they did not adapt their theories to deaf and hard-of-hearing students. In this dissertation, the researcher expanded on Stinson's (1987, 1997) model, taking into consideration aspects of Braxton (2000) and Draper (2002). This study is, therefore, characterized by three distinctive features. First, the researcher applied these theoretical frameworks to deaf students. Second, this study's participants are deaf and hard-of-hearing students attending a large, mainstream, "hearing" university, as opposed to a program designed for deaf students such as NTID or Gallaudet University. Third, the Stinson studies used quantitative methods. In contrast, this study used qualitative, case-study research methods.

"Chapter 3: Research Design" provides a comprehensive presentation of the methodology used in this study, along with the justifications for using the case study approach. The case study approach—the research method used for this study—is discussed briefly in relationship to this study. Because of the small sample size and the focus on eliciting the unique perspectives of the deaf student population, the case study method was ideal for the purposes of this study. Although there were certain limitations with the sampling approach and data collection methods, the researcher highlighted the use of multiple methods and triangulation to ensure the credibility of the research study.

The data collection and analysis procedures are also presented in this chapter. This study utilized surveys, semi-structured interviews, and focus groups to collect and

analyze data from 10 participants. This chapter also describes the multiple methods, such as analytic memos, coding, and collaborative analysis, that were used to analyze the data and explain their applicability to this study. The organization of the collected data in accordance with the new conceptual framework based on Tinto's (1987) model of student retention is explained. In addition, an interview protocol section shows the relationship between the interview questions and the four research questions.

Finally, concerns with the validity of the dissertation are discussed. This discussion deals with the use of triangulation to ensure the validity of the study, including analytic memos and member checking. The ethical concerns as they relate to the confidentiality of the respondents and the justification for data modifications are also examined.

In chapter 4, the research study findings are presented. This discussion is divided into three primary sections. First, the information provided by the participants in the background questionnaires is presented and analyzed. Second, the interviews of the individual participants are categorized in accordance with the conceptual framework that is used in this study. Finally, the findings of the focus groups are provided and organized under specific themes and categories.

“Chapter 5: Discussion, Conclusion, and Recommendations” summarizes the findings of the study and the implications of the findings for the four research questions. This section identifies thought-provoking aspects of the issues that were raised by this study and explores implications for research, theory, policy, and practice. Finally, recommendations that will help colleges improve their current level of services and access to deaf and hard-of-hearing students are discussed.

Definitions of Terms: *Deaf* and *Hard of Hearing*

It is important to note that throughout this dissertation, unless otherwise indicated, both deaf and hard-of-hearing students are the object of the discussion. In some cases, researchers say “deaf students” for the sake of convenience, when they really mean to also include students who are hard of hearing. A review of the literature on deaf and hard-of-hearing students shows that research studies often lack consistency of terms, such as categorizations of hearing loss. Consistency is needed to validate the research. If there are discrepancies among terms, particularly in longitudinal studies, the research findings may be confusing or misleading (Powers, Gregory, & Thoutenhoofd, 1999). Some of these terms are clarified here, and a section on other terms relevant to this dissertation is presented at the end of this chapter.

Commonly described definitions of *deaf* and *hard of hearing* follow. An individual who is deaf is one who has a decibel loss of 70 dB or greater that severely restricts the understanding of speech through the ear alone, with or without the use of a hearing aid (Menchel, 1995; Moores, 1996). A hard-of-hearing person is described as an individual whose hearing is “disabled to an extent (usually 35 to 69 dB) that makes difficult, but does not preclude, the understanding of speech through the ear alone, with or without a hearing aid” (Moores, 1996, p. 11). A person who is hard of hearing is often able to use a telephone with or without hearing aids and with minimum difficulty. These terms are the ones implemented for this study.

Most definitions of *deaf* and *hard of hearing* are audiological and refer to decibel (dB) loss and pure tone thresholds. Few studies categorize deafness in a way that describes how an individual functions in an educational context. Some researchers

perceive this type of categorization as being important for reviewing educational studies related to deafness. In a review of 300 articles, Powers et al. (1999) stated, “There would seem to be more educationally meaningful ways to categorize hearing loss than the conventional means of better ear average (BEA) pure tone thresholds” (p. 5). Educational categorizations may describe hearing loss in terms of how linguistic information is processed and the extent to which educational performance is affected (Moore, 1996). Other studies describe hearing loss not in an audiometric or educational context, but rather in the context of how an individual functions in general: *deaf*, for example, may be described as “having hearing so impaired that it is not functional, even with a hearing aid, for the ordinary purposes of life” (Bigman, 1961, p. 744).

Standardization of categories for hearing loss is important in a research context, as consistency of terms is needed to validate the research. The distinction between the terms, particularly between *deaf* and *hard of hearing*, also has implications for studies of students with hearing loss in postsecondary institutions. Research shows that the majority of students who enroll in and persist in regular colleges and universities are either hard of hearing, post-lingual (i.e., became deaf after acquiring basic language skills), or late deafened (i.e., became deaf at a later age, after mastering language skills) (Allen, 1994). Many students have mild to moderate hearing losses that may preclude the need for special services to access the educational environment.

The terms *deaf* and *hard of hearing* also have significance in a cultural and social context, as the cultural and social needs and abilities of students who are hard of hearing may be quite different from students who are deaf. Great variation exists across cultural and linguistic venues. For example, a student who is hard of hearing may be oral and

primarily integrated in hearing society, while a deaf person may consider him- or herself culturally Deaf (here, capital “D” applies to strong identification with the Deaf culture) and consider American Sign Language (ASL) to be his or her primary mode of language. Hard-of-hearing and oral students will be discussed further in chapter 2.

The term *hearing impaired* has been used much less frequently in the literature in the last 10 years or so, although it is still sometimes used either as an umbrella term to identify individuals with any type of hearing loss or to identify an individual who is hard of hearing as opposed to being deaf, the former implying that the hearing is impaired or weakened, but not eliminated. It is currently more acceptable, in both research and social terms, to describe a person with a hearing loss as an individual who is deaf or hard of hearing instead of hearing impaired. *Hearing challenged* is never used.

Additional Terms

The following additional terms are used in this study:

academic and social integration. Academic and social integration refer to the process of and extent to which a student interacts with the academic and social members and systems of a college institution. “Academic and social integration may describe a condition (that is, the individual’s place in the academic and social systems) or an individual perception (that is, the individual’s personal sense of place in those systems)” (Pascarella & Terenzini, 1991, p.53).

Carnegie Research-I university. The Carnegie Foundation for the Advancement of Teaching classifies a Carnegie Research-I university as an institution that typically offers a wide range of baccalaureate programs, is committed to graduate education through the doctorate, and awards 50 or more doctoral degrees each year. These institutions also give high priority to research and receive annually \$40 million or more in federal support.

cued speech. A visual communication system devised to phonetically decipher spoken English using hand shapes.

dB. An abbreviation for decibel, *dB* is a measurement used to determine hearing loss levels; the higher the decibel, the greater the hearing loss. For example, a dB loss

of 30–70 indicates a moderate to severe hearing loss. A dB loss of 90–110 indicates a severe to profound hearing loss.

deaf. A deaf person is an individual whose hearing loss is severe enough (usually 70 dB or greater) to warrant extreme difficulty in processing linguistic information, with or without amplification such as a hearing aid, adversely affecting the educational performance of that individual (Moore, 1996).

disabled student services. The Disabled Student Services (DSS) Office at a college or university coordinates academic accommodations for enrolled students with documented disabilities. Accommodations are determined on a case-by-case basis and may include sign language interpretation, note taking, recorded course materials, and extended exam time. DSS also provides needs assessment, mediation, referrals, and advocacy.

hard of hearing. A hard of hearing person is an individual whose hearing loss is severe enough (usually 35 to 69 dB) to warrant difficulty in processing linguistic information, with or without amplification, adversely affecting the educational performance of that individual, but does not fit the definition of deaf as listed in this section (Moore, 1996).

prelingual. An individual with prelingual deafness has a hearing loss that was present at birth or prior to the development of spoken or signed language (Moore, 1996).

postlingual. An individual with postlingual deafness has a hearing loss that occurred following the spontaneous acquisition of language (Moore, 1996).

mainstreaming. A term used to describe the range of educational environments available to deaf and hard-of-hearing students in public or private schools that serve primarily hearing students.

mainstreaming vs. inclusion. “*Mainstreaming* [italics added] implies that the [student] will adapt to the regular classroom, whereas *inclusion* [italics added] implies that the regular classroom will adapt to the [student]” (Stinson & Foster, 2000, p. 204).

regular (or mainstream) colleges and universities. A term used by Menchel (1995) and other researchers to distinguish colleges and universities that do not primarily cater to minority populations.

successful mainstreaming in college. Described as academic achievement and the attainment of a college degree (Saur & Stinson, 1986).

residential programs for the deaf. Educational programs exclusively designed for deaf and hard-of-hearing students.

CHAPTER 2: LITERATURE REVIEW

Introduction

As mentioned in chapter 1, the research on students with hearing loss in higher education is severely limited. The majority of studies related to deaf education focuses on the academic, linguistic, and social development of deaf and hard-of-hearing children from birth to age 18. Few studies examine deaf students in higher education. Even fewer studies have documented the academic and social integration experiences of deaf and hard-of-hearing students in mainstream colleges and universities, as opposed to educational programs designed specifically for deaf and hard-of-hearing students (Menchel, 1995; Stinson & Walter, 1991). Menchel (1995) stated:

Critical questions remain...as to how these students cope with academic life...the strategies they've developed to achieve success in a regular postsecondary environment,...the adequacy of their support services...their interaction with hearing peers, their participation in extracurricular activities, and their satisfaction or dissatisfaction with the decision they made to enroll in a regular college or university. (p. 12)

This study will attempt to fill the gaps in the research by offering unique and in-depth perspectives of a sample of 10 deaf and hard-of-hearing students attending a large university. It is necessary first to present comprehensive details about this overall student population. Therefore the beginning sections of chapter 2 illuminate the history, terminology, and population statistics related to the deaf and hard-of-hearing student population as well as minority students and other special groups within this population. Later, studies related to the experiences of deaf and hard-of-hearing students in academic settings are examined, highlighting the relationships between relevant variables, such as social mainstreaming, isolation, and the role of college support services. In the second

part of this chapter, this study presents student persistence models that further portray the relationship among these variables. Finally, the research questions are restated at the end of this chapter. All of the studies described in these sections provide important background information for interpreting the responses of the participants in this study.

History: The Last 50 Years

Prior to the 1970s, when legislation such as the Rehabilitation Act of 1973, as amended in 1978, increased access to postsecondary education for students with hearing loss, postsecondary education opportunities were severely restricted for this group of students (Bigman, 1961; Menchel, 1995). In the 1940s and 1950s, explained Menchel (1995), education for the deaf was based mainly on the belief that deaf students should be “educated in facilities separate from ‘normal’ children” (p. x). Deaf individuals were generally not expected or not encouraged to attend college, let alone a mainstream college or university. In high school programs for the deaf, vocational training instead of academics were stressed, and, as a result, students who were deaf were commonly taught a trade such as woodworking, printing, tailoring, or shoemaking (Menchel, 1995; Moores, 1996). As society became more mechanized and jobs required higher literacy skills, deaf education programs were slow to respond to vocational and economic trends, leaving many deaf persons without an adequate education. Reiman, Bullis, Davis and Cole (1991) stated that about 60% of deaf students leaving high school each year, whether as graduates or drop-outs, will not benefit from postsecondary education and will instead enter low-skilled jobs or be unemployed. These “lower-achieving” (Reiman et al., 1991, p. 99) deaf individuals may not be eligible for postsecondary education due to inadequate education, vocational weaknesses, self-expression problems, poor social and

interpersonal communication skills, and behavioral, emotional, and social maladjustment problems.

A 1961 study by Bigman found that prejudice toward deaf persons was the main factor that prevented these individuals from entering certain colleges and postsecondary programs. Statements made by colleges interviewed for Bigman's study included, "(we) eliminate such people as teacher candidates," "we cannot accept such students for the priesthood of the Roman Catholic Church," and "we have never seen how a fully deaf person could profit from instruction at this [law] school" (p. 744). A few colleges would accept deaf students on the basis of sympathy (Bigman, 1961). Such a rationale for college admission ultimately did not do justice to the student, however, if he or she was not qualified academically or socially to meet the demands of the particular college.

Seeking to increase his or her chances of having success in college, a deaf student who was eligible for college may have opted to attend one of the few programs designed specifically for deaf students, such as Gallaudet College, now Gallaudet University, in Washington, DC, or the National Technical Institute for the Deaf (NTID) in Rochester, NY. Such specially designed programs have since expanded and multiplied in number. In these academic environments a wide range of support services and social opportunities were available.

Other students elected to go to a regular college or university, where support services were typically less than adequate, social opportunities fewer, and social isolation often inevitable. Access to social and academic opportunities was less frequent, but a small number of deaf and hard-of-hearing students in regular colleges or universities were able to be more or less successfully integrated in college communities and attain a

college degree. This study focused on the experiences of deaf and hard-of-hearing students attending regular colleges and universities.

Population Statistics of Deaf and Hard-of-Hearing Students in Higher Education

Due to discrepancies with terminology, lack of descriptive data, and other methodological errors, data on the population statistics of students with hearing loss who are enrolled in postsecondary education are somewhat inconclusive and, at best, contradictory. While growth in enrollment is clearly evident during the last 50 years, recent estimates on the total number of students with hearing loss enrolled in higher education vary widely from 10,000 to 258,000.

Determining accurate estimates of the deaf and hard-of-hearing student population is further complicated by some researchers' lack of specifications regarding whether the institutions at which the students are enrolled are two- or four-year colleges and universities and whether the students in question are all undergraduates or undergraduate and graduate students combined. Based on the available research it can be concluded, however, that most of the population studies are centered on students at the undergraduate level, as typically a much smaller percentage of students with hearing loss attain an undergraduate degree and then pursue graduate studies at a regular college or university.

The earliest known population study, conducted in 1950, showed that there were 250 deaf and hard-of-hearing students enrolled in postsecondary institutions, although neither the specific types of institutions where the students were enrolled nor the hearing loss levels of the students were indicated (Rawlings & King, 1986).

In 1961, Bigman estimated that there were about 65 students in regular colleges, while 299 students attended Gallaudet College. In 1965, Bruenig estimated the total number of students attending mainstream universities was “in the hundreds” and added, at the time, “there [was] nowhere...a comprehensive, yet current, listing of deaf persons who have attended colleges and universities with the hearing” (p. 18).

Quigley, Jenne, and Phillips (1968) estimated that there were 161 students in regular colleges, 81 of whom were hard of hearing and 80 of whom were deaf. In 1986, Rawlings and King determined that there were 8,000 students with hearing loss enrolled in higher education, although neither the type of institution nor hearing loss levels of the students were specified.

Later studies show a significant increase in the number of students with hearing loss enrolled in higher education. The Postsecondary Education Quick Information System (PEQIS) survey, presented by Lewis, Ferris, and Greene (1994), for example, estimated that in 1992–1993, 258,000 students were enrolled, an increase of more than 1,000%. The number obtained for the PEQIS survey was calculated by studying student financial aid forms to determine whether a student had a disability and, if so, whether it was specified as a hearing disability. Respondents were not asked to disclose the severity or etiology of the hearing loss. Despite the fact that hearing loss levels were not indicated, it can be assumed, based on current literature, that a large percentage of the respondents were either hard of hearing, postlingual, or late deafened.

A 1994 study conducted by the National Center on Education Statistics (NCES) determined the number of students attending regular postsecondary institutions to be closer to 20,000. Data for the NCES study were obtained by contacting the Disabled

Support Services (DSS) offices of colleges and universities across the country to determine the number of deaf and hard-of-hearing students receiving services. The NCES study was clearer in specifying the types of institutions at which students were enrolled as well as the levels of hearing loss of the students. From the NCES figures, there were 4,520 deaf and 7,770 hard-of-hearing students receiving DSS services, with 7,750 students reporting unspecified hearing loss levels.

There are some conclusions that can be drawn from the difference in figures between the PEQIS and NCES studies. A large number of students with hearing loss (as many as 238,000—the difference between the two figures) are not reporting their disability to the DSS office at the colleges at which they are enrolled. There are three possible reasons for this discrepancy: either (a) most of these students have mild to moderate hearing losses who can “get by” without services; (b) they may be too embarrassed to ask for services (Menchel, 1995) or worry about the outcome of reporting their disability for fear of being rejected or ostracized, or (c) they are simply not aware that services exist. Consequently, there may be thousands of students with hearing loss who are not aware that services are available to them or do not seek them and thus suffer academic and social consequences because they do not use the services.

The Annual Survey of Deaf and Hard-of-Hearing Children and Youth (AS Survey) is a yearly demographic survey of students with hearing loss conducted by a team of researchers at the Center for Assessment and Demographic Studies (CADS) at the Gallaudet University Research Institute. This survey normally does not include data on students exiting high school, but the data can be used to characterize the population of students with hearing loss entering college (Allen, 1994). A significant trend reflected in

the CADS data and other demographic studies shows that the overall number of hard-of-hearing students being reported to surveys and entering college has increased dramatically (Allen, 1994). The CADS data were helpful in showing hearing loss categorizations in documenting this increase. Allen (1994) compared demographic figures of students with hearing loss as reported to the survey between 1984 and 1994. During that 10-year period, the number of students with severe to profound hearing loss (as opposed to mild to severe) decreased by more than 8,500 students, or 26% (from 33,556 reported to the survey in 1984 to 24,960 in 1994). The decrease in the severe to profound group, said Allen (1994), was due to a number of factors, including lower birth rates and the exiting from schools of students whose deafness resulted from the maternal rubella episodes of the 1960s. During the same decade, the number of students reported with less than severe hearing loss increased by more than 2,500 students, or 14% (from 18,121 to 20,630).

Deaf and Hard-of-Hearing Students as Categorized by Race, Gender, and Socioeconomic Status

The status of students from minority cultures and low socioeconomic backgrounds is important to consider as studies and surveys such as the Annual Survey of Deaf and Hard-of-Hearing Children and Youth (AS) in 1994 noted that increasing numbers of students in postsecondary education come from minority backgrounds, particularly Hispanic cultures (Allen, 1994).

Allen (1994), Menchel (1995), and others determined that, in general, the majority of students who enroll and persist in higher education are non-Hispanic White. However, between 1984 and 1994, the number of White, non-Hispanic students reported

to the AS survey decreased by 21%. The number of Hispanic students, on the other hand, increased by 28%, showing the largest increase in any ethnic group (Allen, 1994). The 1994 AS documented an increase in the Hispanic student population from 11% in 1984 to 16% in 1994. Although the overall number of deaf and hard-of-hearing students who reported to the AS had declined by 12% during the 10-year period, the number of Hispanic students had increased by 28%.

During the same 10-year period, the number of African American students reported to the survey decreased by 15%, from 9,337 (18% of the total population in 1984) to 7,935 (17% of the total population in 1994). Although African American students represented approximately 17% of the students reported to the CADS survey, a national survey of 46 postsecondary programs reported that only 9% of the students enrolled in those programs were African American (Schroedel & Watson, 1991), showing a decrease in the number of African American deaf students entering college.

The literature fails to show a significant difference based on gender (e.g., Allen & Osborn, 1984), although there is some evidence that female deaf learners outperform male learners in academic achievement (Powers, Gregory, & Thoutenhoofd, 1999). Where gender differences are found, they appear to be in the same direction as those found for hearing pupils. Although the proportion of males and females is usually noted in research studies, Powers et al. (1999) argued that gender is stated more often to legitimize the sample than as a variable to consider.

Academic Achievement and Ethnicity Factors

The annual survey was particularly illuminating in relating the academic achievement of the deaf and hard-of-hearing student population to the ethnic composition of the population using the eighth edition of the Stanford Achievement Test. To make a comparison between the academic achievements of the different ethnic groups as noted in the 1994 annual survey, it is important to note that in the total group of 17- to 21-year-old students with severe to profound hearing loss, 58% were White, 21% African American, and 15% Hispanic. The ethnic breakdown of the students who demonstrated reading levels at the fourth-grade level or above according to the AS was as follows: 77% White, 12% African American, and 7% Hispanic. With a higher cut-off point with students demonstrating eighth-grade reading levels or above, the qualifying group was more disproportionately White: 88% White, 3% African American, and 7% Hispanic (Allen, 1994).

Even within the student group with moderate to profound hearing loss, the racial/ethnic distribution of the students' performance was similar to the severe to profound student group. The ethnic breakdown of students who demonstrated reading levels at fourth-grade equivalency or above was 58% White, 30% African American, and 27% Hispanic. Of the group of students who had reading levels at the eighth grade or above, 89% were White, 5% were African American, and 5% Hispanic. By applying strict reading standards that would determine which group of students would be able to handle college-level work, it was concluded that most of the deaf students from minority backgrounds would not qualify for college entry. These statistical figures clearly

highlighted a particularly urgent need for additional assistance to be provided to deaf and hard-of-hearing students from minority backgrounds (Allen, 1994).

There are a few reasons that could account for the poor achievement level of deaf and hard-of-hearing students from minority backgrounds. First, because many families from minority backgrounds tend to have fewer resources and not know sign language, they are often unable to gain access to the type of resources or services that are provided to deaf people and their families. Furthermore, Christensen and Delgado (1993) and Schildroth and Hotto (1995) noted that the needs of students from minority backgrounds might not be well served, because of the underrepresentation of deaf teachers from multicultural backgrounds.

Students who are members of minority deaf groups are also less likely than nonminority students to be placed in integrated settings (Allen & Osborn, 1984). Additionally, Cohen, Fischgrund, and Redding (1990) found that “ethnicity was a significant negative predictor of integration, placement, and exposure to reading content” (p. 69). Teachers tend to allow African American and other minority students to achieve less and hold lower expectations for them academically. As a consequence, there is an overrepresentation of African American and other minority students in vocational as compared with academic programs (Anderson & Grace, 1991; Schroedel & Watson, 1991; Schildroth & Hotto, 1995). In residential programs, three times as many African American deaf students compared to their White peers are graduating with certificates rather than high school diplomas, with 12% of White students receiving certificates, compared with 36% of African American students (Anderson & Grace, 1991).

As a result of these factors that affect the performance of this group of students, a significant number of African American and other minority deaf adolescents “are not being provided with a broad range of opportunities for upward educational and occupational mobility” (Anderson & Grace, 1991, p. 83).

A Minority within a Minority

Too often, deaf and hard-of-hearing students are perceived as a homogeneous group. Cohen et al. (1990) stated, “Educators of deaf...youth have had a tendency to accept the erroneous proposition that deafness in some ways precludes ethnic and racial minority group membership and status” (p. 67). In fact, the diversity, interests, and characteristics of this student group vary as much as students who are hearing. Students who are deaf and part of a racial or ethnic minority group do, however, often encounter cultural, linguistic, and dual identity issues that may pose distinctive challenges in their efforts to integrate into mainstream educational settings and society.

Because achieving an identity is such an important developmental task during adolescence, a clear need exists for further research to broaden knowledge and understanding of dual identity development. Being Black and deaf, Hispanic and deaf, or Asian and deaf, for example, has been described as being a “minority within a minority” or part of a “dual minority group membership” (Anderson & Grace, 1991; Rodriguez & Santiviago, 1991). A Black deaf person, for example, may be neither a Black person who is deaf nor a deaf person who is Black, but someone with his or her own persona, i.e., a Black deaf person. Using an interview survey with 60 Black deaf students at the Model Secondary School for the Deaf on the Gallaudet University campus, Aramburo (1989)

asked students whether they identified foremost with being part of the Black or Deaf cultures (again, *Deaf* capitalized to signify Deaf culture membership). Thirteen percent of the respondents said they identified with being Deaf first, and 87% said Black first. Those who said they were Deaf first were mostly educated in White residential schools during their early years, and several respondents in this group said they had deaf parents. The respondents who replied they were Black first identified most with Black culture.

As mentioned earlier, minority deaf students often lack same-status role models. There are few teachers of the deaf, for example, who have dual identity membership status. A 1990 study showed that only 11% of all teachers, deaf or hearing, were Black or Hispanic (Cohen et al., 1990). Only 10 teachers who were Black and deaf were identified in 888 educational programs. Cohen et al. (1990) reported that Black and Hispanic teachers are also far more likely than nonminorities to say they will be leaving the profession.

The presence of same-status teachers and role models is perceived to be important for the continued support of deaf minority students, as minority deaf teachers help to influence and inspire minority deaf students. Also, with more minority representation, parents of minority deaf students are more likely to be more involved in their children's education. With too few role models, negative messages and stereotypes are likely to be reinforced (Cohen et al., 1990).

Hispanic Deaf Students

Hispanic students deserve special mention because not only do they encounter distinctive cultural and linguistic challenges related to being both deaf and Hispanic,

affecting their level of interaction with mainstream society, but they are also the fastest growing ethnic group compared with other ethnic groups. Fradd, Figueroa, and Correa (1989) added that, while the Hispanic group is not necessarily the most needy minority group, it does need more access to the larger culture, because it is the fastest growing minority group in the country. Indeed, U.S. Census 2000 figures show that Hispanics now outnumber African Americans as the largest cultural group (U.S. Bureau of the Census, 2003).

While Hispanics are often described as a single group, they are by no means a homogeneous group. Students may identify themselves as Puerto Ricans, Mexican Americans, Dominicans, or others. Individuals within these groups may be differentiated by their levels of acculturation.

As Christensen and Delgado (1993) and Erickson (1984) reported, deaf Hispanic students often have to be trilingual or tricultural in their interaction with mainstream society. In cases where deaf and hard-of-hearing students from minority cultures are exposed to languages other than English, the students and their families may find it necessary to learn several languages. Students may acquire two sign languages, that of their native country and American Sign Language (ASL), in addition to learning the spoken forms of English as well as their native language.

Hard-of-Hearing Students

Although hard-of-hearing students are not an ethnic minority group, this group must be examined, as they comprise the majority of students with hearing loss enrolled in integrated secondary and postsecondary settings. They outnumber students who are deaf

by several thousand. With more hearing, hard-of-hearing students generally fare better academically than students with more severe hearing loss. Indeed, in a research study tabulating the demographic, handicapping, and achievement factors for 1,465 school-age children, Allen and Osborn (1984) found that the students who were integrated were, as a group, less impaired: “The integrated group had a higher proportion of students with less-than-severe hearing impairments, fewer students with prelingual hearing impairment, and fewer students with additional learning or behavioral impairments” (p. 102). Although it may seem that fewer services are warranted for hard-of-hearing students, this is not necessarily the case; services offered by colleges or universities must be individually tailored to each student, and the needs of hard-of-hearing students may differ significantly from students who are deaf.

Students who are hard of hearing may also have certain social, cultural, and identity needs of their own that largely go unaddressed (Flexer, Wray, & Black, 1986). The needs of hard-of-hearing and orally trained students in mainstream programs are often distinctly different from those of deaf and signing students. Hard-of-hearing and orally trained students may feel particularly challenged in clarifying their affiliation with either or both the deaf and hearing cultures (Charlson, Strong, & Gold, 1984). As such, students who are hard of hearing may feel they are neither in the hearing nor deaf world and may struggle more than deaf students to achieve identity status in either group. Hard-of-hearing and orally trained students from mainstream programs with little experience with Deaf culture may undergo internal conflict as they discover sign language and the deaf community. An oral or hard-of-hearing student without adequate cultural preparation electing to attend a postsecondary program designed for deaf students such as

Gallaudet University, for example, may experience social rejection there (Glickman, 1986). The hard-of-hearing student who feels marginalized and struggles with cultural identity status and acceptance in either culture may lack a sense of belonging, and increased social isolation many result (Glickman, 1986).

Because of the complexities of cultural and linguistic aspects involved with being hard of hearing or having dual identity status, professionals need to focus on developing appropriate programs that can involve the participation of a range of students who are deaf and hard-of-hearing. Awareness of the specific cultural backgrounds and the experiences of students who are hard of hearing or members of the Hispanic and Deaf culture, as well as students who are Black and deaf, Asian and deaf, and so on, is essential for these students to be able to interact effectively with the hearing and English-speaking mainstream society. Educators and other professionals working with these students also need to be willing to make accommodations in their teaching methods and programs to help all students be successfully integrated in college environments.

Social Mainstreaming

Social isolation and loneliness are often major consequences of deafness and extend across all racial, ethnic, and socioeconomic groups. Social maladjustment can occur despite having superior educational achievement, above-average intelligence, and a stable socioeconomic background (Neyhus, 1964). Social isolation and loneliness are particularly prevalent among students in mainstream educational environments as opposed to residential or academic programs that cater to a large population of deaf and hard-of-hearing students. Identifying and addressing the presence and extent of these factors is important, as studies show if loneliness and social isolation persist over time,

academic and social consequences may be severe, and a poor mental health status may result (Charlson et al., 1984; Glickman, 1986; Power et al., 1999). This section will describe the effect of communication, peer attitudes, self-advocacy, and the development of study skills on academic and social integration.

Though deaf and hard-of-hearing students in mainstream colleges and universities generally show higher levels of academic achievement than students enrolled in special programs (Jensema, 1975), research shows that social isolation and loneliness are more prevalent for students in mainstream academic settings (Foster, 1988; Foster, 1989; Leigh & Stinson, 1991; Mertens, 1989; Murphy & Newlon, 1981; Neyhus, 1964). Foster (1988, 1999) conducted several qualitative studies that documented social isolation as experienced by deaf and hard-of-hearing college students who were mainstreamed. Foster (1988) concluded that social mainstreaming may be more difficult to achieve than academic mainstreaming, because a student with a hearing loss is frequently on his or her own when attempting to initiate or sustain relationships with hearing peers: “The concern has been raised that students in the mainstream may be gaining academic advantages while losing ground in the areas of personal and social growth” (p. 27).

Mertens (1989) stated that the presence of social maladjustment among these students may also indicate the presence of an academic handicap and that an improvement in social development needs to occur to improve academic functioning. Consequently, higher self-esteem and self-competence appear to be related to greater academic achievement (Koelle & Convey, 1982).

In Leigh and Stinson’s (1991) study, positive peer relationships constituted a significant factor in higher levels of perceived self-competence in social and

communication skills, while negative relationships led to lower levels of perceived self-competence: “Higher ratings of perceived social competence were associated with greater participation in class, in school, and in social activities, and also with emotional security with hearing peers” (p. 13). Participation in extracurricular activities such as sports and clubs was shown to increase self-competence levels (Stinson & Foster, 2000; Stinson & Walter, 1991).

Leigh and Stinson (1991) discovered that perceived social competence was significantly related to students’ social experiences and was based largely on the quality of relationships with hearing as well as deaf and hard-of-hearing peers. Increasing social opportunities with hearing students has been shown to have a positive effect on hard-of-hearing and deaf students’ academic performance (Antia, 1982; Coyner, 1993). Indeed, Ladd, Munson, and Miller (1984) and Musselman, Mootilal, and MacKay (1996) concluded that for social mainstreaming to be successful, an integrated classroom climate needs to be conducive to social interaction and friendships between deaf and hearing students. Ladd, Munsen and Muller (1984) observed that when special attempts were made to institute an environment that supported positive peer interactions between deaf and hard-of-hearing students and their hearing peers, positive interactions and friendships developed.

Communication

Communication is an important form of social engagement and essential for the development of peer relationships (Stinson & Foster, 2000). However, due to the nature of having a hearing loss, communication difficulties continue to be a frequent

consequence of academic and social mainstreaming for deaf and hard-of-hearing students. The presence of communication problems often leads to lower perceptions of social competence and social isolation, lower self-confidence, and feelings of failure (Foster, 1988; Stinson & Foster, 2000). As a result, deaf and hard-of-hearing students may engage in limited or superficial conversations with peers (Foster 1989; Mertens 1989) and may find fewer opportunities to achieve roles of prominence in a group activity such as a discussion group (Stinson & Foster, 2000). They may participate in fewer extracurricular activities that would help them be more integrated into college life.

Communication is a two-way endeavor. When interacting with hearing peers or faculty, deaf students must feel comfortable asking their peers to repeat when necessary, and hearing individuals must feel comfortable repeating or writing notes (Stinson & Foster, 2000). The effort involved with communication, particularly in a noisy or sub-par listening environment, may cause deaf and hearing students and faculty to socialize as little as possible. In this study, the researcher did not observe communication or interaction among the individual study participants and their hearing peers and faculty, but descriptive data on these factors is provided by input from the student interviews and focus groups.

Peer Attitudes

Attitudes toward deaf people, whether positive, negative, or neutral, may be a vital ingredient in the success or failure of mainstreaming efforts (Ladd et al., 1984). Coyner (1993) found that a major predictor of success for hard-of-hearing and deaf students was the peer acceptance rating they received from hearing students. In her study

involving five deaf and five hard-of-hearing students, all of whom had received an oral education, and 25 hearing students, Coyner (1993) concluded that peer attitudes should be a consideration in mainstreaming.

Emerton and Rothman (1978) conducted a study to determine whether negative stereotypes of deaf people are already possessed by incoming hearing college students or whether such stereotypes are formed during contact with deaf students. Based on interviews of 100 hearing students at the Rochester Institute of Technology, attitudes from hearing students were at first found to be positive. “After six months on campus,” however, “there was a downward trend in effect” (p. 588). Differences in cultural norms, such as social behavior patterns, communication tactics, and noise levels were factors that contributed to poor attitudes toward deaf students and were perceived as major barriers toward positive integration on the part of the deaf students. Despite a negative shift in hearing attitudes toward deaf students, several friendships among students of different hearing status were formed during the course of the study.

Ladd et al. (1984) reported that hearing classmates expressed increasingly favorable perceptions of mainstreamed deaf students over time. Musselman et al. (1996) did not observe the usual disadvantages associated with integration, although the researchers acknowledged that the more positive findings compared to other studies may be reflected in the fact that the particular settings studied made special efforts to promote hearing–deaf student interaction.

In general, it is important to note whether peer attitudes toward deaf students and the overall classroom and campus climate are conducive to supporting deaf and hard-of-hearing students’ participation in all aspects of college life. Although this dissertation did

not involve interviews or attitude scales with hearing classmates and faculty regarding their attitude toward their deaf peers, the perspectives of the deaf students being interviewed provided a gauge for the extent to which these students perceived their classmates and faculty to have a positive or negative attitude toward them.

Self-Advocacy

Studies show that students must be assertive in advocating for themselves when seeking help from peers, faculty, or college support personnel to be successfully integrated in mainstream settings. Often it is left to the deaf students to develop the personal attributes and skills to overcome social and communicative barriers. For some, this task may be overwhelming. Stinson and Foster (2000) explained that it takes “a strong ego or inner self-confidence [for a deaf or hard-of-hearing student] to work towards being perceived as equal or accepted” (p. 16). Students must also invest a considerable amount of time in developing other skills to assist with their social and academic integration into college life. These skills include “establishing relationships with roommates,...developing independent living skills, mastering self-management of time for studying, and so forth” (Stinson & Walter, 1991, p. 53). The tasks of developing self-confidence and social competence, as well as academic skills, in college may be clearly daunting for some of these students.

Study Skills

Deaf and hard-of-hearing students who are successful in mainstream environments tend not only to have a willingness and ability to self-advocate, but have had to develop effective study skills to boost their confidence and performance in class.

Many students rely heavily on textbooks or notes for materials. In many cases, these students must ask the instructor and peers to speak clearly or slow down for the interpreter or so that they may understand and take notes. When taking notes, the students must exercise extra diligence and concentration when lip-reading, following the instructor or interpreter and the classroom dialogue all at once:

When taking notes during a lecture, students must be able to perform a variety of skills. The skills include attending to the lecturer, discriminating between important and not-so-important information, understanding what is being said, personalizing the information (e.g., paraphrasing), organizing information in a meaningful way, and recording the information fluently and legibly. (Hughes & Surtisky, 1993, p. 7)

Attention and respect must be paid to students who must invest extra effort to communicate, socialize, and retain information in classes, with the goal of easing this effort as much as possible. Further research can help establish ways in which these students may possess a greater basis for self-confidence and perceived social competence and be better integrated socially and academically in mainstream settings. In studying the related literature on loneliness and social isolation, proper measures and consistency among studies examining loneliness and social isolation are needed, in part to validate such studies. Some studies were consistent in using the Social Activity Scale (SAS) that measures several aspects of social integration and adjustment, including social interaction, feelings of relatedness, and overall perceived social competence (Musselman, et al., 1996; Stinson & Whitmire, 1991). Researchers caution, however, that some measures used to obtain data on loneliness and other personality factors may be inaccurate (Kluwin, Blennerhassett, & Sweet, 1990; Powers et al., 1999). On some projective tests of personality, language facility was found to be a significant factor in measuring personality, causing some of the data on loneliness to be inconclusive

(Neyhus, 1964). Kluwin et al. (1990) explained: “The problem with most measures, primarily self-image, self-concept, or social attitude scales, is that often the emotional or social construct being measured is viewed as fixed or relatively static” (p. 283). In addition, loneliness is a subjective experience; it may be perceived differently by a deaf or hard-of-hearing individual compared with a hearing peer.

In summary, Foster (1988, 1989) stated that efforts must be made to reduce the social isolation these students face to enable the students to enjoy greater access to college life. However, social isolation in mainstream environments may be difficult for these students to overcome. Proper support services, access to college life, ease of communication, and acceptance by peers and faculty at the college or university are needed to facilitate positive social and academic integration.

The Role of College Support Services

Before the advent of support services in postsecondary institutions, as mandated by law, lip reading (or speech reading), amplification such as hearing aids, notes from fellow classmates, careful scrutiny of textbooks and other course reading materials, and sitting close to the instructor were the techniques most commonly used by deaf students in integrated settings to comprehend classroom lectures, dialogue, and materials (Bigman, 1961; Menchel, 1995). Although some students used their residual hearing and considered themselves excellent lip readers, many encountered difficulties when the instructor turned around or paced the room and had difficulty when they tried to take notes and lip-read at the same time.

While some students continue to manage with few or no services, college support services often play a significant role in making the college environment more accessible

for many deaf and hard-of-hearing students. Support services are varied and may include advisory assistance, counseling, writing assistance, note-takers, sign language interpreters, cued speech transliterators, computer-assisted note-taking, and other accessibility measures provided by the campus office of Disabled Student Services (DSS), also called Disability Support Services or a similar term. In some cases DSS serves as the primary means by which deaf and hard-of-hearing students are integrated socially and academically into college life. However, there are three primary problems that DSS often encounters: First, although services must be provided by law, expenses borne by the university may be subject to a limited budget, causing services to be lacking or inadequate. Second, colleges, particularly if they are located in remote areas, may be unable to locate the staff or appropriate skills on the part of personnel needed to provide such services. Finally, support personnel typically know less about deafness than other disabilities, such as learning disabilities (Menchel, 1995). Due to lack of knowledge about deafness and the needs of deaf and hard-of-hearing students, colleges are often unable to provide sufficient and appropriate services for these students. A 1994 report by the National Center on Education Statistics stated that only 18% of postsecondary institutions interviewed had been unable to provide one or more requested support services to their deaf and hard-of-hearing students. To compound these problems, a significant number of students are too embarrassed to ask for services, fear the loss of acceptance by a college if they report their disability, or are unaware that services exist. Menchel (1995) found that students who chose not to identify their deafness or ask for any services either on their college application or during their critical freshman year eventually faced academic difficulties and were compelled to rely on support services

starting in their second year. Students who did not seek services during their first year of college reported that they had underestimated the increased academic challenges of college compared with high school.

A common misconception held by college personnel, educators, and others is that note-taking and sign-language interpreting will automatically bridge the “achievement gap” for these students (Stinson & Walter, 1997). This is not always the case. Course texts, materials, and method and delivery of instruction may need to be modified, in addition to “providing a comprehensive battery of compensatory and remedial programs to accommodate the needs of hearing-impaired students” (p. 21). Stinson and Walter warned that services should not be limited to those that can be provided in the classroom, such as note-taking and interpreting, but also to assist students in such areas as “financial aid, academic advising and registration, health care, extracurricular activities, and intercollegiate athletics....(Otherwise) a deaf student is put at risk of becoming isolated in the college environment, increasing the likelihood that the student will withdraw from college” (p. 22). Only in a few cases are colleges and universities able to provide such systematic support to students who are deaf and hard of hearing.

During the admission process and subsequent to entry to a college, the college or university may not consider whether enough support services are in place to allow the student to succeed academically and socially. Likewise, prospective students who need services may not investigate this matter, which should be a prerequisite for considering any college or university program.

Even with the presence of support services, students can perceive the quantity of information presented in their classes to be overwhelming and the lectures too abstract or

conceptual. Stinson and Walter (1991) noted, however, that “the reader should keep in mind that [some of] these findings are based on students who decided to leave a mainstream college environment. They do not imply that the mainstream setting cannot provide a good education for many deaf students” (p. 51). It is often left to the student to decide whether he or she can succeed at the college, but ideally the process and goals for the student should reflect a collaborative relationship between the college and the student.

Support Services at State U

In describing the nature and extent of support services available to students, including students with disabilities, in the context of State U, it was found that several support services and policies were in place on campus. The State U DSS office aims to ensure access for students with disabilities by tailoring services to meet the needs of each individual student based on the nature of the student’s disability and then coordinating these services. Services provided to the students include testing accommodations (e.g., extended exam time), sign language interpreters, note-takers, and computer-assisted note-taking. DSS also works with various university systems to heighten awareness of the needs of students with disabilities.

The counseling center on campus serves to assist with the development and implementation of DSS services, and provides additional services to students, such as individual and group counseling, consultation, and educational services. Close to the counseling center at State U is a learning and writing center helping students with their academic needs.

The campus library system subscribes to the campus-wide diversity initiative and seeks to seek to be accommodating to all students, irrespective of race, ethnic background, sexual orientation, political affiliation, or disability. The main library houses an adaptive technology laboratory, which provides services such as large-text print, books on tape, and readers to blind students, as well as technological assistance to deaf and other disabled students.

Other organizations and facets of campus life at State U are committed to building a more inclusive college community by creating and implementing a comprehensive campus-wide program to enhance and promote diversity on campus. Organizations and task forces on campus that subscribe to the campus diversity initiative include a presidential commission on disability issues, which seeks to improve access to campus facilities and programs, a diversity initiative advocacy committee, and a student-led group for disability advocacy, which serves as a support and advocacy group for these students and increases campus awareness of disability issues and legislation.

Student Persistence Studies

Several theories and studies on persistence and persistence-related issues have identified several pre-college and within-college factors that have positive and negative effects on the academic and social development and integration of students who are deaf and hard of hearing. For example, Menchel (1995) found that previous mainstream experience, motivation, goal orientation, and involvement with extracurricular activities were factors that helped his informants' ability to cope and persist in a mainstream environment. Other studies document the importance of good coping strategies and personal attributes such as resilience, positive self-concept, and support from family,

friends, and teachers prior to college (Charlson, Bird, & Strong, 1999; Charlson et al., 1984; Foster, 1988; Stinson, 1984; Warren & Hasentab, 1986). Instructor collaboration and support, peer mentors, and role models were other factors that affected positive academic and social integration. In this section, two persistence-related studies are presented to describe in-depth examples of programs and approaches that sought to improve the retention of deaf and hard-of-hearing students.

Three main persistence frameworks and models by Tinto (1987); Stinson et al. (1987); and Stinson and Walter (1997) helped to inform the conceptual framework guiding this dissertation. The researcher has added some categories and themes based on critiques of Tinto's framework by Braxton (2000) and Draper (2002) to develop further the conceptual framework for this dissertation.

Persistence frameworks and models by Stinson et al. (1987) and Stinson and Walter (1997) involved the use of data collection methods based on a longitudinal college-impact conceptual framework and model of student persistence in college developed by Tinto (1987). Tinto considered the phenomenon of persistence to be a function of the quality of a student's interactions with the academic and social components of an institution. Tinto's Model of Student Departure/Retention (1987), presented in Figure 1, depicts a matrix showing the direct and indirect influences and interactions between a student and a college based on the following categories: pre-entry (student) attributes, the academic and social systems of the institution, the process of student goals and institutional commitments, and a departure decision. Students arrive at an institution with a range of background characteristics, including prior achievement and personal attributes, which, in addition to their commitment to college, influence how

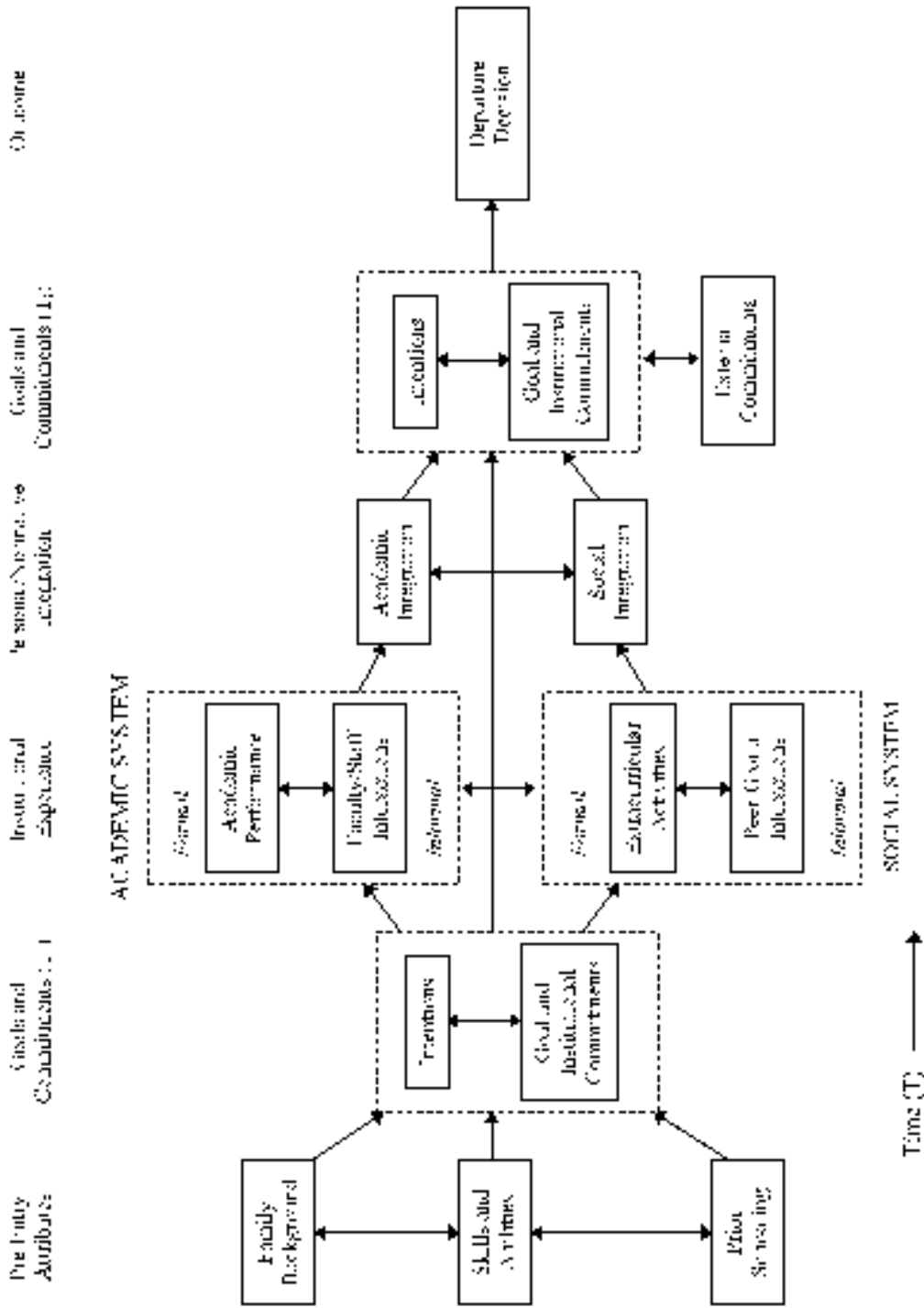


Figure 1. Model of student departure/retention. Note. From *Leaving College: Rethinking the Causes and Cures of Student Attrition*, by V. Tinto, Chicago: University of Chicago Press, Copyright 1987 by V. Tinto. Reprinted with permission.

students interact with the academic and social facets of the institution. The students' sense of academic and social integration is continually being modified by their ongoing college experiences. Positive interactions with the academic and social structures of the college lead to an increased sense of integration and a greater tendency for persistence and retention. Negative encounters with these systems, on the other hand, may cause students to feel a sense of social and intellectual isolation from other members of the college community. Negative encounters can serve to "reduce integration...promote the individual's marginality, and, ultimately, withdrawal" (Stinson & Walter, 1997, p. 53). Academic difficulties and disappointment with college expectations and the intellectual and learning environments were found to be reasons for leaving college (Tinto, 1987). For deaf or hard-of-hearing students who are already marginalized and face obstacles, being successfully integrated in college poses a significant challenge.

In their studies, Stinson et al. (1987) and Stinson and Walter (1997) referred to Tinto's (1987) model of college persistence as a useful and reliable model of student persistence. The authors cautioned, however, that Tinto's model and any other general model of student persistence must be modified somewhat when applied to a unique population such as deaf or hard-of-hearing students. A modified theory must take into account the variation of academic abilities among these students and the variation in available social opportunities and support services in college, as well as communication ability, previous mainstream experience, and other relevant factors.

As shown in Figure 2, to ensure accurate data collection and validity, Stinson et al. (1987) adapted Tinto's (1987) model and modified it for deaf and hard-of-hearing students in their studies examining persistence of these students. The diagram by Stinson

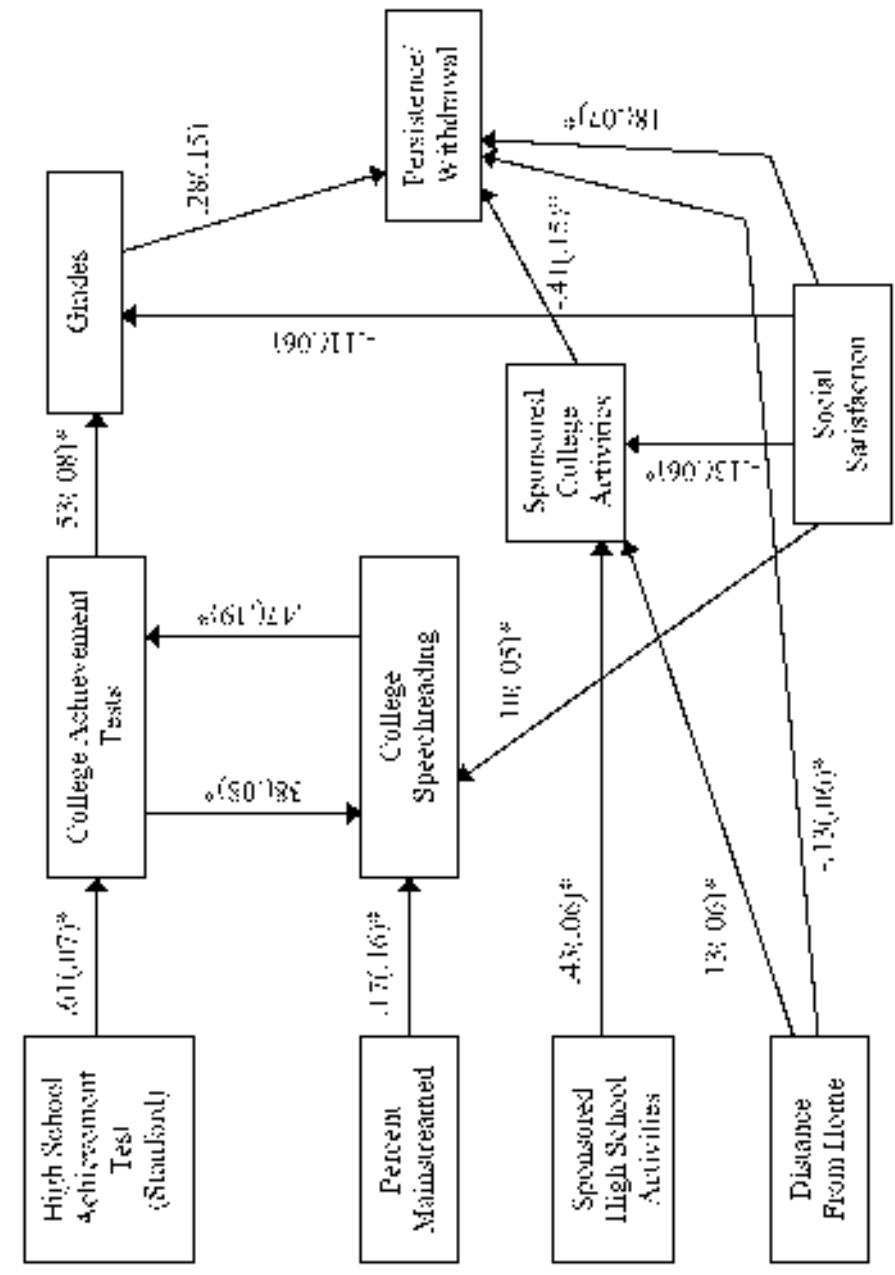


Figure 2. Revised model of factors affecting college persistence with maximum likelihood estimates (and standard errors). Note. From "Factors Affecting Persistence of Deaf College Students" by M. Stinson, M. Scherer, and G. Walter (1987), *Research in Higher Education*, 27(3), p. 252. Copyright 1987 by M. Stinson, M. Scherer, and G. Walter. Reprinted with permission.

et al. showing the interactive process of persistence/withdrawal in their sample of 233 deaf college students at NTID was similar to Tinto's in that it included a visual representation of cause-effect relationships that affect the outcome of whether students withdraw or persist. Quantitative methods were used in a path-analysis format to determine the total effect of the model.

In the updated version of their 1987 model, Stinson and Walter identified the following four variables as background factors that affected the students' persistence/withdrawal decision: (a) high school achievement test scores using the Stanford Achievement Test in Math and English Comprehension; (b) the percentage of the years in which the student attended mainstreamed programs prior to college; (c) the extent of participation in high school activities measured by using a Likert scale covering 16 activities; and (d) distance of the National Technical Institute for the Deaf (NTID) from home categorized by the number of miles using a five-point scale. These variables thus encompassed both academic and social variables. In terms of the students' interaction with the college environment, the following variables were used as indicators: (a) a wide variety of college achievement test scores; (b) college speech-reading test scores derived from the NTID Speech-reading without Sound Test; (c) extent of participation in college activities based on a 17-item Likert survey; and (d) level of social satisfaction based on a 7-item Likert questionnaire. Apart from the relationship among the variables indicating student background and college environment factors, the variables of high school achievement test scores and college achievement test scores were related, as they provided a sequential representation of the academic performance of the students assessed. The variables of high school and college activities were also similarly

interconnected. The variable of the distance to NTID from home also affected the level of social satisfaction. The total sum of these interacting variables thus contributed to the student's final decision of persisting or withdrawing from college. Stinson and Walter modified the 1987 model further in 1997, as shown in Figure 3.

The following description offers a more detailed explanation of the variables that have been incorporated into the 1987 and 1997 models. Stinson and his colleagues discovered several findings based on their studies that were similar to those of other persistence studies of deaf and hard-of-hearing college students. For example, in their 1987 study, the researchers found that the students who experienced greater social satisfaction and had good grades in high school and college were more likely to persist than their counterparts who had had negative social experiences and poor grades. Thus, it would appear that academic achievement is consistent with students' commitment to succeed academically in college. Results of academic proficiency tests of deaf and hard-of-hearing students showed that when students had high Scholastic Aptitude Test scores and reported satisfaction with their majors and academic environment (i.e., teachers and classes), they were more likely to attain good grades. Students with higher grade-point-averages were also more likely to persist beyond their first year of college.

Stinson et al. (1987) noted that the use of their conceptual framework and model might only be specific to a college program designed for deaf students, such as NTID, and added that the model developed from their study was shown to be applicable to first-year students only. They also noted that the measure of persistence/withdrawal for these students included voluntary withdrawal as well as academic dismissal (Stinson & Walter, 1991).

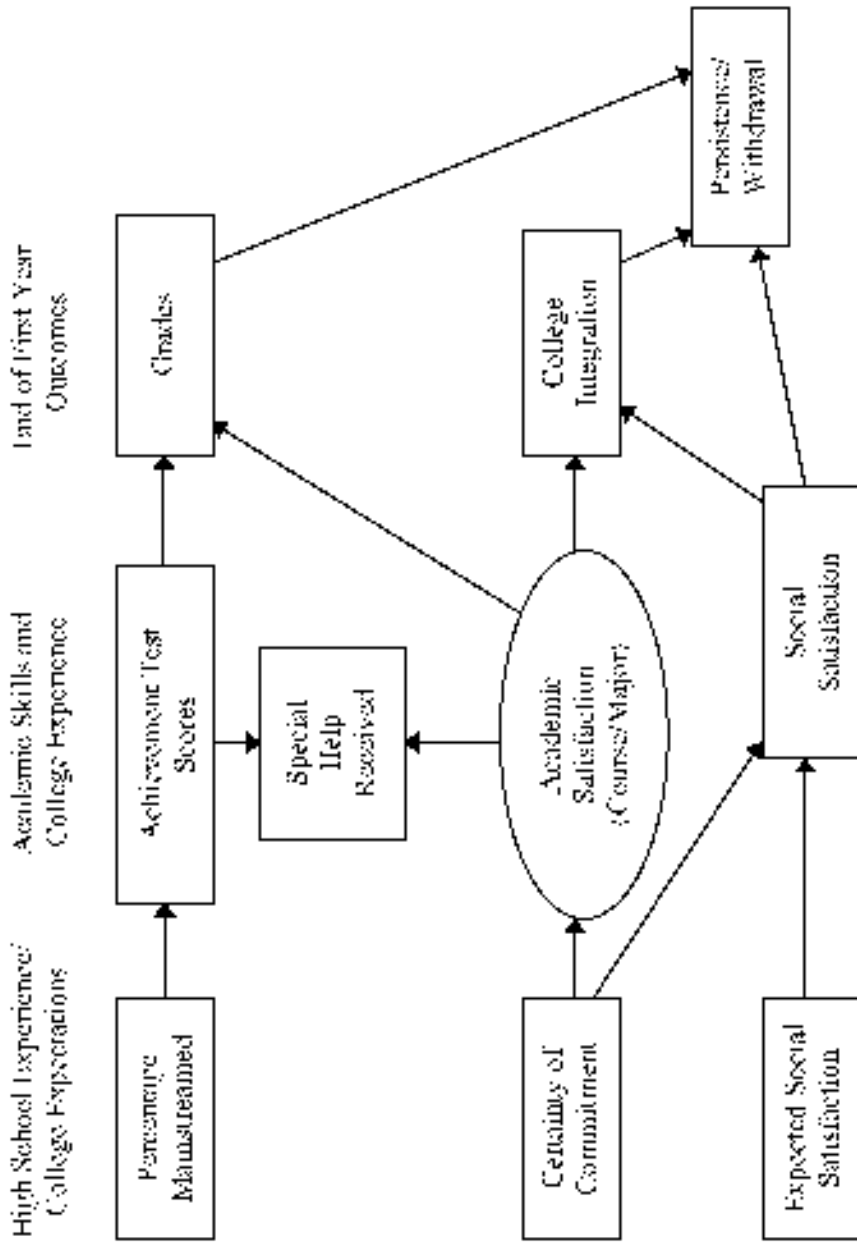


Figure 3. Factors affecting college persistence. Note. From “Improving Retention for Deaf and Hard of Hearing Students: What the Research Tells Us,” by M. S. Stinson and G. G. Walter (1997), *Journal of the American Deafness and Rehabilitation Assn.*, 30(4), p. 16. Copyright 1997 by M. S. Stinson and G. G. Walter. Reprinted with permission. .

To ensure the understanding of the applicability of the models developed by Stinson and his colleagues (1987, 1997), it is important to have an overall knowledge of the setting at NTID. Established in 1965 as one of the eight colleges of Rochester Institute of Technology (RIT), the objective of the college was to offer advanced technological and professional programs, along with a liberal arts and sciences curriculum, to deaf and hard-of-hearing students. As an integrated college of RIT, the 1,151 deaf and hard-of-hearing students have the opportunity to learn and socialize with 13,000 hearing peers studying in the other colleges. Faculty members teaching both hearing and deaf and hard-of-hearing students are supported by a variety of educational specialists whose duties are not limited solely to interpretive and note-taking functions. For example, some of the specialists train faculty members and peer tutors on working with deaf and hard-of-hearing students. In this highly supportive environment, the students are able to access academic support services such as interpreting, note-taking, and tutoring/advising to help them with the challenges of their academic curriculum in all disciplines. Furthermore, the students are easily able to obtain hearing, speech, and language support with access to the audiology center and the speech and language department on campus. Counseling services are also available. With all of these support services, deaf and hard-of-hearing students are empowered to become fully integrated in mainstream settings (National Technical Institute for the Deaf, 2002).

The particular emphasis on social satisfaction as it relates to persistence for deaf students in the studies by Stinson et al. (1987, 1991) reflects the fact that in large programs designed for deaf students such as NTID, where these studies took place, and Gallaudet University, the only university for deaf students in the world, the number and

quality of social opportunities offered by these programs play a significant role in attracting and retaining large numbers of deaf students. With ample opportunity to engage in social activities and a keen knowledge on the part of college personnel regarding the academic and social needs of deaf and hard-of-hearing students, a higher level of social and academic integration within the institution takes place. The size of the deaf student population and the availability of social opportunities, such as those at NTID and Gallaudet University, appear to be important factors in attracting and retaining students in postsecondary programs (Stinson & Walter, 1991).

Two studies by De Filippo, Dagel, Foster, McKee, Barefoot, Crandall, et al. (1998) and Bills et al. (1998) provide specific, in-depth examples of systematic programs and services at NTID and RIT that improved retention for groups of deaf students. These studies may be applicable to other colleges and universities seeking to improve retention of deaf and hard-of-hearing students in their institutions as well.

In the De Filippo et al. (1998) study, deaf and hard-of-hearing students who had poor reading and writing grades at NTID benefited from intensive instructor collaboration that focused on the individual learners, the provision of student assistance, and counseling to cultivate positive learning attitudes and behaviors. The objective of this study was to create and implement a “learning community” project to increase the retention of deaf and hard-of-hearing students who had been identified as having poor grades by enhancing their sense of belonging in the hearing and deaf communities as well as their confidence in their ability to succeed academically. Of the 200 students in the entering class, 28 students were eligible for the learning community project because of

their low reading and writing test scores. Except for one student, all the students had a severe or profound hearing loss before the acquisition of language.

The group of 28 students was divided evenly into the experimental and the control group. The experimental group received comprehensive intervention services that involved collaborative learning, interdisciplinary linkages among courses based on themes to enhance levels of understanding, and high levels of interaction among students and faculty members. This group was enrolled in the following courses: Freshman Seminar, English, and a critical-thinking course. The students' progress was closely monitored by the same academic counselor who provided them with counseling. In addition, the team of instructors and the researcher held weekly meetings during the course of the year to clarify the objectives of the projects and focus on the unique needs of the individual students. Finally, a teaching assistant was provided for the experimental group for the Freshman Seminar course, and an older deaf student served as a role model for the students. The students in the control group, on the other hand, were enrolled in similar courses but did not receive the additional services provided for the experimental group (De Filippo et al., 1998).

Several indicators and methodological approaches were used to compare the performance of both groups in this study. First, the records of the teachers who instructed the subjects in either group were collected and analyzed with the focus on three indicators: class attendance, keeping up with assignments, and "effort" (p. 172). The first two indicators were rated in the range of *never* to *always*. Although the class attendance of both groups gradually waned because the students realized that college instructors did not require attendance, the experimental group still exceeded their counterparts in all

respects. While the average rate of turning in the assignments for both groups were exceedingly low at the start of the school year (close to *never* for both), it increased tremendously by the third quarter (close to *always*). During the final two quarters, the experimental group of students still exceeded the control group. For the final indicator, the teachers were asked to rate the students' level of effort within the range of *below average to above average*. During the second quarter, the mean effort of the experimental group subjects was slightly above average, while the mean effort of the control group subjects was between *average* and *below average*. By the third quarter, the rating of the control group subjects improved to reach the average level, and the experimental group improved slightly from the performance of its previous quarter. However, by the last quarter, while the mean effort of the experimental group subjects increased to a level between the *average* and *above average* range, the control group had fallen considerably to almost reach the *below average* level.

Apart from the teachers' records, the number of courses completed, or courses in which the subjects received a grade of *D* or above, was also used to compare the performance of the two groups. In both the fall and the winter quarters, the experimental group subjects exceeded their control group counterparts in completing the courses. For example, during the fall, the experimental group completed approximately 80% of the courses, while the control group completed about 70% of the courses. In the winter quarter, the experimental group succeeded in completing approximately 90% of the courses, while the control group decreased its rate of completion to about 60% of the courses (De Filippo et al., 1998).

In the study, the subjects' attitudes and perceptions about their college experience were obtained through in-depth interviews with 10 of the participants in the experimental group who were willing to participate in that portion of the study. The majority of the participants in the experimental group stated that they were satisfied with their choice of college and expected to graduate. They also stated that their attitude toward their completion of college was largely influenced by older deaf students from home or at school. At this point, the participants were focused on their studies and wanted to adapt to their environment before involving themselves in extracurricular activities. Though some of the students said that the group learning was boring and prevented them from knowing other people, they also appreciated the fact that they were able to forge close relationships with other group participants and experience a familiar environment. They did not suffer from feelings of embarrassment or anxiety when participating in classroom discussions.

Based on the results of the study, De Filippo et al. (1998) concluded that the Learning Community project was successful in helping the deaf and hard-of-hearing participants complete their studies and increase their desire to remain in college. Reasons for its success were identified. First, the utilization of older deaf students as role models and to provide assistance was highly effective in cultivating positive attitudes of persistence in the subjects. Second, the use of the group learning method was also critical in creating an intimate and familiar learning environment to enhance the students' feelings of familiarity or sense of community. Intensive instructor collaboration was also perceived as a key to the success of this project.

Bills et al. (1998) investigated the perceptions of deaf and hard-of-hearing students, hearing students, and instructors participating in academic inclusion programs offered by RIT and NTID. Using both quantitative tools such as the Academic Engage Form (AEF) and the Classroom Communication Ease Scale (CCES), as well as qualitative tools such as interviews and classroom observations, Bills et al. sought to identify the issues and problems associated with academic inclusion and their impact on the students' ability to engage meaningfully in their academic tasks and communicate with their peers. Seventy-six students (46 deaf and 30 hearing) who were enrolled in three academic programs filled out the questionnaires; 70% of the questionnaires were returned. With the AEF, the subjects were asked to present their perceptions of their learning experiences, their relationships with their teachers and peers, and their sense of belonging at RIT. Using the CCES, the subjects evaluated the quantity and the quality of information they obtained and sent. They were also asked to present their feelings of their ability to interact with their peers and staff. Both surveys provided the subjects with the opportunity to express their perceptions by posing open-ended questions.

In addition, 17 RIT instructors were interviewed, using a semi-structured approach. Consisting of 11 males and 6 females, these instructors had a wide variety of teaching approaches and a range of 2 to 23 years of teaching experience. The primary topics of the interviews were (a) the deaf students' perceptions in the class, (b) problems of accessibility for deaf students in the class, and (c) the strategies employed by the instructor to enhance the delivery of information to students. Finally, three classes were also observed to document the behavior and participation of the deaf and hearing

students. Problems and barriers related to communication were identified. Afterwards, the students and the instructors engaged in discussion regarding these observations.

There were several findings in this study. According to the responses of the student participants, both hearing and deaf students shared similar perceptions about their learning experiences. They indicated similar levels of classroom participation and ease of communication. Both groups noted that participation and the understanding of the lecture materials were integral to their sense of belonging in the classes. The pace of instruction was also perceived as a critical factor in affecting their ease of communication. However, compared with the hearing students, the deaf students reported a lack of satisfaction with the pace of the lecture and, therefore, a lack of a sense of belonging to the classes as well as the college community.

Even within the context of the classroom in which the hearing and deaf students shared similar perceptions about the ease of communication, the two groups of students utilized different strategies for communication and interaction. While hearing students typically focused on the instructor, deaf students were highly reliant on their interpreters to help them interact and participate. Because of the indirect nature of the communication, deaf students in the study were considerably less enthusiastic about classroom participation as a critical factor in feeling a sense of belonging to the classroom than their hearing peers. Furthermore, the deaf students also used more learning resources, including text, teacher, friends, tutor, and staff than their hearing peers.

In the open-ended response section of the survey, the hearing students' positive perceptions about academic inclusion were highly illuminating. From their perspective,

the inclusion of deaf students benefited them because the need to include an interpreter slowed down the pace of instruction for them and enabled them to think and participate meaningfully in class discussions.

The interviews with the instructors about the factors that contributed to the success of deaf students in their classes also revealed how the perception of the instructors can affect the performance of all students. Bills et al. (1998) highlighted two related continuums of the instructors' feelings of responsibility related to the learning experiences of the students and their willingness to modify their instructional approaches. In terms of the continuum of responsibility, instructors ranged from those who considered that they were primarily responsible for their students' learning to those who believed that students were primarily responsible for learning their materials. Therefore, the first group of instructors were more willing to adapt their teaching styles to the needs of the students to ensure that both their hearing and deaf students were able to understand the materials. Instructors on the other end of the responsibility continuum did not make any modifications in their instruction and did not acknowledge the challenges confronted by deaf students. In their opinion, the support services that the deaf students received compensated for the students' deficiencies. Most of the instructors tended toward the belief that students should be responsible for their own learning or should rely on their support personnel for assistance. At the same time, observations of the classes and the interviews also revealed that the instructors were frustrated by the fact that both the hearing and deaf students adopted a passive stance toward the communication and learning problems in the classroom. Even when they encountered problems, they did not voice them, because they did not want to disrupt the status quo.

Based on these discussions and observations, several types of classroom barriers encountered by deaf students in mainstream settings were identified. These barriers included physical classroom design, instructional approaches, and instructional and student attitudes. First, the configuration of the classroom environment such as the positioning of chairs or the positioning of the interpreter as related to the instructor affected the deaf students' ease of communication. If the interpreter was situated close to the instructor, the students' eye-shift distance was reduced, and the instructors were able to be more responsive to the students' needs. Second, instructors needed to modify their instructional approach to improve the quality of their interaction and communication with both hearing and deaf students. The distribution of handouts of lecture notes at the start of lectures greatly aided deaf and hard-of-hearing students in following the presentation of the lecturer. At the same time, hearing students benefited from receiving written notes to enable them to concentrate on listening to the lecturer instead of writing notes. Furthermore, instructors could also provide more time for student response by counting up to five after posing questions. When instructors expected rapid responses, they did not allow sufficient time for the interpreters to finish signing so that deaf students could participate in the classroom discussion. Hearing students also noted in the Bills et al. (1998) study that they appreciated additional time to reflect on questions.

In addition, instructor and peer attitudes must be ameliorated to reduce the barriers encountered in the classroom. For example, instructors in the Bills et al. (1998) study who believed that students were primarily responsible for their own learning were unwilling to modify their instructional practices. This constituted a significant barrier, according to the study respondents. Because the instructors thought that support services

compensated for the students' hearing loss, they did not adjust their teaching styles to enhance the level of communication with deaf students. As indicated, both the hearing and deaf students in the study adopted highly passive attitudes with communication. Even when they experienced difficulties in the classroom, these students were not willing to risk disrupting the status quo to express their concerns and ameliorate the situation. However, as Lang and Meath-Lang (2000) pointed out, in the case of deaf students, a proactive attitude and recognition of the need for self-advocacy is vital to the success of deaf learners. By participating actively in the learning process, deaf students would thus enhance their ability to succeed in the classroom.

Finally, extraneous factors related to technology such as captioned media in the classroom were important in understanding videotaped material for both hearing and deaf students. These factors also needed to be acknowledged and addressed to help deaf students overcome their classroom challenges (p. 4).

The findings of the De Filippo et al. (1998) and Bills et al. (1998) studies suggest that considerable attention must be devoted to the effect of the college environment as it relates to academic and social integration, student satisfaction, and persistence for deaf and hard-of-hearing students as well as hearing students. It is little wonder that in mainstream universities, social and academic outcomes for deaf and hard-of-hearing students are typically less than exceptional. Clearly, students face "unique difficulties in being integrated into the social and academic mainstream of college life" (Stinson & Walter 1997, p. 14). They may feel isolated, not being able to understand classroom lectures or their peers. Although these students may find helpful services such as note taking or sign language interpreting to participate in classes, colleges must improve their

ability to provide adequately the accommodations necessary to meet each student's needs. Colleges must examine many facets of their institutions, including peer and instructor attitudes and collaboration, instructional approaches, curriculum modifications, classroom configuration, and adequacy of services to make the environment accessible and friendly to deaf and hard-of-hearing students.

Conceptual Framework Guiding This Dissertation

In this dissertation, 10 respondents were interviewed to examine their perspectives on their academic and social integration experiences in a large mainstream university. Qualitative methods such as in-depth personal interviews and focus group interviews were used to examine several themes and categories that, according to the literature, were shown to affect deaf and hard-of-hearing students' integration in college as well as their level of commitment to persisting in college with the goal of attaining a college degree. The categories and themes that were identified include previous mainstream experience, communication and social ability, self-advocacy and study skills, identity issues, degree of involvement in extracurricular and other college activities, role models and mentors, and provision and adequacy of college support services, particularly Disabled Student Services. Because the perspectives of the students were examined and not of their peers or instructors, there was no direct examination of peer attitudes and instructor collaboration and support, although the students discussed these issues to some degree in their interviews.

Although the conceptual frameworks and models created by Tinto (1987) and Stinson et al. (1987, 1991, 1997) are highly relevant to this dissertation, and several related variables were relevant to the conceptual framework of this dissertation, they

were not replicated in this study. Variables in Stinson, Scherer, and Walter's (1987) model showing the effect of the background experiences of the students, such as their mainstreaming experiences and grades, as well as their academic and social experiences within the college setting, were certainly pertinent. However, a few variables such as the distance from home, the assessment of the college speech-reading ability, and college achievement tests were not incorporated into the conceptual framework guiding this dissertation. Most significantly, this dissertation did not use quantitative methods. The researcher was interested in revealing the unique perspectives of 10 deaf and hard-of-hearing students regarding their interaction within a mainstream college setting using qualitative research methods. The present research is, therefore, less concerned with assessing the relationships among specific variables. It is also important to point out that unlike the National Technical Institute for the Deaf, the Carnegie Research-I university where the dissertation research took place is a mainstream college that does not cater specifically to the needs of deaf and hard-of-hearing students. The researcher's description and analysis of the experiences of deaf and hard-of-hearing students, therefore, occurred in an institutional environment unlike that experienced by students studied by Stinson and his colleagues.

In view of the use of a qualitative research approach and the context of the mainstream college setting in this dissertation, the Tinto (1987) model might be more relevant to the construction of a conceptual framework for this discussion. However, Tinto's (1987) model of student retention must still be adapted to ensure its applicability to the deaf and hard-of-hearing student population studied.

Additional persistence-related conceptual frameworks based on critiques of Tinto's (1987) framework and model of student persistence were considered as follows, and as such, a few modifications were made to create the conceptual framework used to guide the analysis of the experiences of the participants in this dissertation.

Ability to Pay for College and Other Themes

Braxton (2000) critiqued and added suggestions for revisions to Tinto's 1975, 1987, and 1993 conceptual framework and models of student persistence in college. While Braxton admitted that Tinto's framework has been near-paradigmatic in college persistence and retention theory, contributions to his text update the literature by providing new thinking about this framework.

The authors in the Braxton (2000) text examined additional themes and categories related to student persistence in college, including financial, psychological, and sociocultural factors, as well as classroom and institutional climates. While the researcher considered adding several new themes and categories to the conceptual framework for this dissertation based on these studies, the researcher decided most important to this dissertation was the discussion regarding "ability to pay." St. John, Cabrera, Nora, and Asker (2000), in Braxton (2000), discussed the importance of providing a description of the students' cultural capital, socioeconomic status, and how they perceive their ability to pay for college. In conducting a review of relative studies, they found, for example, that "financial aid...[enhanced] the student's academic performance in college while increasing intent to persist" (p. 35). Ability to pay for college comprises the tangible factor of a student's ability to pay for college, as well as the intangible, psychological

factor of the student's perceptions regarding his or her financial circumstances (p. 37). Both factors affect the ability of students to be integrated positively in the college environment. Ability to pay for college and the respondents' views of their financial circumstances, therefore, were questions the researcher incorporated into the collection and analysis of the data.

Other themes and categories identified by authors in the Braxton (2000) text were considered for this dissertation's conceptual framework, but were not incorporated as explicitly as the theme "ability to pay," as described by St. John et al. (2000). Baird (2000), for example, emphasized a psychological, as well as behavioral, approach to Tinto's 1993 model. Baird stated the importance of emphasizing the "central role of students' appraisals of their environments. These appraisals represent students' personal understandings of the structures of the environments and their opportunities and constraints upon behavior" (p. 67). Student perceptions or judgments of the opportunities and constraints within the academic and social systems within the college affect various behaviors, which, in turn, affect their levels of social and academic integration. Because the present study focused on student perceptions of their college experiences, the respondents' appraisals of their environments were examined, but without examining complex psychological factors. For example, this dissertation explored whether participants perceived the classroom and college climates at State U to be hostile or friendly and whether this perception influenced their perceived academic and social competence in these environments.

The researcher also analyzed the perspectives of the respondents in the context of culture (i.e., Deaf and hearing culture) and also as a somewhat marginalized and

underrepresented minority group. Kuh and Love (2000), in Braxton (2000), stated, “The Tinto expectation of integration is particularly problematic when trying to understand and explain the experiences of students from historically underrepresented groups” (p. 197). Kuh and Love emphasized the importance of viewing student persistence and departure as a sociocultural phenomenon and group experience rather than as just an individual, psychological experience (p. 199). Therefore, the perceptions of the deaf and hard-of-hearing study respondents must be framed within the larger context of their particular group as well as their individual experiences, as “subgroups develop with values, attitudes, and norms that differ to varying degrees from those of the larger dominant group and subgroups” (p. 199). The researcher was particularly concerned with capturing the perceptions of the student participants as a cultural group during the focus group interviews.

Apart from the Braxton text, Draper (2002) expanded Tinto’s 1987 framework and model by clarifying the model’s existing components, such as “academic integration,” “social integration,” and “goal and institutional commitments.” Draper’s framework demonstrated further the dynamic variation between and complexity of the dimensions involved in a student’s decision-making process in deciding whether to persist with his or her studies. As part of his framework, Draper provided a questionnaire (appendix B) that may be used in soliciting the perspectives of study participants regarding this process. While aspects of Draper’s questionnaire have been incorporated into this dissertation’s conceptual framework, neither was replicated in this study. As will be seen in the Interview Protocol section in chapter 3, questions from Draper’s questionnaire investigating aspects such as studying the reasons for attending a

mainstream university and investigating the types of challenges students confront and the ways they overcome these challenges, similar to Menchel's (1995) research questions, were investigated in this dissertation. What was unique about Draper's framework and questionnaire, however, was how the relationships among goals, method, and achievement were examined, particularly in relation to intrinsic and extrinsic factors. These constructs were also investigated to some degree as part of the conceptual framework of this dissertation.

Draper suggested that the concept of integration should be considered from both external and internal perspectives. For example, the students' evaluation of their sense of belonging can be viewed from their personal perspective and also from the perspective of their peers. The concept of "integration" also intersects with the academic and social components of the students' role. Although the academic component is primarily related to learning activities, the social component is related to how the students perceive themselves in relationship to students and staff within the university and with outside groups. Depending on the students' perceptions of the importance of the individuals both within and outside the university, students may experience a conflict of expectations between peers and faculty members on campus and their family and friends outside campus life. In this dissertation, only the perspectives of the deaf and hard-of-hearing students are described and analyzed, not those of their peers. However, data on peer perspectives were to some degree indirectly captured during the respondents' interviews.

Draper (2002) also proposed expanding Tinto's 1987 and 1993 models to recognize the differences among goals, methods, and achievement. Although a student may want to achieve a specific objective, he or she may not succeed, because he or she

does not know or like the method required to achieve it. Even when a student has an intended goal, he or she may not achieve it because of various problems or barriers. In addition, a student may not have recognized that a specific goal needs to be established until he or she has failed to achieve an objective due to encounters with unanticipated problems. Therefore, Draper argued that these three factors and the interplay of each must be acknowledged in Tinto's model.

The final dimension of Draper's model involves the intrinsic and extrinsic motivation underlying the learning process and activities. Students must weigh every activity's intrinsic and extrinsic value. For example, students who continually pose questions to an instructor may incur dislike of other students (extrinsic negative value), but they may gain positive intrinsic value by ensuring that they have understood the learning materials. Every learning activity, therefore, has two facets that offer intrinsic and extrinsic value for the students (Draper, 2002).

Draper argued that these three dimensions can be integrated into a new model of student retention by multiplying them together: "[Integration: Academic, social within university, social without university] X [Goal, method, achievement] X [Intrinsic, extrinsic]" (p. 6). While Draper's framework and model of student persistence is significant, it must still be modified further to ensure its applicability to the deaf and hard-of-hearing student population. Although deaf and hearing students both benefit from positive academic and social experiences that will encourage them to persist in their studies, the Northeast Technical Assistance Center (n.d.) and others indicated that deaf and hard-of-hearing students require specific modifications to the academic and social environments of college, which are vital to their ability to participate meaningfully in the

realms of a college setting, particularly in mainstream colleges. Therefore, the three dimensions in Draper's model should include another dimension: institutional and environmental support services. Thus, a new model might include these dimensions: [Integration: Academic, social within university, social without university] X [Goal, method, achievement] X [Intrinsic, extrinsic] X [Institutional and environmental support services]. Again, Draper's framework and model were not replicated to guide the collection and analysis of data for this study. However, aspects of such were incorporated into the conceptual framework for this dissertation. First, consideration was given to students' intrinsic and extrinsic motivation underlying learning processes and social activities. Second, the interplay of goals, methods, and achievement, as Draper described, was examined to some degree. A modified model would include the effect of institutional and environmental support services such as those provided by DSS on the academic and social integration of deaf and hard-of-hearing students.

Restatement of Research Questions

A restatement of the research questions follows to align with the concepts presented in the conceptual framework. Consideration was made throughout for intrinsic and extrinsic values of variables and the interplay of goals, methods, and achievement, as described by Draper (2000).

Because studies showed that background factors such as motivation, coping skills, support systems, and support services were deemed important to deaf and hard-of-hearing students' success in higher education, the first research question involves pertinent background data from each study participant. The factor of ethnicity was considered, as well as the presence of role models; parent/teacher support; personal attributes, such as

motivation, resilience, prior academic achievement (grade point average), perceived social competence, selection of a mainstream college (i.e., as opposed to Gallaudet University); and commitment to college. The first question is as follows:

What are the various background factors (such as prior mainstreaming experience and personal attributes such as motivation and level of commitment to college) that are relevant to the quality of the students' academic and social integration experiences in college, and how are they relevant?

The data were collected by using the Background Data Questionnaire, as presented in appendix A, and by conducting interviews.

The quality of college life that a student experiences may be described by a qualitative account of the social, academic, and extracurricular activities in which the student is involved. Factors examined include the quality of social interaction and involvement on and off campus, hearing–deaf interaction, perceived acceptance of deafness, perception of classroom and college climate, ease of communication, ability to pay for college, and level of integration based on student standing. A sociocultural and an individual “lens,” as described by Kuh and Love (2000), were used to help interpret the findings. Data collection methods such as documentary evidence, participant interviews, and focus groups were used to describe the quality and extent to which a student is involved in everyday college life.

The second research question is as follows:

How are these students involved in college life with their peers as well as the staff/faculty at college, and how does this involvement affect the quality of the students' academic and social integration experiences?

The third research question for the study addresses the role that the DSS office and other support services have at State U in relation to the students' integration experiences. Because the quality and appropriateness of services that a student receives can facilitate or hinder the ability of a deaf or hard-of-hearing student to achieve academic, social, and extracurricular access in college life, this dimension of the investigation is required. The availability, quality, and appropriateness of college support services may be perceived to be significantly related to their level of integration. Students were asked whether they were able to attend lectures, labs, and extracurricular activities on campus; participate in class and other college activities; establish friendships and support networks, and succeed in their studies based on college support services.

The third question consists of two related parts:

- a. *What services or people at State U have been supportive of these students' college experiences?*
- b. *How have these services affected the quality of these students' academic and social integration experiences?*

The fourth research question addresses the ways in which the respondents were able to cope and stay in a mainstream university over time, despite various social and academic obstacles. The question attempted to evaluate how students were able to maintain their level of commitment, as well as the specific skills and strategies used to do so. An attempt was made to explore the dimensions as to whether students in higher academic standing, such as graduate students, have more commitment to college than freshmen or those with lower academic standing. An initial fourth research question that

originally focused on level of integration according to student standing was altered mid-study and became two parts:

- a. Why do deaf and hard-of-hearing students decide to stay in a mainstream university, and does their level of commitment to college increase over time?*
- b. What suggestions do they have to improve their situation?*

Several skills and strategies used by the respondents to navigate college life successfully are offered as suggestions for ways in which to improve their and other students' situations in college.

Summary

The first part of this chapter examined the history, terminology, and population statistics of deaf and hard-of-hearing students in higher education, as well as issues such as the relationship among social mainstreaming, isolation, academic achievement, and the role of college support services. The dilemmas that deaf and hard-of-hearing students face in higher education, along with the need for college support services that cater to their specific needs, were illuminated. The studies highlighted in these sections provided important background knowledge for evaluating and interpreting the data and findings in this dissertation.

The distinctive experiences of the deaf and hard-of-hearing students from minority backgrounds and different cultural and linguistic statuses were also discussed. Although deaf and hard-of-hearing students are frequently excluded from the hearing culture, deaf and hard-of-hearing people from minority backgrounds are further marginalized. Often the fact that they have needs and challenges that differ from those of White, middle-class people who are deaf is ignored. For the most part, the literature

review in chapter 2 addressed the needs of deaf and hard-of-hearing students while attempting to acknowledge the relevance of the factor of ethnicity. To tap into the wide range of issues and barriers confronted by deaf and hard-of-hearing college students, the factor of ethnicity needs to be taken into consideration. Students from minority backgrounds and from other special groups, such as hard-of-hearing students, have unique viewpoints that need to be heard and told so that efforts will be implemented to assist them in enjoying fully integrated lives on campus.

The final part of this chapter presented a focused and concise discussion of the conceptual frameworks and the studies that are applicable to the academic and social integration experiences and persistence of deaf and hard-of-hearing students in colleges. The conceptual framework for this dissertation was developed after reviewing these conceptual models and studies. First, Tinto's 1987 framework and model of student departure or retention was discussed, because of its focus on the interaction of students, peers, and institutional components within colleges. Depending on the type of environment that is provided to students at the institutional and informal levels, students engage in a complex decision-making process to decide whether to persist with their studies or withdraw from college. This model was also incorporated into this dissertation because of its acknowledgement of the complexity of the background influences that contribute to the students' ability and willingness to deal with the stresses associated with college life.

Second, the adaptation of Tinto's framework and model by Stinson et al. (1987, 1997), in an effort to apply it to the deaf and hard-of-hearing student population, clearly demonstrated the relevance of the model to this specific student population. The studies

on student persistence highlighted in this chapter indicated the relationships among certain themes and categories such as mainstream experience, social and communication abilities, study skills, identity issues, involvement with extracurricular activities, and academic performance both before and during college. At the same time, the studies indicated that deaf students face unique challenges in their efforts to succeed in the college setting. Unlike their hearing peers, deaf and hard-of-hearing students particularly rely on support services such as interpreters and note-takers to assist them in performing their academic tasks. Their perceptions of academic and social integration are also related to the attitudes of their peers and faculty members, as well as the general environment. For many deaf and hard-of-hearing students, mainstream college settings do not provide a sufficiently inclusive or accessible environment that embraces the perspectives of students from many minority groups.

Contributions from Draper (2000) and the Braxton text (2002) were, to a lesser degree, significant for the conceptual framework guiding this dissertation. Draper emphasized the intrinsic and extrinsic dimensions of goals, methods, and achievements. Braxton considered the relevance of economic, psychological, behavioral, and cultural variables that expanded on the Tinto (1987, 1993) models. Ability to pay for college was considered important to the development of the conceptual framework for this dissertation. Examining some psychological factors such as self-confidence based on student perceptions of the classroom and college climate were also deemed significant. Finally, viewing the findings through both a sociocultural and individual lens, as described by Kuh and Love (2000) in the Braxton (2000) text, was relevant in evaluating the data for this study and interpreting the findings.

Based on the discussion of these conceptual models and the studies of student persistence, this dissertation incorporates and extends these models using a qualitative approach that would be applicable to deaf and hard-of-hearing students studying in a mainstream college setting. Unlike the model created by Stinson et al. (1987, 1991, 1997), which is based on quantitative assessments, the present model attempted to capture the unique perspectives of the participants, verify certain themes and categories that affect the academic and social integration experiences of deaf and hard-of-hearing students, and even identify new themes and categories. To create a model that would explore the perceptions of the participants, the original Tinto (1987) model was revised and expanded, incorporating a revisionist stance to the model. Finally, the research questions were restated to align the concepts with the new conceptual framework.

CHAPTER 3: RESEARCH DESIGN

Introduction

This chapter outlines the research design for this study. The chapter begins with a discussion of the use of qualitative research methods, including case study methods. Second, the data collection and data analysis procedures are presented. Sources of data collection included surveys, semi-structured interviews, and focus groups. Data analysis was conducted using analytic memos, coding, collaborative analysis, and a peer debriefer. The validity of the dissertation is also discussed, emphasizing a triangulation approach involving multiple methods, including analytic memos, member checking, and peer debriefers. Multiple methods were used to verify the validity and the interpretations of the data. Finally, the ethical concerns about the confidentiality of the respondents and the justification for data modifications are presented.

Qualitative research is a term used to describe several research strategies that share similar characteristics. A qualitative researcher conducts an inquiry that explores dimensions of a human or social problem or phenomenon (Creswell, 1998). Using in-depth, descriptive data, the researcher attempts to create a holistic picture of the problem or phenomenon using various methods. These methods may include participant interviewing and observation and are conducted in a natural setting. Often the investigator commits to extensive time in the field, engages in a complex, time-consuming process of data analysis, sorts a large amount of data into themes or categories, and is subject to an evolving and changing process of research (Creswell, 1998, pp. 16–17).

A case study inquiry is appropriate for this study as it “arises out of the desire to understand complex social phenomena [and] contributes uniquely to our knowledge of individual, organizational, and social phenomena” (Yin, 1994, pp. 2–3). The phenomenon of how deaf and hard-of-hearing students are integrated into college life is a specific, complex, functioning event characterized as a “bounded system” (Stake, 1995, p. 2). Merriam (2001) used the analogy of a fence: a phenomenon is “fenced in” or occurs in a bounded context (p. 27). A case study method effectively and intensively describes and analyzes a complex, “bounded” system or case using holistic description and explanation to uncover the interaction of significant factors characteristic of the phenomenon being studied (Merriam, 2001). In this dissertation, the case being examined was the academic and social integration experiences of 10 deaf and hard-of-hearing students attending a large, mainstream university.

As an empirical inquiry, the case study investigates a contemporary phenomenon within its real-life context, particularly when the boundaries between the phenomenon and the context are not clearly evident (Yin, 1994, p. 13). Yin stated that this type of method should be used when the researcher wants to investigate contextual conditions based on the belief that they might be highly pertinent to the phenomenon of study.

In a case study research design, the case is pre-selected, clearly defined, and described in depth. The single most defining characteristic of case study research lies in delimiting the object of the study—the case (Stake, 1995). The primary aim of the research is to learn about and thoroughly understand this single case, as opposed to learning about and understanding other cases. The case study design is chosen because

the investigator is interested in the insight, discovery, and interpretation of this one case rather than hypothesis testing and generalizing to other cases.

Because the first obligation is to understand this one case, case study research is not considered sampling research. Stake (1995) described the difference between particularization and generalization: “[We] take a particular case and know it well, not primarily how it is different from others but what it is, what it does” (p. 8). According to Stake (1995), the statistical analysis used in a case study approach is generalized to a theory based on the study of cases considered to be representative of components of the theory, rather than a population based on a sample that is considered representative of the population. Thus, the prior development of conceptual propositions serves to guide data collection and analysis.

In using a conceptual framework to analyze the data, Yin (1994) stated that the researcher should be able to establish the fact that most of the cases verify the components of the conceptual framework—a case study approach known as *pattern matching* (p. 106). A more systematic approach of pattern matching, known as *process tracing*, would bolster the case study analysis by establishing the existence of specific patterns of relationships among the variables that go beyond random association. For example, this dissertation needed to have cases that demonstrated that the students’ experiences with support services exerted an effect on their perceptions of academic and social integration in the mainstream college; while positive experiences enhanced their feelings of integration in the mainstream college setting, negative experiences diminished their feelings of integration.

Although this dissertation established a conceptual framework that utilized the case study approach in chapter 2, the researcher was also open to new aspects of the phenomena that were raised by the participants in this study. Therefore, this dissertation used another case study strategy of “explanation building” to determine whether alternative attributes or aspects of the phenomena should be considered that might depart from those identified in the conceptual framework to depict a more accurate experience of the deaf and hard-of-hearing participants in the study (Yin, 1994, p. 110). As Yin stated, the case study inquiry addresses the technically distinctive situation in which there are more variables of interest than data points. As a result, multiple sources of evidence are needed, with data needing to converge in a triangulating fashion. The need for triangulation is also based on the fact that only a small number of cases are used to validate the conceptual framework. Therefore, a triangulation approach involving multiple methods was employed using structured and unstructured interviews, sampling, surveys, focus groups, narrative analysis, ethnography, and participant observation.

Ethnographic Method

While ethnography was not the primary research method used for this dissertation, this study has ethnographic characteristics. The ethnographic method focuses on the analysis of a specific community and utilizes interviews to draw out the participants’ insider perspectives of the community and the phenomena in the study. In the case of this dissertation, although the participants’ backgrounds and past experiences are important to the study, their perceptions of their current experiences at State U are critical to the understanding of the topic of this study. Using an “emic” perspective, this study was interested in eliciting the participants’ view of State U as members of the

community. One of the assumptions of ethnography is that, as in the case of this study, the researcher possessed the skills and knowledge of the population under evaluation and was able to interact successfully with the culture under evaluation. As a hard-of-hearing student who is also attending college, the researcher was well suited to using the ethnographic method, because she had a direct understanding of the values, practices, and behavior of the participants and the culture being studied.

Sampling

The context for this study is a large public university, called “State U” for confidentiality reasons, which serves as the flagship of a state university system. Located on 1,500 acres in an Eastern state, this institution has an enrollment of more than 33,000 students, 33% of whom are minorities. Classified as a Carnegie Research-I university, this major public research university operates on a budget of about \$960 million, a large percentage of which is derived from federal and state funds and is earmarked for research purposes.

As with most colleges, a portion of the budget is reserved for services for students with disabilities through the Office of Disabled Student Services (DSS). Details on the services provided by DSS and the campus’ diversity initiative in support of students, including those with disabilities, were outlined in chapter 2.

As described earlier, the DSS office at State U coordinates accommodations for students with documented disabilities who are currently enrolled. Accommodations are determined on a case-by-case basis and may include sign language interpretation, note-taking, and extended examination time. DSS also typically provides needs assessment, mediation, referrals, and advocacy.

Potential candidates for this investigation were contacted through the DSS office at State U. At the start of data collection in February 2002, the researcher was able to obtain estimated numbers of deaf and hard-of-hearing students enrolled full time and receiving services at State U for each semester when data were collected—spring 2002: 15 students, nine women and six men, three of whom were Asian and twelve of whom were White; summer 2002: three students, one woman and two men, all White; fall 2002: 11 students, eight women and three men, two of whom were Asian and nine of whom were White. There were no students enrolled during this time that belonged to any other ethnic or racial group.

At start of this study, the DSS staff indicated that at any time there was an unspecified number of deaf and hard-of-hearing students who were enrolled but not receiving any services from the DSS office. Some of these students may not have needed services due to having a mild or moderate hearing loss that did not significantly affect academic and social functioning. Or, as mentioned in chapters 1 and 2, they may not have been receiving services due to any of the following reasons: (a) they felt embarrassed asking for services or were afraid of rejection; (b) they underestimated the challenges of college life, particularly during their first year (Menchel, 1995); or (c) they did not know that any services existed. Although obtaining data for this investigation from students who were not receiving DSS services at State U may have explained why some students did not want or need services, the researcher determined that it was difficult, if not impossible, to locate these students and recruit their participation in the study. Therefore, participants from this nonserviced group of students were not recruited for this study.

The DSS staff at State U also reported that there was another group of deaf students who took classes on campus but who did not receive services from their office. Every semester, a number of students from nearby colleges and universities were cross-registered—that is, registered at another college or university, but taking classes at this particular institution. Because they were not enrolled full time at State U and were not registered with the DSS office at State U, cross-registered students were not considered for this dissertation. In addition to not being eligible for services at the DSS office at State U (the DSS offices at the universities in which they are enrolled are responsible for providing these students with the accommodations they need), students registered at a different type of college or university may not have been able to express a valid description of their experiences in the context of this particular university.

To obtain student participants for the study who were enrolled full time at State U and were receiving services, the following procedures took place. The coordinator of deaf services of the DSS office at State U served as a contact liaison between the researcher and the students. A letter of introduction from the researcher that described this investigation was sent by the contact liaison to potential participants via e-mail (see appendix B). If interested, they were asked to contact the researcher via e-mail. From this initial contact, eight study participants were obtained. A flier describing this study was later posted near the DSS office, whereby two more students not on the original e-mail list responded. Altogether, a sample of 10 student participants was obtained.

The 10 student participants signed a consent form indicating their willingness to participate in the study. The consent form listed the stipends involved, confidentiality agreement, and other pertinent factors. An attempt was made to obtain a wide cross-

section, or maximum variation, of first-year and post-first-year student participants for this investigation, comprising a variety of communicative, racial, and ethnic backgrounds. Although there were no Hispanic or African American students during the data collection period, two Asian students and one Arabic student were recruited for this study. The researcher also attempted to recruit study participants with a range of communicative preferences, including sign language, cued speech, and speech. The researcher was able to recruit one student who used cued speech, four students who were primarily oral, and five students who primarily signed, although 8 out of 10 study participants essentially had the ability to sign.

A combination of first-year and post-first-year students was initially sought for the study to examine the level of college integration among students of different standings. An initial fourth research question related to a comparative analysis of the level of commitment between first-year and post-first-year students was altered in mid-study, as indicated in chapter 2. Initially, the researcher considered that levels of integration may be quite different for a student just beginning college compared with a student who has persisted in college for at least one year and has re-enrolled for his or her second year or above. Students who are new to the college experience may still be developing their coping, social, and academic skills learned before college, compared with students who have remained in college for a longer period of time and have become better adapted to the challenges of college life. In addition, studies of college persistence have noted that students who persist beyond the first year of college are more likely to remain in college and attain a college degree. Because a wide cross-section of students from undergraduate and graduate standings were recruited for this dissertation, some

aspects concerning levels of integration between the students and their class standings were examined. However, because only one freshman—a transfer student—and two sophomores were obtained for this study, insufficient data made this question difficult to answer, so it was modified mid-study to focus, in part, on gauging the participants' level of commitment to college and whether this increased over time.

Although most of the persistence studies available on deaf and hard-of-hearing students were well funded and included large samples, this study used a small sample size. *Convenience sampling*, referring to the use of the most convenient means of obtaining the respondents for the study, was employed (Maxwell, 1996, p. 70). Because of the small sample, this study was able to capture a broad range of responses and was able to be open to the unique perceptions and interpretations of the participants to the questions posed. Ten student respondents were recruited and participated in the in-depth interviews for this study. Of these 10 respondents, 8 participated in one of the two focus groups. The two remaining students either chose not to participate or were unavailable.

Data Collection

Data collection methods were established so as not to disturb any ordinary activity of the case. A finite amount of time—three semesters—was determined in which to examine the case, using a triangulation of methods such as interviews, documentary evidence, analytic memos, and focus groups. The data were collected from April 2002 to December 2002.

In collecting data on the case, objective recordings and interpretations or assertions were made while simultaneously examining meanings and redirecting observation to refine or substantiate those meanings (Stake, 1995, p. 9). In conformity

with the approach of qualitative research, initial research questions and sampling methods were modified in response to the interaction with the participants. Although a balance and variety of research questions were considered for this dissertation, “progressive focusing” occurred where necessary when early questions were not working, new issues became apparent, and the design changed (Stake, p. 9). Initial research questions were slightly altered mid-study. Such modification was exemplified in the description of the fourth research question.

The researcher remained open to the dynamic and changing quality of the data collection process. Unusual cases were selected in addition to “typical” cases, to help illustrate matters or variables that were overlooked in typical cases. For example, this sample included two students who saw a flier about the study that was posted midway through data collection. Both students advised that because they rarely request services and thus were not placed on the original e-mail list, they otherwise would not have heard about this study or chosen to participate. Also, this study included one mildly to moderately hard-of-hearing student and one student who used cued speech. These cases could be considered somewhat atypical, as the majority of studies include students who are deaf and use either speech or sign language.

Students selected for the study were asked to complete the Background Data Questionnaire (appendix A) prior to their first interview. This questionnaire collected demographic information about the respondents and provided some open-ended questions regarding their educational and social experiences in high school and college. After the questionnaires were received, each respondent participated in a follow-up discussion of their responses in a one-on-one interview.

The in-depth interviews included open-ended questions that helped the researcher to analyze primarily (a) how these students regarded the quality of services available to them; (b) how they regarded the quality of accessibility and climate at the college or university at which they attend; (c) how they perceived the quality of their academic and social integration experiences; and (d) methods they used to help them cope and persist.

Each interview took from one to two hours. Where the participant used sign language as the primary mode of communication, a sign language interpreter was used to voice-interpret and transcribe the interview using voice recognition (VR) technology. Although the researcher is fairly proficient in understanding and using American Sign Language (ASL), having the interview conducted with a sign language interpreter present ensured that communication was facilitated during the interview and that no information was lost. Interview videotaping was considered, but the VR method was chosen to deliver the transcript more quickly to the student participant for checking.

Eight of the interviews were conducted using Dragon NaturallySpeaking (DNS) version 6, a software program utilizing voice recognition technology. For the first four interviews, where sign language was used to conduct the interviews, a sign language interpreter who had had an hour of training using Dragon NaturallySpeaking, voice-interpreted the interviews by speaking into a microphone that was used to create the DNS transcript in real-time. A real-time transcript was then produced during the dictation of each interview, which could be viewed on a computer screen. Occasionally, the interpreter or the researcher would notice mistakes in the transcript being produced in real-time. This happened a few times during the first four interviews, because the

interpreter did not have enough DNS training to produce an adequate transcript. When mistakes occurred, this slowed down the interview process considerably.

A tape recorder was used as a backup for these interviews, although it was later determined that the sound quality of the tapes was poor. This was unfortunate, as the first four DNS transcripts were mediocre. It was clear that the person using the DNS software had to be very skilled at using the software to produce adequate transcripts. Because the DNS transcripts were hard to read and adequate transcripts could not be obtained from the tapes, the researcher submitted the DNS transcripts to the student participants with her own editing based on notes and analytic memos and highlighted certain areas for correction. Two of the respondents from the first four interviews responded with corrections.

Following the first four interviews, the researcher concluded that it was too complicated a task for the sign language interpreter to voice-interpret while simultaneously using DNS. Also, the person using the software needed adequate training to produce an intelligible transcript. Therefore, for the next four interviews, a different strategy was tried, using a service called remote transcription (RT). For this method, a sign language interpreter was still used but this time the interpreter voiced into a telephone where a person on the other end used DNS to produce the transcript. Specifically, the person on the receiving end of the telephone, who had received several hours of training using DNS, simultaneously listened to the interpreter who was dictating and produced an interview transcript using this technology in real-time. The transcript could be read on a screen and saved to a disk afterwards. By using the RT method, there was less need to be concerned about mistakes with the transcription, knowing the

transcriber was adequately trained. This allowed the researcher to focus more fully on the interviews. However, on one occasion, the RT transcriber lost about 20 minutes of the transcription due to technical problems.

For the interview with the student who used cued speech, the cued speech transliterator facilitated the dialogue while the director of adaptive technology, who assisted with all the technological setups for the first eight interviews, spoke into the telephone for the transcription by the RT transcriber.

The last two interviews were conducted back-to-back with students who were oral and did not require a sign language interpreter. However, due to some miscommunication between the researcher and the adaptive technology director, a tape recorder was not made available. Instead, the researcher took extensive notes.

Transcripts of the interviews were sent to students for checking soon after the actual interviews. Afterwards, subsequent interviews and collaborative analysis were conducted where necessary, mostly by e-mail. Upon inquiry, all the participants stated that they were comfortable with follow-up questions and analysis via e-mail.

The participants were also asked whether they were willing to join a focus group after the initial interview data had been collected, coded, and analyzed, and initial member checking and collaborative analysis had occurred. Eight out of 10 students who participated in the one-on-one interviews also joined one of the two group interviews/focus groups.

The following section presents a data collection protocol that was used during the in-depth interviews to collect data for each research question. Interview questions were intended to convey the students' perceptions of their integration experiences at this

university, namely, how they perceived the quality of academic and social life on campus as they experienced it. The primary research question was this:

What are the perceptions of deaf and hard-of-hearing students regarding the quality of their college integration experiences at a large public university?

Interview Protocol for Student Participants

First Research Question

What are the various background factors (such as prior mainstreaming experience and personal attributes such as motivation and level of commitment to college) that are relevant to the quality of the students' academic and social integration experiences in college, and how are they relevant?

To collect data for the first research question, the following protocol was used:

1. The researcher first confirmed that the participant completed all sections of the Background Data Questionnaire (appendix A).
2. The researcher then asked the participant to describe why he or she had decided to enroll in college and to name the persons, if any, who influenced this decision.
3. Then the participant was asked to reflect on his or her background characteristics and previous mainstream experience and how those factors influenced his or her decision to attend a regular college or university.
4. The participant was asked to explain why a regular university was chosen instead of a postsecondary program designed specifically for deaf students.
5. The participant was asked why the decision was made to attend this particular university, whether he or she was satisfied with that decision, and why.

6. The participant was asked whether he or she had had any influential role models or mentors who had inspired his or her decision to attend college.

7. The participant was asked to describe his or her academic achievement before college and how his or her study strategies had influenced his or her academic achievement in college.

8. The participant was asked to describe how he or she was able to communicate and socialize with others in a mainstream environment.

9. The participant was asked how he or she was able to pay for college.

Second Research Question

How are these students involved in college life with their peers as well as the staff/faculty at the college, and how does this involvement affect the quality of the students' academic and social integration experiences?

1. The participant was asked about the level and quality of social interaction he or she had with hearing peers, friends, and other support systems and ways in which he or she was involved with campus life, such as participation in extracurricular activities, living in a dormitory, and working on campus.

2. The participant was asked to describe his or her relationship with faculty members: Did the student perceive faculty as accommodating and understanding regarding his or her needs?

3. The participant was asked to describe how he or she participated in class and whether he or she was comfortable doing so.

4. The participant was asked how he or she communicated with others and whether he or she had opportunities to do so.

5. The participant was asked to describe the successes and frustrations he or she had in class and with other aspects of college life.

6. The participant was asked to cite specific strategies he or she used to help him or her feel integrated and improve his or her quality of life on campus, i.e., what specific study skills, personal attributes and coping mechanisms helped the participant's ability to be integrated academically and socially in college and maintain his or her level of commitment in college over time?

Third Research Question

The third question consisted of the two related parts:

a. What services or people at State U have been supportive of the students' college experience?

b. How have these services affected the quality of these students' academic and social integration experiences?

1. The participant was asked to describe whether he or she perceived the university to be accessible to students who are deaf and hard of hearing; what obstacles, if any, prevent access?

2. The participant was asked to assess the campus climate and whether he or she perceived it to be hostile or friendly.

3. The participant was asked to cite examples of sources of support such as academic advisors and tutors, faculty/peer mentors, counselors, hall or dormitory directors, career development personnel, and friends.

4. The participant was queried about his or her involvement with DSS. Did the student perceive his or her relationship with DSS to enhance the quality of his or her college life? If so, how?

Fourth Research Question

The fourth question was also in two parts:

a. Why do deaf and hard-of-hearing students decide to stay in a mainstream university?

b. What suggestions do they offer to improve their situation?

1. The participant was asked about his or her expectations of the university before enrolling and whether those expectations were met.

2. The participant was asked about his or her level of commitment to attaining a degree from this university.

3. Post-first-year students were asked if they were more confident about this goal compared with their first year of attendance.

4. The participant was asked what suggestions he or she believed would prove useful for improving the quality of academic and social integration in and level of commitment to college both for himself or herself and other deaf and hard-of-hearing students: In what ways could State U, specifically, improve the quality of the college experience for deaf and hard-of-hearing students?

Focus Groups

The focus groups were important in substantiating the findings from prior data, such as the in-depth personal interviews. When the participants gathered for one of the two focus groups, group support and validation for their individual and mutual experiences at State U took place.

For the two focus groups, consisting of four students each, the perspectives of the students were captured and transcribed verbatim with the assistance of a real-time captionist, i.e., a court stenographer or experienced typist using special software, a laptop computer, and stenography machine to translate the dialogue onto a screen. This type of transcription, also used by some students in their classrooms, is also called *communication-access real-time translation (CART)*. Not only did this method produce an immediate and visible real-time transcript for each focus group interview, but the transcript was also saved on a disk, which, after initial editing, was sent to the study respondents for their checking.

For the focus group interviews, a sign language interpreter was used to voice-interpret for the signing students and facilitate communication where necessary. Spoken language was needed for the CART professional to transcribe the interview, as the CART professional did not sign. While the sign language interpreter voice-interpreted for the student participant who was signing, the CART professional transcribed what the interpreter said using word-processing software. When the student spoke for himself or herself, if the speech was intelligible, the CART professional was able to transcribe the dialogue without the help of the interpreter. In some cases, however, the sign language interpreter would still need to repeat what was spoken for the CART transcriber.

During the focus groups, the dialogue was displayed in real-time, either using several computer screens (the first focus group) or a large screen (the second), so that all respondents could view the dialogue. This was particularly helpful during the second group interview, when differing communicative styles were used. (The first interview consisted of all signers.) Watching the screens facilitated the interview process for everyone involved. If needed, the focus groups could request the CART stenographer to go backward in the transcript to review on the screen(s) any of the material shared in the interviews.

Data Analysis

As Marshall and Rossman (1999) stated, “data analysis is the process of bringing order, structure, and interpretation to the mass of collected data” (p. 150). Using analytic methods such as coding, the data must be organized into generating categories, themes, and patterns. During this elaborate process, the emergent understandings are tested, and alternative explanations sought (Marshall & Rossman, 1999).

For this dissertation, analytic memos were used along with other methods such as coding and triangulation to help interpret the data and draw accurate conclusions about the deaf and hard-of-hearing participants’ perceptions of their college experiences. For each method, data elicited were used to identify evolving categories, themes, and patterns. The conceptual framework and research questions were used as part of a “concept map” to identify these themes and relationships. Concepts generated from coded analysis were also compared to existing theory. Later, the participants’ opinions of the researcher’s conclusions and analysis regarding the background data, in-depth and focus group interviews were gauged in the process of collaborative analysis and member

checking with the student participants. A peer debriefer also participated in the process of collaborative analysis.

As mentioned, the conceptual framework for this dissertation, derived largely from the extension and adaptation of Tinto's (1987) and Stinson, Scherer, and Walter's (1987) conceptual frameworks and models of student retention, as described in chapter 2, was used as an organizational framework or "concept map" for analyzing the data. Although the interview questions were derived from the four research questions, the organization and the classification of the responses of the participants also followed the structure of the conceptual framework described in chapter 2.

Writing detailed analytic memos was the first step in the data analysis process. After each interview, detailed notes were written with the conceptual framework and research questions in mind. Upon careful and repeated scrutiny of the analytic memos and the interview transcripts, patterns and relationships among themes began to emerge. The researcher began categorizing the data by applying codes to various people, events, and quotations to identify emerging themes and relationships further.

For example, under the codes *SI* for *social integration* and *AI* for *academic integration*, the researcher listed the prevailing themes for each based on the literature review. These themes and recurring patterns were listed as codes such as the following: *SA* for *self-advocacy*, *C* for *communication*, *PA* for *peer attitudes*, *ID* for *identity issues*, *SS* for *study skills*, and *EA* for *extracurricular activities*. These codes, as well as various "subcodes" were numerous and marked where identified on the written transcripts. Afterwards, detailed written analyses were conducted for each code and subcode to further identify emerging themes and patterns. The collaborative analyses with the

student participants and peer debriefer substantiated these themes and patterns. As a result of the multi-faceted process of data analysis, such as analytic coding, member checking, concept mapping, and comparison to existing theory, the researcher created a concept map or model, which is presented in Figure 4. This concept map was initially devised as a means of categorizing the data based on prior research and theory, the review of the literature, and initial responses to the background questionnaires. During the in-depth and focus interviews, several of the themes and categories and relationships between them emerged more clearly to substantiate the findings.

Validity: Trustworthiness and Transferability of the Study

Triangulation of methods in qualitative research was used to increase the validity of the study. By collecting information from a diverse range of individuals and settings using a variety of methods, triangulation reduced the risk that conclusions would reflect only the systematic biases or limitations of a specific method and would allow the researcher to gain a better assessment of the validity and generality of the explanations being developed (Maxwell, 1996). In this study, a variety of data collection methods was employed, such as analytic memos, transcribed interviews, student records, and member checking.

As previously discussed, the validity of a case study approach is bolstered by collecting data via a triangulation of several methods, including documentary evidence such as student reports, surveys, semi-structured interviews, focus groups, peer debriefers, analytic memos, collaborative analysis, and member checking. While the

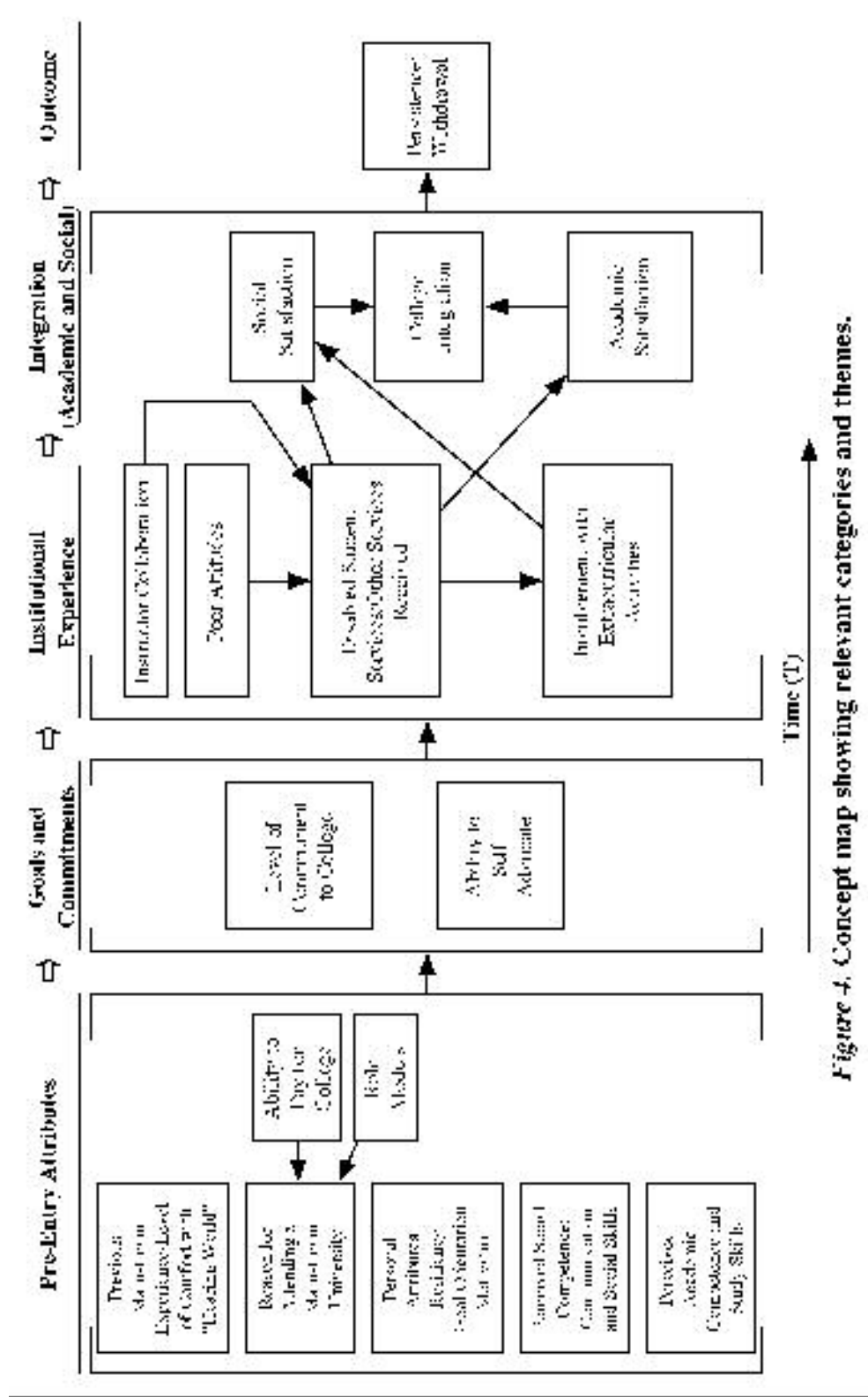


Figure 4. Concept map showing relevant categories and themes.

other approaches are obvious, the remaining terms will be explained in greater detail here.

Analytic memos are essentially a summary of the researcher's field notes, observations, interviews, and preliminary analyses of the situations. They typically contain outstanding themes and patterns that have been identified, based on the preliminary analyses of the interviews. Any participant responses that deviate from the conceptual model are identified. In addition, analytic memos were used as an opportunity to reflect on the research questions and design to determine whether changes needed to be made in response to the interviews. For this dissertation, the analytic memos were useful in ensuring that the researcher adopted a flexible and open approach in documenting and interpreting the data collected from the participants. At the same time, problems that had been identified during the process of implementing the research study were corrected quickly.

In the case of *collaborative analysis*, the participants and the researcher were actively involved in constructing the boundaries of the research study and determining the validity of the topics that were covered. The researcher used this approach in tandem with flexibility in utilizing the conceptual framework. Rather than impose an external construct on the respondents, the researcher was more concerned with providing an accurate representation of the experiences of the participants.

Member checking refers to a tool used to ensure credibility of the research in which the participants of the study examined the data and the researcher's interpretations to verify their accuracy (Lincoln & Guba, 1985). In this dissertation, member checking was performed through subsequent interviews and focus group discussions. The

transcripts were sent to the student participants for member checking and review for verification as well as for identifying errors, changes, and omissions.

To enhance the trustworthiness dimension of the qualitative research approach, a *peer debriefer* or *reviewer*, an individual apart from the researcher and the study participants, was used to contribute her perspective of the transcripts of the interviews. By discussing her viewpoints, the peer debriefer helped improve the interpretation of the findings and the formulation of appropriate questions for this dissertation.

Finally, additional materials or information that needed to be obtained to verify certain findings were used, such as student records from DSS. In this study, student reports were obtained with permission from the participants and the DSS office at State U. Most of these records were sparse, containing intake forms for registration for services from DSS and audiograms, although some audiograms verified hearing loss levels. In two student files, letters from the students sent to administrative personnel outlined the students' concerns about the lack of or inadequacy of services at State U.

Other Trustworthiness Issues

Every attempt was made to screen for researcher bias and reactivity. As a deaf/hard-of-hearing student in higher education herself, the researcher was able to empathize and communicate with the study participants. At the same time, the researcher had to be extremely careful in listening to the participants' own unique experiences and perspectives without imposing her own experience, framework, or assumptions on their responses. Open-ended (as opposed to leading or closed) questions were asked to give the participants full opportunity to reveal their own perspectives. Participant feedback and member checks (Maxwell, 1996), in the form of focus or study groups and follow-up,

one-on-one interviews took place to prevent the misinterpretation of meaning or data. A comprehensive and balanced description of the context in which the study took place also served to eliminate researcher bias.

Screening was also conducted for key informant bias (Maxwell, 1996). The researcher acknowledged the fact that relying on a small number of informants for the major part of the data, even when these informants were purposefully selected and the data themselves seemed valid, was no guarantee that these informants' views were typical. Maxwell (1996) stated that key informants themselves assume greater uniformity than actually exists; cultural groups incorporate substantial diversity, and homogeneity cannot be assumed (p. 73). Though the sample for the study was small and convenience sampling was used, systematic sampling ensuring maximum variation was used as a means of increasing the representative quality of the key participants' statements.

To ensure the trustworthiness of this study, attention was paid to any discrepancies or "negative cases." Alternative explanations or understandings of phenomena examined were identified, analyzed, and used to assess and modify the interpretation of the findings of the study.

Ethical Issues

When conducting a case study, the researcher describes case material obtained while working with an individual or organization to illustrate a problem, to indicate a means for solving a problem, or to shed light on needed research or conceptual matters. The researcher must balance carefully the reporting of descriptive material with confidentiality issues. Merriam (2001) stated that the process of data modification, if needed, presents "a delicate issue, [as] it is essential not to change variables related to

phenomena being described” (p. 165). Three main strategies were used for data modification: (a) altering specific characteristics, (b) limiting the description of specific characteristics, and (c) obfuscating case detail by adding extraneous material.

Confidentiality was carefully considered for this study. Participant consent forms served as contracts that bound the researcher to a confidentiality agreement. Names of participants were changed in reporting case material. Data related to any type of identifying information were to be destroyed upon completion of this dissertation. Where necessary, aspects of the case material were disguised upon request by the study participants. Any reporting that was considered too personal or sensitive by the participant, but not significantly altering the findings of the study, were modified or excluded from the final written report.

Summary

In this chapter, the research design of this study was presented in a comprehensive fashion. First, mention was made of the conceptual framework that was used to guide the analysis and interpretation of the data. Second, the justification for using a case study approach was presented via a brief examination of the characteristics of the case study method. With the small sample and the primary focus in presenting rich, in-depth perspectives of the participants and identifying potential categories and thematic patterns, this study was well matched with the case study approach. Despite the limitations of the convenience sampling approach, the validity of this dissertation was enhanced by the adoption of a triangulation method involving multiple methods such as analytic memos, member checking, a peer debriefer, and student records. The purpose of these multiple

methods was to verify the validity of the data and the researcher's interpretations of the data.

Finally, the data collection and analysis procedures were presented. Surveys, semi-structured interviews, and focus groups constituted the primary sources of data collection in this study. Analytic memos, coding, and collaborative analysis were also used to analyze the data. The organization of the data in accordance with the conceptual framework created for this dissertation, as derived from Tinto's (1987) model of student retention and expanded and revised by Stinson et al. (1987) and others, was described.

Finally, the interview protocol, which listed instructions for posing the four research questions to the participants, was provided in this chapter. The validity of the dissertation was also briefly discussed. The use of triangulation was highlighted as one of the tools for ensuring the validity of the study. At the same time, the potential for researcher and respondent bias was discussed. The ethical concerns of the confidentiality of the respondents and the justification for data modifications were also presented.

CHAPTER 4: FINDINGS

Introduction

In this chapter, the findings of this study will be presented in the following format. Brief biographies of the 10 participants recruited for this dissertation will provide the reader with a vignette of the respondents, both individually and as a group. Based on their responses to the written background survey, the participants will be described to provide insight into their backgrounds. Inductively, these background factors have an effect on how the students are able to interact with the academic and social environment at State U. In addition, the in-depth responses of the 10 participants obtained via the interviews will be organized and analyzed, based on the conceptual framework that was presented in chapter 2. The conceptual framework provided the means for categorizing the responses offered by the participants. Nonetheless, it is important to note that any relevant responses that deviated from the conceptual framework were documented in analytic memos. The interpretation of the responses of the participants was also further verified and assessed in subsequent interviews with the participants, along with the assistance of a peer debriefer. The participants, the peer debriefer, and the researcher thus collaborated in verifying and analyzing the validity of the findings to ensure that the data and the interpretations reflected the perceptions of the participants accurately. The final analysis of the findings will be presented within the framework of the four research questions highlighted earlier in this dissertation.

Introduction to Participants

Brief biographies of the participants follow, based on the researcher's perceptions of the participants. For purposes of confidentiality, all names have been changed. The participants are described based on the chronology of the interviews that took place from April to December 2002. The biographies of the individual participants provide deeper contextual information about their experiences and serve to help interpret the findings of the study.

"David," age 30, is a single White male, who was within five weeks of graduation at the time of the in-depth interview. A Ph.D. student in the sciences, his preferred mode of communication is American Sign Language (ASL), although he was raised orally. Though David is a bright, high-achieving student, he was the most dissatisfied of all the respondents. He indicated in his interview that due to lack of services and coordination on the part of Disabled Student Services (DSS) at State U, an interpreter was not present in his classes "50% of the time."

"Leslie" is a single White female, 31, who describes herself as both Deaf and hard of hearing. She is also a Ph.D. student. Her primary modes of communication are ASL and speech. Although she has used interpreters for classes, Leslie prefers communication access real-time translation (CART). Like David, she wrote a letter to the administration at State U complaining about inadequate DSS services. Leslie indicated that her mother was her primary role model for going to college. Her other motivators for persisting in college included her enjoyment of reading and books and her receipt of a fellowship from a nearby university, where she is an instructor.

“Cynthia,” engaged at the time of interview, is a White female Ph.D. student in the sciences, 28 years old. She describes herself as “middle-of-the-road” deaf, implying her acceptance of both hearing and deaf cultures. Her primary mode of communication is ASL/sign language. Cynthia’s level of frustration about lack of DSS services at State U was second to David’s. She stated several times interpreters did not show up for her labs or classes. Also an instructor at a nearby university, Cynthia attributed her drive to succeed educationally to supportive advisors and her family values, which stressed the importance of education. Her father is a college professor.

“Martha,” the oldest of the respondents at 44, is a White female who considers herself Deaf as well as hard of hearing. A Ph.D. student, her primary modes of communication are speech and sign language. Like Leslie, Martha utilizes CART for classes, cited a love of learning and books, and is an instructor and fellow from a nearby university. Martha showed the most resiliency of the respondents, based on her personal experience with cancer, the loss of her husband, and the fact that her family was poor and neither parent finished high school. In addition, she was one of few in her large Irish family to attend college. Martha called her grandfather her primary educational role model.

“Bart” is a single White male, age 21, who wears a cochlear implant to assist with his hearing. He is a senior in the undergraduate program at State U. His primary modes of communication are speech and cued speech, a system devised to phonetically decipher spoken English using hand shapes. A cued speech transliterator interprets for his classes. Of all the respondents, Bart appears to be the most well adjusted and integrated: Having achieved a 4.0 grade point average in high school, he continues to do well academically

in college, participating in State U's top honors program. He is involved in many extracurricular activities, including a sign language club on campus. Bart intends to continue his academic career by pursuing and attaining a doctoral degree.

“Steven” is a single Deaf male of Asian descent, aged 21. He is the only transfer freshman recruited for this study and the only respondent who was almost fully schooled in a residential deaf school environment, as opposed to being mainstreamed, before college. Even so, he stated he was among the top five students in his class. Steven's primary mode of communication is ASL/sign language, and he considers himself an active member of Deaf culture. He considers English to be his second language. Along with two deaf siblings, Steven was initially taught sign language by church members, then by a temporary foster mother. His father was a doctor in his native country.

“Ana” is single, 22, and, like Bart, is a senior and has a cochlear implant. Ana describes herself as deaf, but not necessarily Deaf. Her primary modes of communication are sign language and some speech. Of Arabic descent, Ana views herself as Arabic first and deaf second. Ana was also dissatisfied with the provision of services at State U, particularly during six months of the study when there was no interpreter coordinator at DSS. Because no interpreter was present, she was forced to drop a class during her freshman year. Despite the obstacles she has encountered, she intends to pursue a master's degree.

“Sarah” is of Asian descent and, like Cynthia, was engaged at the time of interview. She is 31 and considers herself deaf as well as Deaf. Sarah is finishing her master's degree in a science field. She communicates by sign language as well as speech. Before coming to the United States as a youth, she was a Canadian resident, where she

stated it was more difficult to secure services, because there were no laws enforcing them. Sarah said that she decided to go to hearing university and not a deaf program instead, because she (a) wanted a better education and (b) saw that her older sister, who is also deaf, went to Gallaudet University and had poor writing skills.

The last two interviews were conducted with two White male respondents who share similar characteristics: both are sophomores and use speech to communicate. They use DSS services less frequently, mainly to request help with obtaining permission for extended exam time in their classes based on verification of their hearing losses by DSS. Because a tape recorder was not made available at the time of their interviews, which took place consecutively on the same day, the researcher relied on extensive note-taking before and after the interviews to collect the data. “Jake,” age 21, is actively involved in student activities related to his Jewish religion and intends to enroll in law school upon completion of his program at State U. “Mike,” the respondent with the most hearing with a moderate loss, is enrolled in a technical program and is also involved with campus and local Jewish religious organizations.

The Background of Participants

This section summarizes the background information of the 10 participants involved in this study, based on the responses to the background survey (appendix A) as well as the individual interviews. This group of participants consisted of five males and five females with an age range of 20 to 44; the mean age was 26.9 years. Seven of the participants in this study were White, two were Asian, and the remaining participant was of Arabic descent. Five of the participants were attending a postgraduate program at State U, two were seniors, two were sophomores, and one was a freshman. Therefore, while

the majority of the participants had had considerable exposure to college settings, three of the participants provided an alternative perspective, because they had just entered the college setting.

The participants shared certain common characteristics. For all the participants, hearing loss occurred during their early childhood years. The age of onset ranged from birth to two years old. In addition, apart from one participant, Mike, who had a mild to moderate hearing loss, the rest of the participants had substantial hearing loss. Of the seven categories used to characterize levels of hearing loss arranged in order of severity—mild, moderate–mild, moderate, moderate–severe, severe, severe–profound, and profound—the hearing loss of the participants ranged from severe to profound. All of the participants had a relatively solid academic performance with a grade point average range of 2.6 to 3.972. Because two participants did not know their GPA, the mean GPA for the eight remaining participants was 3.24.

All of the participants used a variety of DSS services. The most frequently used DSS services were sign language interpreting and note-taking. Six participants utilized the interpreting service, while five of the students used note-taking. Two of the participants utilized CART, and one utilized C-Print, another form of computer-assisted note-taking. It is interesting to note that Bart, who had the highest GPA score of the group, utilized the most DSS services, including cued speech transliteration, note-taking, and academic advising. In addition, Bart also commented that his college experience was “highly satisfactory” (personal communication, April 2002). Bart’s utilization of a wide variety of services supports the premise that deaf people who are proactive in obtaining

the services that are available to them are more likely to succeed in a mainstream college setting.

For the most part, the majority of the participants were satisfied with their college experience. The evidence of a relationship between academic performance and integration would seem to confirm the findings of the prevalent literature. It would appear that the services utilized by the deaf participants have provided them with adequate academic support for them to feel sufficiently integrated into the college setting.

However, the background survey produced one or two unusual results that showed evidence of a relationship between academic performance and integration. David, who had the second highest GPA of this group (3.76) and received sign language interpreting, stated that his college experience was unsatisfactory. His assessment of the college experience deviated from the prevalent belief that deaf students who excelled at their studies were more likely to feel integrated into their college environment than those who experienced difficulties with their studies. On the other hand, Ana, who had the lowest GPA of the group, 2.6, stated that she was satisfied with her college experience. Although these results were unexpected, they also indicated that the social and institutional dimensions of the college experience could play an influential role in modifying the students' perceptions of their experience. These results also illuminated the deficiencies of quantitative variables such as the GPA scores because they could not explain patterns that deviated from the expected norm.

The conceptual framework used for this dissertation was developed in an attempt to address the complexity of the perspectives and motives on the part of the respondents. For example, though David had an outstanding GPA, the tremendous effort he had to

expend to achieve this score in the face of excessive barriers could have undermined his college experience. According to David, his college experience was undermined by DSS's failure to provide interpreters reliably for his classes. He stated that interpreters showed up in his classes 50% of the time, and even then he thought they did not seem qualified. He stated that some of the interpreters were not able to translate advanced-level material, particularly in his science classes. In spite of his repeated complaints, which included a letter addressed to the college president, and a national deaf advocacy organization advocating on his behalf, DSS personnel did not adequately address his concerns. "After that," he said, "I got these facial expressions from them that were icy" (personal communication, April 2002). He noted that he had considered leaving, but because he was almost finished with his program, he decided to persist to completion. Only through the advice of fellow students and colleagues was David able to resolve his situation by creating his own network of interpreters and ensuring that DSS paid them for their services. The apparent failure of DSS to perform its functions adequately to ensure that David could participate in all academic activities appeared to diminish his feelings of integration in the mainstream environment.

Although David did not consider this factor to be significant, his lack of involvement in nonprofessional extracurricular activities or informal social activities also constituted a possible influence on his failure to integrate into the college setting. David stated that he did not have time to participate in social activities. He admitted also that he did not feel comfortable socially on campus: "I feel a little bit awkward on campus.... Socially I do not feel comfortable now," he said (personal communication, April 2002). By investing tremendous energies in his academic work, it is little wonder that David's

frustration with the DSS failure to provide interpreters was not alleviated by an informal network of friends or activities to divert his attention.

On the other extreme, Bart, who had the highest GPA (3.972) in this group of participants, was highly satisfied with his college experience. Although Bart was highly committed to his academic work, he also enjoyed a rich and vibrant social life. His extracurricular activities included scuba diving, Sign Language Club, intramural sports, and running. Furthermore, he had established a network of friends who knew sign language. Despite the fact that he also believed that DSS needed to improve its provision of services, Bart was highly integrated into the academic and social activities in the college setting, because of his extensive social interaction with others. Therefore, the social dimension played a significant role in shaping the experiences of these two high achievers.

Similarly, the social dimension might also have played an influential role in determining Ana's perception of her college experience as satisfactory. Though she did not seem to engage in a wide range of extracurricular activities, Ana did participate in the Equestrian Club and attend informal social events on campus. The participation in these activities could have enhanced her level of satisfaction despite the fact that she encountered difficulties with her academic work. Ana perceived that these difficulties were due to the poor provision of DSS services. She noted that she had to drop one of her classes because no interpreter was present.

To provide a more elaborate perspective of the academic and social integration of the participants, the following section utilized the conceptual framework highlighted in the literature review to present the findings of the interviews of the 10 participants.

Analysis of Findings

By using the conceptual model presented in chapter 2, the responses of the participants during the in-depth interviews were combined and categorized in the section of chapter 3. The frameworks and models presented by the Tinto (1987) models and Stinson et al. (1987) adaptation of Tinto's model provided the general structure of the conceptual framework for this dissertation. Background characteristics and other themes and categories were considered as well as factors that affected academic and social integration. The background characteristics were mostly outlined in the background survey (appendix A) but were also illuminated during the interviews.

In the analysis of the transcripts and after reviewing the findings, these themes and categories became clearer. A code was created for each theme and category during the coding process. They included prior mainstreaming experience, communication and social abilities, personal attributes, self-advocacy, study skills, involvement in extracurricular and other social activities, role models and other forms of support, perceived academic competence, identity issues, ability to pay for college, and provision of support services. All of these themes and categories were categorized as various intrinsic and extrinsic factors affecting the respondents' decision-making processes in deciding to persist in a mainstream university. For example, specific intrinsic factors include personal attributes (e.g., goal orientation, motivation, flexibility, organization), a love of learning and reading, intellectual curiosity, and level of commitment to attend college, as well as to attend a mainstream university. Extrinsic factors include role models, family expectations and encouragement to go to college, ability to pay for college, and the promise of a "better life" and better job opportunities. The participants

also described their level of satisfaction with the overall college climate and experience and added suggestions for improvement for other students with hearing losses attending mainstream colleges and universities. Each of these themes and categories will be presented in the following section. First, an overview of intrinsic and extrinsic factors as they relate to goals, methods and achievement, as described by Draper (2001), are presented to describe how these factors affect the students' ability to enroll, be integrated, and persist in a mainstream university.

***Reasons for Studying at a Mainstream University:
Intrinsic and Extrinsic Factors***

Many of the participants were intrinsically motivated to study at a mainstream university. They choose to enroll in a mainstream university because they wanted a better education and better job opportunities than they believed could be found at a university or program designed for deaf students. Several respondents indicated they also enjoyed learning and had intellectual curiosity and a love of reading and books. Cynthia, for example, stated in her interview that she enjoyed the challenges of studying. Because she had been mainstreamed most of her life, she did not feel drawn toward colleges that catered solely to deaf students. Cynthia was more concerned with the studying environment of her college. She chose to study at a distinguished Ivy League university for her undergraduate degree, because it was a school that catered to “nerds,” and she rejected Gallaudet University, because it was known as a “party school” (personal communication, May 2002).

Similarly, Bart considered himself to be a natural high achiever who thrived on the challenge of excelling in his schoolwork: “Nothing inspired me; I just do well,” he

said (personal communication, August 2002). Bart believed that he possessed the capacity to keep up with his hearing peers and succeed academically in a mainstream setting. He added:

I had always planned to go to a mainstream university. Gallaudet is really not the right place for me. I feel like I get a better education from a mainstream institution....I wanted a really good education and I preferred hanging out with hearing people. I feel comfortable, because I know their culture. Also it is close to home and it's a beautiful campus. (personal communication, August 2002)

Based on the interview with “Martha,” it appeared as though she was an extremely persistent person who refused to be undermined by adversity such as her illness and her husband’s death to accomplish her academic objectives. She described herself as tenacious, very organized, and optimistic: “Nothing stops me,” she said (personal communication, April 2002).

At the same time, it is important to note that Martha’s decisions about the universities she attended were also based on practical reasons, such as a potential job offer and a fellowship—extrinsic factors. For example, she chose to enter State U, because she was given a presidential fellowship from the university where she was employed (personal communication, April 2002). Leslie was also given the same presidential fellowship. Leslie stated in her interview that although she was not motivated in high school, she continued with her education because she had a love of books and reading: “I was self-taught and did a lot of reading on my own,” she said (personal communication, April 2002).

Extrinsic motivation for attending a mainstream university was highly significant for Ana, who opted for a mainstream college setting, because she “want[ed] a better life.” In fact, she followed a high school counselor’s advice of getting a degree from a

mainstream university, because she was told that she was more likely to get a job if she had a degree from a mainstream university than if she had one from Gallaudet University. Though she noted that she wanted to be challenged by the diversity of the courses that were more available at a mainstream university than Gallaudet University, her primary purpose was to have a better life:

I didn't want to be pumping gas at a gas station. I wanted to go to college. My mother went to college, and she earned good money. We have a good life. I want to be in her place. I want to have children. I want to have a good life....I thought, I can challenge myself [at State U] and end up with a good life and a good degree if I study hard. (personal communication, August 2002)

Though Ana attributed her mother's influence to her decision to attend college, she added: "No one inspired me—I just wanted to go to college....I have high expectations of myself" (personal communication, August 2002).

The following section includes the various themes and categories that were identified in the conceptual framework, and now the findings, to be significant in affecting the respondents' ability to enroll, be integrated, and persist in a mainstream university. The themes and categories originally used to categorize the data in the concept map as depicted in Figure 4 are restated here.

Role Models and Outside Support

Several respondents noted that there were persons who influenced their education and decision to go to college. These individuals included family members, church members, friends, deaf role models, high school teachers, professors, and college advisors.

For some students, the fact that their parents attended college was a factor in their decision to go to college. Cynthia mentioned that her father was an educator and that her Jewish family values were a central role in her education. Her high school teachers, undergraduate professors, and advisors also encouraged her to continue with her education. Leslie and Steven noted that their mothers were a strong influence: “She made it,” said Steven, whose father also had a Ph.D. and was a doctor in his native country (personal communication, 2002). Steven added that he and two of his deaf siblings were raised first by church members, who taught them American Sign Language while his mother worked daily. Later they were adopted temporarily by a foster mother who continued to educate them using sign language.

Although neither of Martha’s parents attended college, her grandfather was a significant role model in her quest to attain more education—he would play speech games with her to improve her speech skills and “make learning fun.” Martha demonstrated a strong connection with her family, though they lived in Ireland. When she had the opportunity to study in Ireland, she enjoyed spending time with her family and felt supported by them with regard to her academic pursuits (personal communication, April 2002). In addition, Martha’s drive to succeed and love of learning and books contributed to her commitment to furthering her education: “School was wonderful for me,” she said. “I hated summers” (personal communication, April, 2002).

Cynthia and Sarah credited deaf role models for inspiration. When Cynthia met successful deaf professionals in high school, “I [then] realized I could do whatever I wanted,” she said (personal communication, April 2002). While she spoke about her father’s influence on her interest in education, Cynthia also considered the deaf people

she had met at an international deaf sporting event to be her role models (personal communication, May 2002).

Sarah indicated that she was inspired when her former vocational rehabilitation counselor became the first deaf parliamentarian in Canada. When she saw him using an interpreter as a parliamentarian, “I realized I must have an interpreter from now on,” she said. This was a significant turning point in Sarah’s education, as formerly she had been very reluctant to ask for a sign language interpreter in her undergraduate program. She attributed her lack of self-advocacy for burnout in undergraduate school: “I would not always ask for the help I needed, so I burned out,” she said. “If I had asked for help, I probably would have been fine” (personal communication, August 2002).

When asked in the focus groups about ways in which students might improve their situations, students in the first focus group recommended getting a mentor. This person may be an advisor or professor:

If you are in mainstream, he is probably not going to be deaf. But find a person. Sit down and communicate with them. Whether you write back and forth, it doesn't matter. But I think it is important to have a person who encourages you who is focused on your success. And that you can go to when you have problems. (Martha, personal communication, May 2002).

Ability to Pay for College

Ability to pay for college was perceived to be another significant extrinsic factor regarding the respondents’ decision to enroll and persist in college. Martha and Leslie were able to obtain full fellowships from the university that employed them that not only covered the cost of tuition at State U, but also promised them a teaching position upon completion of their degrees. Bart received a four-year scholarship, and Cynthia and

David were able to attend college due to family endowments. Steven had his tuition and books paid for by the Office of Vocational Rehabilitation, a federally funded program. Most of the respondents credited their ability to pay for college as an important, but not necessarily the most important, reason for attending and persisting in college.

In regard to other financial factors that affect the persistence of deaf and hard-of-hearing students in mainstream colleges and universities, students who rely on services for access, in turn, rely on the financial resources necessary to supply adequate services. However, additional budget factors were not considered as part of this dissertation.

Prior Mainstream Experience

Most of the participants demonstrated confidence in their knowledge and skills in coping with the challenges of academic work, particularly in a mainstream setting. While one of the respondents, Steven, had attended a school for the deaf since age six, the other respondents were mostly or totally mainstreamed and credited their previous mainstream experience for their perceived academic and social competency in a mainstream academic setting. Though Steven's educational background was not in a mainstream environment, he was one of the top five students in his class (personal communication, November 2002).

From an external perspective, most of the participants in the group seemed to have overcome their academic challenges by doing relatively well in their studies. Most of the students were high-achievers, with Bart reporting a 4.0/4.8 unweighted GPA in high school. As pointed out in the discussion of the background information of the participants, the mean GPA for the group was 3.24, with the range of 2.6 to 3.972. Five

respondents had enrolled in honors classes in high school. At State U, Bart was enrolled in the top honors program.

Study Skills

The respondents were able to utilize a variety of study strategies that enabled them to do their academic work. For example, Bart asserted that he invested tremendous amounts of time in completing his homework. Before examinations, he would spend approximately four hours to “cram” as much as information as possible and practice problems. He did not seem stressed by the amount of time and work needed for his studies; rather, he considered his academic work as something that kept him busy, as with his other social activities: “I like to keep busy; that is why I do so many activities....I prefer to keep busy instead of lying around and doing nothing.” He also added, “College is supposed to be fun, and it is” (personal communication, August 2002).

Similarly, Ana utilized study strategies to help her do her work, such as notes and flashcards. Before examinations, she wrote outlines of her learning materials. In fact, she regarded the outlines as a particularly effective tool for learning (personal communication, August 2002). Although the other interview participants did not cite specific strategies, they seemed highly capable of doing well with their academic work.

Provision of Support Services

For all of the participants in this study, the obstacles that often undermined their studying efforts were primarily related to their inadequate access to needed DSS services. Almost all of the participants talked about the failure of DSS to provide interpreters

consistently. The participants also perceived that some of the interpreters and note-takers were not qualified for their positions.

Though the participants showed a high ability for academic competence, the participants' efforts to overcome their challenges to succeed at their studies were still jeopardized by the inadequate provision of services such as interpreters who were needed by the participants. Though Cynthia had been able to succeed in achieving her academic goals, her academic achievements were highly dependent on the type of support services that she received. When she was not provided with appropriate services, Cynthia was not able to pass all of her classes, as in the case of a biostatistics class she had taken (personal communication, April 2002). Ana had a similar experience in which she was forced to drop a class when her interpreter failed to show up for the whole semester. She almost failed the course, as she had exceeded the deadline for withdrawal. Only after writing a letter explaining the interpreter situation was she permitted to drop the course without a penalty (personal communication, August 2002).

David stated that interpreters would not show up for his classes 50% of the time, and no interpreter was present at his dissertation committee meetings. At these meetings, he encountered embarrassment due to the subsequent difficulty in communicating with his committee members. When he confronted DSS about the discrepancies in service, DSS would say they couldn't find anyone, or had some other excuse. David felt that his needs were not important to them and was angry about this (personal communication, April 2002). Cynthia stated she had trouble obtaining interpreters for noncredit seminars and lectures: "I'm just getting by," she said. However, she was able to persist with the help of a "very supportive" advisor (personal communication, 2002).

Steven, the transfer freshman, said that he also had the experience of interpreters not showing up, which significantly affected his grades: “Now I am trying to work harder to pull them up.” It is interesting to note that because he had a similar experience of poor support services at the university from which he transferred, he had developed a “higher tolerance” for bad interpreters and services. When asked how he was able to persist despite poor services, he stated, “I know I am very smart and...I can work on my own” (personal communication, November 2002). It can be concluded that while the participants were doing fairly well in their studies, it is likely that they could have attained better grades if they had been provided with reliable services.

In many cases, the quality, morale, and professionalism of the interpreters were perceived as lacking by the participants. Steven noted that even though his interpreter was a child of deaf adults, he lacked motivation and had little interest in the subject matter: “He had a blank face and yawned a lot” (personal communication, November 2002). Martha and other respondents explained that some of the interpreters “do not really understand the complex concepts discussed” (personal communication, May 2002). The fact that some of the interpreters were not qualified to interpret advanced-level subject matter forced some respondents to be more selective in their choice of interpreters and advocate for better interpreters.

The availability of institutional and environmental support services, therefore, was critical to the academic performance for all the participants. As discussed briefly above, many participants such as Ana, Sarah, David, Sam, and Cynthia experienced tremendous difficulties with their schoolwork when they were not provided with reliable support services. Although Cynthia had good study skills and confidence, she was still

highly dependent on support services such as interpreters to participate meaningfully in class discussions, labs, and seminars. She mentioned the support from her advisor as significant during this difficult time. Due to the lack and inconsistency of services for her classes, lectures, and seminars at State U, she says she had had an “awful” experience that undermined her ability to excel in her school work (personal communication, April 2002).

Self-Advocacy and Resourcefulness

Because of the poor quality and inconsistency of services, the participants had to adopt a proactive approach in advocating for themselves and taking an active role in ensuring the availability of their services. For instance, instead of waiting for DSS to obtain interpreters from an interpreting company contracted with State U to provide interpreters, Bart contacted the company directly to ensure that interpreters would be available for his classes and ensured that they were paid by DSS. Still, Bart said this took up more of his time and energy than necessary:

I really had to push everyone [at DSS], and I have to do that almost every semester—I am really more involved than I should be in the process, but that is the only way that I make sure, though, that I have an interpreter. (personal communication, August 2002)

At the same time, Bart also forged strong relationships with interpreters, his cued speech transliterator in particular, so that he would be able to obtain quality services from interpreters who were familiar with his studies. Bart attributed much of his academic and social success to his ability to use cued speech and keeping virtually the same cued speech transliterator all through his college career, who had also worked with him in high school:

She understands my vocabulary, she knows what I'm saying, even if it's a big word, especially in biology. She knows my research, so she does a good job voicing for me....We have developed a system that is a combination of cued speech and sign language. It is really effective; it is faster. (personal communication, August 2002)

It could be concluded that having one or two main service providers working with each student may help stabilize the provision of services, enhance their education, and create critical symbiosis between the providers and the student.

Bart also added that, from his perspective, deaf people who did not feel socially integrated in the mainstream college setting did not make a sufficient effort to participate in activities, even when they were available, and should take a more proactive stance in being involved socially on campus. As an example, he noted that when he invited lonely deaf students to attend his sign language club, they did not come:

They sit there and they complain about how they never meet anybody, but there is the main way to meet people, through extracurricular activities....How do you help someone who won't? (personal communication, August 2002)

Leslie felt that students should be proactive in meeting people, particularly in the beginning of the school year: "I think it is important to meet new people in the beginning of school. Meet new people. Make friends. Attend activities. You have to be aggressive to meet people. Make good friends" (personal communication, May 2002). Martha added, "I agree, because many times hearing students don't talk with you. You have to talk with them first. You can't be afraid" (personal communication, May 2002).

Perseverance and a positive outlook were also perceived as means to cope and persist. As Cynthia stated, "sometimes I feel like you have to go through all the struggles, because the deaf person has to struggle, and the only way to get through it is to be positive" (personal communication, April 2002).

When asked whether they thought that more hearing students should learn sign language, Brad and Ana believed that while it was nice that some hearing people wanted to know sign language, they recognized that deaf and hard-of-hearing people were the ones who had the responsibility of learning how to communicate with people in a mainstream culture (personal communication, August 2002). Essentially, they accepted the marginalization of the deaf and hard-of-hearing student population. For them, their struggle to obtain support services for academic and social events remained an individual cause, not a group one. For example, instead of feeling resentful that assistive devices such as TTYs were not easily accessible on campus, Bart simply stated that he could ask his friend to help him make telephone calls (personal communication, August 2002).

Some participants suggested that the availability of on-campus sign language courses may provide an incentive for increasing the number of hearing students who know sign language. The Sign Language Club, with which Bart was involved at State U, helped to provide this incentive. Bart also suggested that college campuses consider having a “Sign Language House,” similar to a Spanish or Hebrew house, where the students practice ASL, host silent dinners where the larger college community can be invited, and so on. However, Bart admitted that a college needs to have a four-year ASL program, unlike the one-year program at State U, for this initiative to occur. According to some of the study participants, having more people who know sign language would enhance their feelings of integration in a mainstream college setting.

Instructor Collaboration and Methods

In some cases, classroom instructors were helpful in making sure the students' needs were met. The following example illuminates the significance of instructional collaboration and methods with regard to a deaf or hard-of-hearing student's success and integration in the classroom. When seeking a good note-taker, Bart's professors would assist in this endeavor:

I think most of my professors are good. They understand that I need note-taking services. The best professors know who the good note-takers are. So, a lot of times they will ask that person to take notes for me. Or, if not, then they will lecture and then walk around throughout the class to see who the good note-takers are so they can pick out a good note taker and then ask for that person. (personal communication, November 2002)

When Leslie contacted DSS at State U. notifying them about her need for consistency of interpreting services for a class, her instructor was helpful in advocating for her by sending a letter to the DSS as well as the chair of the president's commission on disability issues at State U on her behalf. In this particular instance, Leslie was forced to re-enroll in the class at a later date due to the inconsistency of services and having missed too much material. Still, she was grateful to her instructor for his "time and support" (personal communication, month, 2002). In general, instructors who are aware and helpful with the needs of deaf students can facilitate their educational access and achievement.

It is important to note, however, that the combined efforts of the students and professors and the participants' access to services did not equalize their position with their hearing peers. As Ana noted in her interviews, she was still at a disadvantage in class for several reasons. First, she had difficulties focusing on the interpreter without "drifting off." Second, she could not understand the notes taken by the note-taker. Third,

interpreters tended to summarize what the professor had said, thus imposing their own meanings and interpretations on the professor's statements (personal communication, August 2002). Obviously, for the participants, the academic situation was still considerably more challenging than for their hearing peers, even with the availability of support services, and in many cases self-advocacy was necessary to secure the services they needed.

Social Integration

With regard to the social integration experiences within the mainstream college settings, the participants could be categorized into two groups—those who felt accepted and integrated, and those who did not feel highly integrated. Based on their responses, it was evident that their current social activities and perceptions about their social life were shaped by their past experiences, their perceptions about their ability to communicate with hearing peers, their personalities, and, to some degree, their level of comfort in dealing with and accepting their loss of hearing.

Several participants such as Cynthia, Sarah, Steven and David were not intrinsically motivated to develop social networks within the mainstream college setting. At the same time, it is significant to note that all four of these respondents were the most reliant on interpreters for access to class lectures and social events on campus.

Though Cynthia was mainstreamed throughout her educational career, she did not forge many intimate friendships with her peers in high school. Except for a few casual movie outings with two or three friends during her high school years, she focused on her sole extracurricular activity—swimming. Her negative or indifferent perceptions about forming close relationships with hearing peers might be attributed, in part, to the fact that

she was victimized by a girl who spread rumors about her character. Her low interest in social activities also extended somewhat to her undergraduate years when she briefly helped to teach sign language classes at the college and participated in a deaf awareness committee. However, with her statement, “I felt like it wasn’t my role in the college and wanted to do other things” (personal communication, April 2002), Cynthia indicated a lack of a sense of belonging to her community on campus.

In spite of her discouraging social experiences, it is likely that Cynthia remained in the mainstream college setting because she obtained support from faculty members and advisors and was also involved with a deaf student group consisting of deaf students from other area colleges. While she was studying for her undergraduate degree, faculty members helped her enter her chosen field. Similarly, though she was having a frustrating time with the administrators of support services at State U, Cynthia remained inspired through the support of the advisor (personal communication, April 2002).

Compared with Cynthia, Sarah had an even more difficult time feeling socially integrated. According to her response to the questionnaire, she did not participate in any on-campus extracurricular activities at State U. Throughout her education, Sarah experienced tremendous difficulties with interacting with her hearing peers, because she could not identify with them. When she was with hearing people, she felt self-conscious about her deafness and was fearful of being regarded as a stupid person. Therefore, she felt extremely isolated. Much of her self-consciousness about her hearing loss could also be attributed to her rather harsh upbringing. When Sarah made mistakes, her mother would call her “stupid” and mete out corporal punishment. Though Sarah was engaged in many extracurricular activities during her high school years, she did not feel that her

emotional needs were met, nor did she feel a sense of belonging in any social organizations (personal communication, August 2002).

Steven, the transfer freshman, stated that he had only met three or four other deaf students after the first year of college. He added: "I am starting to feel like socializing [at State U], but it is hard. The classes are big, and students come to class and leave, leaving me no opportunity for socializing" (personal communication, November 2002). David, who also indicated he felt socially isolated in high school, practically gave up on socializing on campus to focus on his academics. He indicated that his hearing friends "just talked all the time. I decided really to not make any more friends...and pay attention to my work" (personal communication, April 2002).

Because of his close relationships with his friends and extensive involvement in social activities, Bart felt highly integrated in the college setting at a social level. Apart from being pro-active in using the variety of institutional services on campus, Bart was able to count on his friends to help him establish the sign language club and the intramural football team. When Bart needed help in making a telephone call, he could also rely on his friends to call for him: "My friends are my support services," he said.

Communication and Social Abilities

Some of the participants, such as Bart, Martha, and Ana, felt socially integrated in the mainstream setting. The degree of ease of communication between the participants and their hearing peers constituted a significant factor in determining their feelings of social integration. The two participants who felt the most socially integrated of all the participants, Bart and Martha, felt comfortable communicating with their hearing peers independently and in small group situations. Bart and Martha were able to communicate

with cued speech and lip reading, respectively. Both had developed good speech communication skills. In fact, Martha had developed the capacity to read people's facial expressions and their body motions to modulate her own speech (personal communication, April 2002). Mike and Jason, the two hard-of-hearing students, had sufficient hearing and oral skills to enable them to communicate effectively with hearing peers. Thus, for these students who were not as dependent on interpreters, their oral abilities assisted them in engaging in social situations.

Of all the participants, Bart appeared to be the most comfortable in the mainstream setting with primarily hearing friends. In fact, Bart stated that throughout his life, he was typically the only deaf person in his school, social, and work settings and felt comfortable with hearing people and culture. Therefore, he was exceedingly comfortable with studying and socializing in a mainstream college setting. Unlike the other participants in this study, Bart was the only one who used cued speech, which enabled him to "work with hearing people, talk with them in class, work on projects, speak the same languages they do" (personal communication, August 2002). As mentioned in chapter 1, cued speech is a method of communication that involves using hand shapes to form phonetic representation of English. Essentially, spoken and written English is translated into a series of hand cues and lip movements for deaf people who would otherwise have difficulty grasping a primarily auditory language such as English. Bart attributed much of his academic and social success to his use of cued speech. His confidence and ease in communicating with others bolstered his desire to interact socially with his hearing peers.

Identity and Ethnicity Factors

For many of the respondents, their level of acceptance of their deafness and identification with cultural and ethnic groups affected their socialization choices and ability to socialize in a mainstream academic setting.

With the exception of Sarah, who at first felt as though her deaf identity was “gone” in a mainstream environment (personal communication, August 2002), most of the respondents felt comfortable with their hearing loss and cultural and identity status. On one end, Bart stated, “It is nice being deaf. You stand out. It is easier to meet new people, because they know who you are” (personal communication, August 2002).

Some respondents who described themselves as Deaf with a capital *D* said that their involvement with the Deaf community was a focal point of their social lives off campus. Even so, Steven, who described himself as Deaf and choose not to wear hearing aids in part for this reason, added, “I still have the best of both worlds—a social life at Gallaudet and an academic life at [State U]” (personal communication, November 2002).

Ana also stated:

I was mainstreamed. Of course I enjoyed it. It was the best four years of my life. I had some deaf friends, of course, but I felt comfortable in both worlds. I liked being in both worlds, switching from one to the other...I am comfortable around hearing students. That is why I'm still here. (personal communication, August, 2002)

Interestingly, while some respondents did not identify themselves with any particular label or group, Cynthia said she called herself “middle of the road” deaf: “It’s like a group that accepts everything and is all-inclusive. Everyone would be accepted” (personal communication, April 2002).

Relevant to the earlier discussion on dual identity issues in chapter 2, the two Asian students and the Arabic participant were interviewed to determine their perception of their status regarding the hearing and deaf cultures as well as their respective racial or ethnic group. Ana, who was of Arabic descent, talked the most about this factor in her interview. She stated clearly that her first affinity is with the Arabic culture:

I probably take more pride in myself being Arabic than I take pride in myself as being deaf. I look at myself as an Arabic. I feel more proud and more comfortable with being Arabic, second with being deaf. (personal communication, August 2002)

Ana's discovery at State U that Arabic courses were being offered was a major attraction that affected her integration within the university and her affiliation with her cultural background:

When I heard they offered Arabic classes, I thought that was awesome. I registered for all the Arabic courses. Only a very few places offer Arabic courses—I have been studying those for about two years....I didn't know anything about Arabic before I came here. I didn't know about the voice messages, the sounds. I never had an opportunity to read anything about that before I got here. (personal communication, August 2002)

Her affiliation with her cultural background also inspired Ana to become involved with the campus Muslim women's group, for which she was usually able to obtain an interpreter.

Extracurricular Activities: On- and Off-Campus

Within the context of State U, several clubs and extracurricular activities are available to the students. There are more than 500 clubs in which a student may elect to be involved, which include fraternities, sororities, political groups, and intramural sports. For varsity sports, students may choose from 11 men's and 14 women's sports. Thus, there are ample opportunities in which students may be socially involved on campus.

A clear distinction was made between participants who were exceedingly interested and integrated with the social life of the mainstream college setting and those who had minimal involvement in the social scene on campus. Of the latter group, many of the participants who did not participate in extracurricular activities on campus were involved in activities off campus.

To begin with, it is significant to note that all 10 of the participants were involved with extracurricular activities, sports, and clubs in high school. A few received awards related to their involvement. These activities and awards were varied and included class president, class secretary, deaf female athlete of the year, scholar-athlete of the year, tennis, track, swimming, volleyball, school newspaper, drama, physics team, cheerleading, and marching band. Some, but not all, of the participants continued to be involved with extracurricular activities at State U. However, there were three main reasons for the lack of involvement with social activities on campus. First, several of the respondents found it difficult to request interpreters and other services, such as CART and C-Print, for nonclassroom events such as extracurricular activities; organizational meetings; department or class get-togethers; study groups; noncredit seminars; and lectures. Many respondents attributed this difficulty to the three-to-six-week advance notice required for requesting interpreters, which they felt was highly unrealistic for nonclassroom activities and events in which they had much less advance notice. Secondly, the rigors of academic work and the associated difficulties simply took up most of their energies and time. Finally, several of the students were already engaged in social activities off campus through professional conferences or organizations or developed social relationships outside of campus, such as with the larger deaf community.

For example, on her background questionnaire, Sarah wrote that she participated in two organizations off campus: one group was for deaf women in the fields of science and engineering; the other was an international deaf event called Deaf Way II. She was also thinking about exploring her Chinese heritage by joining the local association for Deaf Asians. Her choice of social activities cohered with her statements that she felt more of a connection with deaf people outside the university, such as her friend “Wanda”: “We really had a bond. She is deaf. I am deaf. We both were in mainstream programs. We understood each other, and I felt like we both missed something” (personal communication, July 2002).

While she did not indicate a strong desire to associate with people at State U, Cynthia clearly felt a desire to forge relationships with other deaf people off campus and felt intrinsically motivated to do so. In fact, she was actively involved in a number of organizations such as the National Association of the Deaf and organizations that involved students from a variety of institutions (personal communication, May 2002). She was, therefore, successful in cultivating her relationships with deaf and hard-of-hearing people off campus and formed a tremendous affinity with this group of people, which gave her pleasure and inspiration.

Unlike at State U, Cynthia had managed to be involved in several extracurricular activities in her undergraduate program. This, however, can be attributed to her having much better services and, therefore, access during this period. As a result, she was more involved with activities such as a community-service-based house, a local deaf organization, and swimming. She was able to establish relatively comfortable relationships with her peers in these organizations. Most significantly, through her

boyfriend and her roommate who signed (“How many people can say their roommates signed in college?”), Cynthia was able to carve a social niche for herself at her undergraduate university and derived pleasure from these relationships (personal communication, May 2002). Similarly, while pursuing a master’s degree at a large university in the Northwest, Cynthia was able to obtain interpreting services for student get-togethers on Friday nights and other extracurricular activities. However, because she was not provided with interpreting services at State U for these activities, the situation undermined her ability to socialize with her hearing peers.

Despite the difficulties and challenges involved with social interaction, the majority of the participants still engaged in some form of extracurricular activities on campus. Regardless of the degree of involvement, the key issue is whether the participants were able to derive sufficient support from this area to enable them to feel integrated. Ana was one of the deaf students who had succeeded in forging a social connection in the college community at State U by participating in a few extracurricular activities. Passionate about the “seven beautiful horses” on campus, she became a member of the equestrian club. Furthermore, feeling a strong affiliation to her Arabic origins, she participated in a campus organization, members of whom are local Muslim women, in which she discusses issues of religion and gender with other members (personal communication, August 2002).

Although Martha did not participate in extracurricular activities at State U, and instead most of her social activities were related to attending professional conferences and activities off-campus, she still felt highly integrated in mainstream college settings. Based on her comments, her perceptions of social integration were influenced by her

personality: “Yes, I feel accepted. But I’m very friendly, and I will stop and talk with people....If you accept yourself, other people accept you” (personal communication, April 2002). It appears, therefore, that Martha’s self-esteem played a key role in enhancing her feelings of social integration.

Satisfaction and Level of Commitment

Despite their difficulties and obstacles, all the participants had intrinsic belief in their ability to succeed academically and had a high level of commitment to persisting to completion with a college degree. Indeed, all of the participants stated that they intended to graduate from State U. Bart, David, and Ana added that they were determined to finish, as they were nearing completion of their programs. Though services were inadequate, Ana said, “Now I’m trying to put all that behind me and focus on school, because I only have a year left” (personal communication, August 2002). Steven was determined not to be a statistic: “In general my deaf friends say that a lot of them withdraw from college. I do not want to become one of those. So I decided to tough it out, come what may” (personal communication, November 2002). Even Sarah, who had suffered from burnouts throughout her education, was convinced that she would accomplish her goal of graduating with a graduate degree (personal communication, August 2002).

Participants’ Perceptions of Helpful Support Services

This section of the findings addresses suggestions the respondents offered regarding how State U and other colleges could improve the integration, persistence and retention of deaf and hard-of-hearing students.

In regard to the provision of services for access to study groups, noncredit seminars and lectures, labs, extracurricular activities, workshops, clubs, school-related outings, and other activities on campus, the respondents felt that the current State U policy of requesting an interpreter up to six weeks in advance was insufficient. Interpreters should readily be made available for events and activities requiring shorter notice. One participant explained, “A lot of the time study groups are set up maybe two days in advance of the exam. Or a research study group...decides to meet the next day. [However], that is not sufficient notice time for DSS.” In response, however, the DSS director stated that in many cases interpreters need that much advance time to organize their schedules.

One participant suggested that the coordinator of deaf services and staff be deaf so that he or she would understand deaf students’ needs (Steven, personal communication, October 2002). During the period of data collection, State U did not have a coordinator for six months. As a consequence, one respondent stated that the interpreter coordinator should be a more “permanent” position so there is more stability in the position and less turnover.

Better note-taking services should be provided, and the note-takers should be paid accordingly. Ana explained: “Note-takers have complained they haven’t gotten paid yet. It has been a year since they took notes for me....Why should they take notes for me again if they aren’t getting paid for the previous time?” (personal communication, November 2002). Improved note-taking services would also require better training and coordination of note-taking services.

Information about newer technologies such as CART, C-Print and VRT should be disseminated to students so that they may be informed of their options. Very few of the respondents felt they received an adequate orientation to DSS services, including the variety of services available. For example, at the second focus group, Ana saw CART for the first time and wished she had known about it: “I have never heard of these things, VRT, CART, until you brought them up.” Another suggestion included having available both an interpreter and CART to maximize access in the classroom (Leslie, personal communication, May 2002).

A participant suggested that an outside agency be made available to evaluate DSS services to ensure accountability and quality of services (personal communication, November 2002). State U should also have a relationship with Gallaudet University and other deaf organizations: “That would be very helpful to [State U]” (Steven, personal communication, October 2002).

Finally, it was suggested that early registration be available for students, to help them get the classes they need and want and search for classes smaller in size (Steven, personal communication, November 2002). Early registration would also help ensure acquisition of services by providing advance notice for requests.

Summary: Relationships Among Themes

By using the modified version of Tinto’s (1987) conceptual framework of student retention, along with expansions and revisions of the model by Stinson et al. (1987, 1997), Braxton (2000), and Draper (2000), it is evident that many interrelated factors interact in a dynamic process to influence the students’ perceptions of their level of integration. Their background, past experiences in mainstream settings, personal

characteristics such as friendliness, ease of communication, ability to deal with the academic challenges, self-advocacy and resourcefulness, support systems, and accessibility to institutional support services play significant roles in shaping the academic and social integration experiences of the participants. Regardless of the similarities of some of their characteristics, each of these participants had varied perceptions of their experience in their current mainstream setting.

Based on the analysis of the background questionnaires, the in-depth interviews and the focus group interviews, the participants constructed an impressive picture of the types of challenges they confronted throughout their academic careers. All of the participants were highly capable, successful individuals who utilized a variety of resources to navigate the academic and social systems of college life. Some students were more reliant on support services than others and suffered when they were not provided them. Regardless of their level of academic and social integration, however, all of the respondents maintained a high level of commitment towards attaining a college degree.

Self-advocacy and resourcefulness emerged as two of the most vital components in these students' ability to persist. These findings became clearer during the two focus group interviews, when the respondents shared and validated their experiences and emphasized the importance of asserting themselves while coping with the lack of access to institutional services to which they were entitled and which they needed for their academic work.

Outside support such as friends, counselors, role models, and helpful advisors and instructors were also deemed significant. The original themes and categories developed in

the concept map as depicted in Figure 4 were expanded to include a revised persistence model as shown in Figure 5.

Of all the participants, Bart could be considered the best-adjusted deaf student. Aside from his stellar academic abilities, he had succeeded in forging close networks of friends and participated in the most extracurricular activities. He emphasized that his friends constituted an important support network that provided him with pleasure and assistance when needed: “My friends are my support services,” he said (personal communication, August 2002).

On the other hand, the participants who were more dependent on interpreters for their academic and social interaction were extremely frustrated about the inefficiency of DSS to provide adequate services, which negatively affected their integration experiences. It seemed that a big problem with getting interpreters was the State U policy that students request interpreters three to six weeks in advance. For some this was not realistic and undesirable. On a few occasions, they were forced to drop classes because the interpreters were not available. However, for these participants, their negative experiences with the DSS were still mitigated by their social support systems and levels of commitment to college. For example, Cynthia was provided with support by her advisors, who helped get her into programs and encouraged her to continue with her studies. In the case of Ana, her belief in the need to complete her studies in a mainstream college setting was bolstered by the advice of her high school counselor.

Factors that influenced the ability of the participants to interact with their hearing peers were identified. For some respondents, their personalities and upbringing might have been significant in shaping their level of social involvement. For example, despite a

severe hearing loss, Martha noted that with her friendly nature, she had a natural propensity to socialize with her peers and faculty in the mainstream college setting. Thus, she did not feel that her hearing loss cut her off from people in the mainstream setting (personal communication, April 2002).

In sharp contrast, Sarah possessed a more introverted personality that made her feel self-conscious about her hearing loss. Sarah presented her inner perspective of the situation. Even when she was involved in social activities, she “wasn’t completely happy inside [and] felt inferior,” thus undermining her interaction with others. Because of her somewhat abusive upbringing and self-consciousness about her hearing loss, she found it difficult to connect with hearing peers. Despite her early participation in extracurricular activities in high school, she never felt as though she was truly integrated in a mainstream setting (personal communication, July 2002).

Bart and Margaret, who were able to utilize a more independent means of communication such as cued speech and lip reading, were slightly less frustrated with the inefficiency of the DSS. At the same time, these participants were also the most resourceful and outgoing people, who did not feel awkward in the presence of hearing peers. In Bart’s case, he intervened in the process of obtaining interpreters by contacting the interpreting agency himself and forging a network of interpreters for his own needs. Even more significantly, Bart developed a strong network of friends who were available to help him with basic tasks such as making telephone calls on his behalf or helping him organize clubs.

To participate in both social and academic activities, the deaf participants who were in need of support services were highly dependent on them. Those who were able to

obtain these services for classes and activities became more interested in participating in these activities. For example, Ana had a positive experience as she was granted interpreters for her meetings with the Muslim women's organization in her state, thus allowing her to participate actively in the discussions (personal communication, August 2002).

Apart from Brad who had succeeded in creating a strong social community on campus, the other participants were more interested or comfortable with interacting with others outside the university. Variation in social integration both on- and off-campus was evident. Graduate and older students were more likely than undergraduates to develop social networks off-campus, through their jobs, families, or outside support. For all of these participants, there did not seem to be a conflict of interest among their roles as students and those outside the university. Participants such as Martha were often able to integrate their outside responsibilities, such as their need to earn more income, with their academic pursuits. For example, in choosing which institution she should attend, Martha considered practical aspects, such as the offering of a faculty position (personal communication, April 2002).

Though it would be ideal for deaf students to have colleges that create a diverse environment with more support systems in place that genuinely includes deaf students in their campus community, most of the participants in this dissertation did not expect the mainstream culture to embrace their needs and interests. However, they said that they wished they could be more integrated into college life.

Despite some of the obstacles that these students had to confront, the participants were primarily focused on attaining a college degree and forging social networks where

they could, either inside or outside the university. The students' persistence in college was primarily assured by four main factors: their level of commitment to attaining a college degree, their ability to self-advocate, their support networks, and provision of support services.

CHAPTER 5: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter will provide a brief summary of the concepts and issues that have been addressed in the previous four chapters. The conceptual framework used for this dissertation and previous research studies about student persistence, the role of college support services, the relationship between deafness and ethnicity, and other themes will be discussed. Furthermore, the research method, the data analysis process, and the findings of this study will be summarized. Recommendations for colleges to improve their capacity to provide a learning environment that embraces the needs and interests of deaf and hard-of-hearing students are presented. Based on the responses of the participants and the literature review, these recommendations will serve as a practical plan for colleges and policy-makers to reevaluate and address their current deficiencies with regard to serving and including deaf and hard-of-hearing students in all aspects of college life. Finally, this chapter will include implications and recommendations for theory, practice, and future research.

Summary

As mentioned in previous chapters, the fact that deaf and hard-of-hearing students confront academic and social barriers in mainstream universities led to the need for a study to present in-depth interviews and perspectives of students in these contexts. The purpose of this dissertation is not only to present rich, in-depth data on perspectives of this group of students, but also to present strategies for persistence and retention of these

students to other prospective students, college support personnel working with these students, and policy-makers and researchers studying these issues.

The research questions for this dissertation addressed the complex and dynamic interplay of social and academic themes and categories that affected the students' decision-making processes regarding their decision to enroll and persist in a mainstream university, the extent to which they are integrated in college academically and socially, and how they are able to maintain their level of commitment over time. The research questions examined the background factors that led to the participants' decision to enroll in a mainstream university, the themes and categories that allowed the respondents to be integrated and persist in the university, and their insights and perspectives on how they might improve their situation so that suggestions may be offered to college support personnel, policy-makers, and researchers focused on this and related topics.

In this dissertation, a conceptual framework was devised to frame the research questions and interpret the findings of the study. The adaptation of Tinto's (1987) model of student departure and retention, as revised and expanded by Stinson et al. (1987, 1997), Braxton (2000), and Draper (2002), were applied to the conceptual framework investigating the academic and social integration experiences of deaf and hard-of-hearing students in the State U setting. The conceptual framework then became the organizational structure in which the data were categorized and analyzed. The model, as shown in Figure 4, served as a concept map where the various themes and categories pertinent to the study were clarified and expanded in the findings and presented as a revised model in Figure 5.

The studies concerning issues such as the relationship between academic performance and student persistence informed the conceptual framework guiding this dissertation by identifying several themes and categories and providing the appropriate context for this research study. These studies highlighted the specific obstacles that improve on or undermine the academic and social integration experiences of deaf and hard-of-hearing students in mainstream settings. To some degree, these experiences are affected by the attitudes of their peers and the faculty members, although these factors were not empirically examined in this dissertation. In the case of some of the students, the failure of mainstream colleges to create a culture that embraces their needs and interests made it difficult for them to succeed academically and socially.

The review of the literature and the findings in the data addressed the connection between the deaf students' perceptions of their integration experiences and college support services. Without sufficient access to support services, it is difficult for deaf students to study and interact with their peers successfully. The literature review chapter also discussed the unique experiences of deaf and hard-of-hearing students from minority backgrounds and hard-of-hearing students, thus demonstrating that ethnicity and special identity issues are factors that must be considered when devising and implementing changes, policy, and research addressing the diverse needs of the deaf and hard-of-hearing student population.

The research design for the study was outlined in chapter 3. To provide rich, in-depth descriptions of the integration experiences of deaf students studying at State U, 10 participants were selected. Qualitative case study methods, including in-depth interviews and focus groups, were used as part of the research design for this dissertation. Validity

and trustworthiness factors were addressed by adopting a triangulation approach using tools such as analytic memos, member checking, peer debriefers, and student records.

The application of the conceptual framework, primarily the adaptation of Tinto's (1987) framework of student retention by Stinson et al. (1987, 1997); Braxton (2000); and Draper (2000), to the analysis of the research findings highlighted the diverse experiences of the participants and interpreted the findings of the study. It was found that the confluence of many factors that were considered in Tinto's and Stinson et al.'s frameworks of student retention was integral to the academic and social integration experiences of these students.

Ten respondents were recruited for this study, all of whom provided background information in a written questionnaire and participated in individual interviews. Transcripts of the interviews were sent to the participants for member checking. Of the 10 participants, 8 engaged in one of two focus groups to evaluate and validate their perceptions of their academic and social integration experiences. The member checking and collaborative analysis that occurred in the focus groups served to enhance the validity of the findings.

The limitations of the dissertation were addressed, including the fact that convenience sampling was used. Although this was a qualitative research study, discussion focused on the applicability of the findings to other studies by means of generalizable application, where the findings are generalizable to theory and not to propositions.

Key findings were presented in chapter 4. The findings supported previous research in several ways. In particular, the findings were similar to factors affecting

persistence of deaf students in mainstream colleges as described in the Menchel (1995) dissertation, which was the primary inspiration for this one. Several themes and categories in both dissertations were similar in identifying the specific factors that helped deaf and hard-of-hearing students enroll, be integrated, and persist in mainstream colleges. These themes and categories include the following: previous mainstream experience; role models; communication and social skills; involvement with extracurricular activities; study skills; personal attributes such as motivation and resiliency; outside support; identity issues; peer attitudes; instructor collaboration and support; academic achievement perceived academic competence; and provision of college support services. In this dissertation, however, self-advocacy and resourcefulness, level of commitment to college, support systems, and provision of services by the college emerged as the key findings. The complex interplay of related themes and variables related to the topic were outlined in Figure 5.

This dissertation is significant in that it provides a wealth of information to prospective students, college support personnel, policy-makers and researchers focused on this student population. In addition, the study expanded on limited available research on the topic of deaf and hard-of-hearing students in mainstream universities.

Discussion

This dissertation has explored the diversity of the experiences of 10 deaf and hard-of-hearing students in a mainstream college setting. Despite showing some similar characteristics, such as the extent of their hearing loss, all 10 participants had distinctively different perceptions of their academic and social integration experiences at State U. This study examined a variety of factors that influenced their perceptions. The

findings underscored the need for institutions to treat deaf and hard-of-hearing students not as a homogeneous population with the same needs, but as a diverse group of individuals who have unique concerns. Without recognizing that the provision of services to deaf and hard-of-hearing students is a complex matter, it is unlikely that universities will allocate sufficient funding to their DSS programs to ensure that needed support services are available to these students.

At the same time, this study's findings demonstrate the resilience of the participants, who were seemingly undeterred by the poor quality of support services, which undermined their academic performance. Clearly, the role of the college support services, though important, was not influential in shaping the decisions made by the deaf students. Many other mitigating factors, such as the existence of supportive faculty members, a strong social network within and without the campus, and the desire to achieve academically or to have a good career constituted equally strong counteractive forces to encourage the students to stay in college. Either by utilizing their strengths to compensate for their hearing loss or learning from past negative experiences, all of the participants were determined to accomplish their objectives of graduating from the mainstream college.

One of the most significant findings in this dissertation validated claims made by previous researchers that deaf students who empower themselves by advocating for themselves and adopting proactive roles in their learning are most likely to succeed academically. For instance, in this study, Bart, who was resourceful in overcoming his difficulties with getting interpreters by contacting the interpreting agency directly and forging a social niche for himself by being involved with extracurricular activities such as

a sign language club, thrived in the mainstream college setting. Undaunted by the challenges posed by the mainstream setting, Bart sought out help from friends and ensured that he obtained the necessary support services to succeed in this environment. Therefore, not only did he have the highest GPA in the group, but he was also the most well-adapted person in the group. On the other hand, Sarah pointed out in her interview that her initial unwillingness to seek out additional assistance to downplay her hearing problem affected her academic performance adversely. Concomitantly, because she was self-conscious about her hearing loss, she was not able to enjoy her social interactions with her hearing peers. Through her journey and negative experiences, Sarah had learned to reach out to others and self-advocate for her services.

Another important finding of this dissertation is that all deaf and hard-of-hearing students should be provided with various support services that are customized to their specific needs to ensure that they can accomplish their academic tasks. As mentioned, hard-of-hearing students and students with dual minority status may have needs that differ from primarily deaf, White students.

According to most of the participants in this research study, the lack of accessibility of support services on a consistent basis, the poor quality of interpreters and note-takers, and the inefficiency of the DSS needed to be addressed. A suggestion offered by one of the respondents regarding how to improve DSS service was to increase the budget allocated to DSS so that a skilled coordinator of deaf services, interpreters, and note-takers and other service personnel could be hired to provide sufficient and effective support services for the students.

Most of the students expressed their desire for State U to increase its commitment to deaf people. Ideally, the design and provision of college programs and services should allow the active participation of deaf and hard-of-hearing students and their interaction with their hearing peers. To this end, Bart suggested a DSS advisory group to facilitate rapport among DSS, the students, and the larger college community (personal communication, November 2002).

Again, this study's findings confirm the need for reliable provision of support services for deaf students. According to every participant in this study, DSS could not ensure reliable access to interpreters, note-takers, or other services that were qualified to handle the tasks needed to ensure appropriate access for these students. Apart from the academic areas, students also could not rely on the availability of interpreters for social events, noncredit seminars and lectures, study groups, and so on, thus essentially preventing the deaf participants from participating in these activities. Participants who succeeded in obtaining services on a consistent basis had to participate in the process by making their own arrangements, contacting interpreting agencies, and ensuring that they were paid by the DSS—all functions that should be performed by the department itself. Considering the fact that the university was not even able to provide the basic level of support services for the deaf students, it is evident that it had not addressed the issue of the marginalization of minority groups such as the deaf and hard-of-hearing student population in the college setting.

Finally and most importantly, the deaf students' perceptions of their academic and social integration could be enhanced considerably if mainstream colleges cultivated diversity in their environment. Although some of the participants felt that they were

accepted by their hearing peers and most considered their college experiences to be satisfactory, there was a sense that all of them had to struggle to carve a niche in an alien mainstream culture that did not acknowledge their distinctive needs and interests. In their own way, all of the participants had to make major adjustments to adapt themselves to their environment, knowing that the mainstream culture of the university would make few concessions to truly include them.

The sample for this study was unusual in that it included five graduate students, including four Ph.D. students, and included participants who had a variety of hearing losses and communicative ability, including cued speech, and two students who had cochlear implants, a relatively new assistive listening device. The transcription method of using Dragon NaturallySpeaking provided insights on new ways to transcribe interviews, either with deaf or hearing students, in future studies. Most importantly, this dissertation highlighted the incredible tenacity and accomplishments of 10 highly successful students with hearing loss, who developed assertiveness and self-advocacy skills in soliciting a variety of resources, such as friends and support networks, to navigate the academic and social facets of college life in a large mainstream university. Most impressive was their consistent and unswerving level of commitment in succeeding and persisting in college despite their obstacles.

Implications and Recommendations for Policy and Practice

To create a more inclusive environment for the academic and social integration of deaf students in college settings, the following recommendations are offered to improve the academic and social situation for these students, as addressed in the fourth research question and confirmed by the literature and the findings. Although most of these

recommendations were initially formulated to improve programs at State U, they can be applied to other mainstream colleges and universities.

Self-Advocacy and Encouragement

Self-advocacy and resourcefulness were perceived to be two important factors that ensured the integration levels of the students in the study. Therefore, deaf and hard-of-hearing students should be proactive in meeting people, particularly at the beginning of the school year. Attempts should be made by colleges to facilitate engagement between deaf and hearing students within the classroom and in various campus activities.

Student Orientation

Students should attend new student orientation upon beginning their program to get to know other students and become more familiar with their program and respective professors. Universities might consider offering early registration to students to be sure they get the classes they need, search for classes smaller in size, and to secure time in advance for requesting sign language interpreting, note-taking, and other services.

Mentors

The respondents recommended getting a mentor, particularly when starting a college program. This person may be an advisor, professor, counselor, or fellow student.

Faculty and Staff Orientation

Professors and staff at mainstream colleges should be informed about how to assist and provide access to students who have hearing loss. In addition, other campus

staff should be trained to provide the variety of services that are needed by deaf and hard-of-hearing students such as the students' use of different technological and communication systems. Students themselves need to be informed of the various options in services available to them so that they may explore the options best suited to their academic and social needs.

Orientation for College Support Personnel and Others

The role of DSS should include tactfully informing professors about the needs of deaf and hard-of-hearing students. This role should be conducted in a professional manner, without causing discomfort on the part of the students. In-service workshops for professors and other college personnel during the course of the school year could be provided detailing how to work with these students.

Adequate Support Services and Equipment

A sufficient number of interpreters, especially certified interpreters, and other service personnel must be available to fulfill student requests for services. Interpreters must know subject material when possible and show professionalism (e.g., be presentable, appear on time). DSS offices must be professional with the interpreters as well, using effective scheduling and payment plans. Stricter screening of interpreters and better training of note-takers may be needed. Interpreters and other services must also be available for a variety of activities not limited to classes, including study groups, labs, workshops, lectures and discussions, extracurricular activities, and off-campus outings.

Off-Campus Facilities and Activities

Colleges should provide deaf and hard-of-hearing students with information about the wide range of resources that are available to them off-campus. Agencies that provide interpreting services, vendors of products used by deaf and hard-of-hearing people such as hearing aids and organizations catering to them, which are located off-campus, could provide deaf and hard-of-hearing students with an expanded community. Organizations such as the Postsecondary Education Programs Network (PEPNet), the National Association for the Deaf, Self-Help for Hard-of-Hearing People (SHHH), the Alexander Graham Bell Association for the Deaf, and others should unite in their efforts to assist with advocacy and support. The World Wide Web would reveal additional resources. For deaf and hard-of-hearing students who feel isolated on campus and are unable to connect with hearing peers in a mainstream college setting, these off-campus organizations can provide a good support network. Also, by forming alliances and connections with these off-campus organizations, businesses, and institutions, the colleges may also encourage local communities to create a positive environment for deaf and hard-of-hearing students.

Campus Diversity Initiatives

The programs and activities organized on campus should celebrate the diversity of different cultures, including Deaf culture, and involve specific groups, such hard-of-hearing students and students of different ethnic and minority backgrounds and additional disabilities such as deaf-blind students. Colleges must provide more education about deaf culture and these other groups. To this end, a diverse population of students with hearing losses as well as Deaf culture should be included when developing and implementing

campus diversity initiatives. By offering and implementing a variety of campus policies and activities, the college may acknowledge its willingness to embrace difference and encourage all students and staff to examine the assumptions of mainstream culture. Instead of marginalizing the interests of minority groups and restricting their perceptions according to their ethnicity, gender, or deafness, colleges should enable hearing and deaf and hard-of-hearing students to explore their identities in a variety of areas.

Implications and Recommendations for Research and Theory

This dissertation utilized an adaptation of Tinto's (1987) conceptual model of student persistence to analyze the unique experiences of 10 deaf students studying in a mainstream college setting. As mentioned, Stinson et al. (1987, 1997) adapted Tinto's model to study persistence of students at the NTID, where services are readily available for students. This dissertation examined the integration experiences of deaf and hard-of-hearing students in a different context: a large mainstream university, specifically a Carnegie Research-I university. Clearly, the context or case of this study was different from that of NTID. Students were more reliant on the provision of support services and their own abilities to self-advocate and forge social networks to be integrated. Clearly, the importance of context should be considered in future studies.

Unlike the conceptual models devised by Stinson and his colleagues, as shown in Figures 2 and 3, this dissertation emphasized components that specifically influenced the ability of deaf and hard-of-hearing students to persist in the context of State U, including the ability to self-advocate and provision of support services. Specific components applicable to a particular type of context or academic setting should be considered in future studies. The component *ability to pay* was added to the new conceptual model, and

would also be imperative to include in future studies. Another financial factor to be considered in studies investigating similar contexts might include the ability of the mainstream college or university to provide the funds needed to provide adequate services to these students.

The examination of the effect of the variety of variables on the academic and social integration of the students is clearly complex. This study does not necessarily enable researchers or administrators to determine which variables play the most significant roles in influencing deaf students' decisions to persist with their studies in other mainstream college contexts. For example, one of the variables considered to be important to this study was the availability of support services. Though support services were inadequate at State U, most of the participants still considered their college experience to be satisfactory and utilized other resources such as friends and support networks both on- and off-campus, thus indicating that other factors might be important in shaping their perceptions of their integration experiences.

Based on these observations, future research studies should focus on their investigation of other variables and use a larger population of deaf and hard-of-hearing students to determine whether common variables can be identified. A study utilizing a larger population of deaf and hard-of-hearing students would also generate findings that are considerably more representative of this diverse population.

Apart from analyzing the perspectives of deaf and hard-of-hearing students, it would also be interesting to obtain the perspectives of hearing students and faculty members with regard to deaf and hard-of-hearing students. This study only indirectly described the attitudes and perspectives of others. The objective of a study including the

perspectives of others would be to determine whether hearing students and faculty members believed in the need for the mainstream college setting to create a more inclusive learning environment that catered to the needs of deaf and hard-of-hearing students and other minority students as well: “Even though the numbers of deaf students may be small on any one campus, working with other minority groups as one of several who share general concerns and who are often misunderstood and mislabeled, may not only positively influence perceptions of deafness but also increase chances of accommodation” (DeCaro & Foster, 1992). As faculty members and some hearing students were considered by the participants in this study to be an integral part of their support network, it would be interesting to elicit the perspectives of these individuals in answering various questions such as these: Why were they motivated to help deaf and hard-of-hearing students? Do they treat deaf and hard-of-hearing students as a separate population, or do they treat deaf and hard-of-hearing students just as everyone else?

It might also be helpful to solicit the perspectives of support personnel working with deaf and hard-of-hearing students, as Menchel did in his (1995) dissertation. Describing the perspectives of personnel such as those at DSS offices would provide a more accurate description of the context of the study or setting to be examined.

Because the questionnaire presented by Draper (appendix B) has not been empirically examined at the present time (personal communication, March 2003), nor fully examined in this study, empirical examination of Draper’s (2002) questionnaire and framework might be considered for future studies. Collection and analysis of more detailed data would provide more insight describing the context and setting in which the students are involved as well as the quality and level at which they are integrated. Using

Draper's questionnaire and framework would further illuminate the intrinsic and extrinsic factors regarding students' decision-making processes and integration experiences in the context or setting. Questions that were not specifically addressed in this study but could be detailed in future studies might include the following questions from the questionnaire as depicted in appendix B:

- Do you enjoy the challenge of studying at a mainstream university?
- Do you believe that studying at a mainstream university will prepare you for a career in mainstream society?
- Are you faced with extraneous challenges such as long hours in the computer lab that you like or dislike?
- Do you want to be integrated into the social environment in the mainstream university by forging strong relationships with peers and faculty? Why or why not?
- Do you want to feel a sense of belonging to the mainstream university, or do you not care?
- Do you believe that forging networks with peers and faculty members will serve an important purpose for your career development in mainstream society?
- Does attending the mainstream university exert a positive or negative impact on your relationship with family, friends, or employers?
- Do you have difficulties reconciling your need to succeed at your work at the university with expectations of family and friends outside the university?
- Are you faced with conflicting expectations of wanting a degree and earning sufficient income for your family?
- Does attending this university enable you to be recognized by others outside of the university?

A research study evaluating the effect of the implementation of the recommendations of this dissertation would certainly offer practical information for all mainstream college settings. Depending on the outcome of the research study, the recommendations could be replicated in other settings. In such a research study, a comprehensive research design that encompasses qualitative and quantitative approaches should be adopted. It should also incorporate the perspectives of hearing, deaf, and hard-of-hearing students; faculty members; administrators; and college support personnel. The

effectiveness of these newly implemented measures may be quantified by determining the frequency of the usage of the systems and facilities, or asking students to provide ratings of approval.

These research studies will thus build on the foundation of this research study by illuminating the difficulties of deaf and hard-of-hearing students who confront considerable odds to achieve their academic goals. By reiterating the need to improve support services for deaf and hard-of-hearing students and assess the viability of various recommendations, it is hoped that future research studies will improve the lives of future generations of deaf and hard-of-hearing students.

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**APPENDIX A: BACKGROUND DATA QUESTIONNAIRE
FOR STUDENT PARTICIPANTS**

All information will be kept confidential.

I. Personal Information

Full Name:

Gender: Male_____ Female_____

Permanent Address:

Campus or Alternate Address:

E-mail address:

Telephone (indicate Voice or TTY):

Marital status (check one): Married____ Divorced____ Single____ Widowed____
Living with Partner_____

Racial background (check one): African American/Black____ Hispanic____
Non-Hispanic White____ Pacific or Southeast Asian____
Other (please state:)_____

II. Age and History of Deafness

Date of Birth:

Age of Onset of Deafness:

Cause of Deafness:

Decibel Loss (without aids, if known): Right Ear _____ dB, Left Ear _____ dB

How would you characterize your deafness? (check one)

Profound_____ Severe–Profound_____ Severe_____ Moderate–Severe_____
Moderate_____ Moderate–Mild_____ Mild_____

Do you have a progressive hearing loss?

Do you wear hearing aids regularly? If yes, which ears? Right_____ Left_____

If you wear hearing aids, how much do they help you to hear? Please describe:

Do you wear a cochlear implant or are you considering getting one?

Do you have any other disabilities that impact your learning process? Please describe:

III. Family Data

Are your parents deaf, hard-of-hearing (HH) or hearing?

Mother is (check one:) Deaf _____ HH _____ Hearing _____

Father is (check one:) Deaf _____ HH _____ Hearing _____

Do you have any siblings or relatives with hearing loss? Please describe:

Mother's highest degree completed (check one): high school diploma _____
bachelor's _____ master's _____ doctorate _____ did not finish high school _____

Father's highest degree completed (check one): high school diploma _____
bachelor's _____ master's _____ doctorate _____ did not finish high school _____

Parents' marital status (check one): Married _____ Separated _____ Divorced _____
Widowed _____

Are you a dependent (do your parents claim you as a dependent on their tax form)?

Yes _____ No _____ Don't know _____

IV. Student Status and Major

Current student standing (check one): Freshman _____ Sophomore _____ Junior _____
Senior _____ Graduate Student: Master's _____ Doctoral _____

Number of credits registered for this semester (Spring 2002): _____

Expected date of graduation:

List the program or department you are in:

List your major, if known:

V. Living Situation/Social Life

What is your current living situation? (Check one:)

On-Campus/Dorm _____ Fraternity/Sorority _____ Off-Campus Housing _____

At Home With Parents _____ Independent _____

VI. Support Services

Which support services do you currently use at this college? (check all that apply)

Sign Language Interpreting_____ Note-taking_____ C-Print_____
CART (Communication Access Real-Time Translation, with a court reporter)_____
Cued Speech Transliteration_____ Oral Interpreting_____ Tutoring_____
Personal Counseling_____ Academic Advising_____ Other:

Do you use any assistive listening devices, such as an FM system or infrared listening device?

VII. Communication Preference

What is your preferred (the one you use most) mode of communication? (check one):0

Oral (Speech)_____ Cued Speech_____ Signed Exact English_____
Pidgin Sign English (PSE)_____ American Sign Language (ASL)_____
Total Communication (Sign with Voice)_____ Other:

Have you always used this method or just started using it?

VIII. English Proficiency/Current Academic Achievement

Year graduated from high school:

Grade point average (or average grade) in high school:

SAT scores: Verbal_____ Quantitative_____ n/a or don't know_____

Current grade point average (GPA) in college:

Describe your proficiency with written and verbal English (check one):

Normally I have no difficulty with written and expressive English_____

I rarely have difficulty with English; when I do have difficulty, this makes my class work slightly challenging_____

Sometimes I have difficulty with English; this makes class work somewhat challenging_____

I often have difficulty with English; this makes class work quite challenging_____

I almost always have difficulty with English; this makes class work very challenging for me_____

Are you involved with any extracurricular activities? If so, list here:

To what extent are you involved with extracurricular and other social activities related to college (i.e., dating, attending conferences, etc.)? Please describe:

Do you hold any jobs now? If so, what are they?

Does your job(s) support your career goal or is it needed to support yourself financially?
(check one): Career goal _____ Financial support _____ Both _____

XI. Level of Commitment

Overall, how would you rate your college experience so far? (check one)

Highly satisfactory _____ Satisfactory _____ Somewhat satisfactory _____

Somewhat unsatisfactory _____ Unsatisfactory _____ Highly unsatisfactory _____

How confident are you that you will graduate from this college with a degree? Please describe:

List two or three factors that would make your college experience more satisfactory:

If you are thinking about leaving this college, what are the reasons?

Thank you for completing this questionnaire. If you would like to add comments or elaborate on any section of this questionnaire, please feel free to do so here:

APPENDIX B: DRAPER (2002) QUESTIONNAIRE

Academic integration

- Goals: “What are your reasons for studying at a mainstream university?”
 - Intrinsic motivation: “Do you enjoy the challenge of studying at a mainstream university?”
 - Extrinsic motivation: “Do you believe that studying at a mainstream university will prepare you for a career in mainstream society?”
- Methods: “What type of challenges do you encounter in studying at a mainstream university?” and “Is studying at a mainstream university more challenging than you had anticipated?”
 - Intrinsic skills: “Do you possess the skills or knowledge to cope with these challenges?”
 - Extrinsic skills: “Are you faced with extraneous challenges such as long hours in the computer lab that you like or dislike?”
- Achievement: “Are you able to overcome these challenges?”
 - Intrinsic perceptions: “From your perspective, do you believe that you have overcome these challenges?”
 - Extrinsic perceptions: “Are you overcoming these challenges by excelling at your studies?”
- Social integration within the university
 - Goals: “Do you want to be integrated into the social environment in the mainstream university by forging strong relationships with peers and faculty? Why or why not?”
 - Intrinsic motivation: “Do you want to feel a sense of belonging to the mainstream university, or do you not care?”
 - Extrinsic motivation: “Do you believe that forging networks with peers and faculty members will serve an important purpose for your career development in mainstream society?”
 - Methods: “What are the types of challenges involved for you to get to know your peers and staff or to become involved in social activities on campus in a mainstream university?”
 - Intrinsic motivation and skills: “Do you derive pleasure and possess the natural propensity to socialize with your peers and staff in a social setting?”
 - Extrinsic motivation and skills: “Are you able to communicate and socialize with your peers and staff in a social setting?”
 - Achievement: “Have you succeeded in carving a social niche for yourself in college?”
 - Intrinsic perceptions: “Are you satisfied with the social relationships you have forged on campus?”

- Extrinsic perceptions: “Are you able to interact with your peers and faculty comfortably?”
 - Social integration without the university
 - Goals: “Do you want to establish relationships with people outside the confines of the university?”
 - Intrinsic motivation: “Are you comfortable in associating with people outside of the university?”
 - Extrinsic motivation: “Does attending the mainstream university exert a positive or negative impact on your relationship with family, friends or employers?”
 - Methods: “What type of challenges do you encounter in balancing your demands as a student and your roles outside the university?”
 - Intrinsic skills: “Do you have difficulties reconciling your need to succeed at your work at the university with expectations of family and friends outside the university?”
 - Extrinsic skills: “Are you faced with conflicting expectations of wanting a degree and earning sufficient income for your family?”
 - Achievement: “Are you able to let people know that you attend a mainstream university?”
 - Intrinsic perceptions: “Does attending this university enable you to have the type of social life you want outside of the university?”
 - Extrinsic perceptions: “Does attending this university enable you to be recognized by others outside of the university?”

APPENDIX C: INTRODUCTORY LETTER TO STUDENT PARTICIPANTS

February 2002

Hello,

My name is Anne Gray Liversidge, and I am a Ph.D. candidate in Education Policy and Leadership (EDPL). I'm currently collecting data for my dissertation titled, "Academic and Social Integration of Deaf and Hard of Hearing Students at a Carnegie Research-I University: A Case Study Approach."

If you are a deaf or hard-of-hearing undergrad or graduate student enrolled full or part time at UMCP I would greatly appreciate your willingness to participate in my study. I would like to interview you to find out what your perceptions are being a deaf or hard-of-hearing student at this university. In addition, you will have an option to share your experiences with 3 or 4 other deaf and hard-of-hearing students on campus as part of a focus group.

Data for this study will be collected via a questionnaire, participant interviews, focus groups, and student records. An initial meeting will review the major aspects of the research study so that you can make an informed decision about whether or not to participate in the study. If you choose to participate, you will need to sign a consent form(s). Participants may withdraw voluntarily at any time. The initial interview and questionnaire will take about two hours and an honorarium of \$XX will be given to students who complete this phase of the study, with another \$XX given to students who participate in the focus group, which will be about 90 minutes. Total involvement is about 4 hours for \$XX. Participation in the focus group is voluntary but highly encouraged as it will be an interesting opportunity to meet and share experiences with other deaf and hard of hearing students on campus.

Sign language interpreters or cued speech transliterators will be provided upon request. For each interview there will also be a transcriber present as I am hard of hearing/deaf myself and will be unable to take notes myself during the interviews. Following the interview, participants will be sent the interview transcript and may change or delete any information they would prefer not to be recorded. Again, all information will be kept confidential and names changed, with transcripts destroyed at the end of the study.

The information garnered from the study will prove extremely useful for student support personnel and administrators working with deaf and hard-of-hearing students in higher education, as well as students themselves. Since this is such a small population, I hope I can interview as many of you as possible. I think you will find the study to be interesting and worthwhile. Please contact me directly via e-mail regarding when we might set up an interview within the next few weeks. Please give an e-mail address and phone (indicate

voice/TTY) where you can be reached. My schedule (day and evening) is very flexible as I am focusing on my dissertation almost full time.

Thank you very much, and I look forward to hearing from you soon.

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University of Maryland, College Park