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MOORE, CARROLL JO HUNTER

TEACHER AWARENESS OF THE NEEDS OF PHYSICALLY DISABLED STUDENTS  
IN THE COLLEGE CLASSROOM

THE UNIVERSITY OF ARIZONA

M.A. 1983

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NEEDS OF PHYSICALLY DISABLED STUDENTS  
IN THE COLLEGE CLASSROOM

by

Carroll Jo Hunter Moore

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A Thesis Submitted to the Faculty of the  
DEPARTMENT OF COUNSELING AND GUIDANCE  
In Partial Fulfillment of the Requirements  
For the Degree of  
MASTER OF ART  
In the Graduate College  
THE UNIVERSITY OF ARIZONA

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## ACKNOWLEDGMENTS

Special appreciation is extended to the following persons whose contributions were instrumental in completing this research:

Dr. Betty Newlon, thesis advisor, for her guidance and encouragement.

Dr. Kay Lesh, committee member, for her assistance and support.

Dr. Richard Erickson, committee member, for his advice.

Dr. Sarah Dinham, Educational Psychology Department, for her input and interest in the development of this project.

Dr. Kent Kloeping, Disabled Students' Program, for his help in gathering a sample and in contacting resource persons.

Volunteers of Disabled Students' Program, for their many hours acting as readers and note-takers.

Nan K. Nye, friend and fellow graduate student, for her efforts in editing the manuscript, work in the library, and general aid and abetment throughout this project.

Viceroy, guide dog extraordinaire, for getting me where I am today.

Herbert J. Moore, Jr., husband and partner, for his emotional support and understanding during my years as a graduate student and especially:

Barbara J. Hunter, reader, writer, friend and helper, for so much more than space allows me to note.

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## ABSTRACT

It was the purpose of this study to ascertain the needs of physically disabled students on the University of Arizona campus including those concerns specific to a particular disability group and those held in common by all groups. Further, it was the study's intent to determine the awareness level of professors and non-disabled students regarding these needs. Sixty-seven students in five disability groups (visually impaired, hearing impaired, mobility impaired, multi-impaired, and other health impaired) were surveyed via questionnaire or interview. Results showed that specific groups had specific needs, and all related concerns regarding a need for extra time for completion of course work, and difficulties using the library. A wide range of awareness levels on the part of the professors and non-disabled students was reported. Specific suggestions were made by many students and are included, as are recommendations for methods by which awareness levels can be increased.

## CHAPTER 1

### INTRODUCTION

In 1973 Congress passed the Rehabilitation Act, including Section 504, which states: "No qualified handicapped person shall, on the basis of handicap, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity which receives or benefits from Federal financial assistance". This mandate was designed to remedy discriminatory conditions where individuals with disabilities were not afforded equal opportunity in educational activities. A description of some of the major provisions of Section 504 affecting postsecondary education follows.

One provision is Admission: Qualified handicapped individuals may not be denied admission because of a handicapping condition. Quotas for numbers of handicapped students admitted cannot be applied, nor may tests that discriminate against those with certain conditions be administered. Information about a disability may be requested on admission forms but students are not legally required to provide this information.

Another provision is General Treatment of Students: Qualified handicapped students cannot be subjected to discrimination nor excluded from participating in any academic, research, counseling, financial

aid, physical education, athletics, recreation, transportation, other extra-curricular, or other postsecondary program or activity.

Academic Requirements is another major provision: Modifications in academic requirements are required to ensure that no discrimination due to a student's limiting condition takes place. Adjustments in examination procedures are required if the usual procedures put the student at a disadvantage. Auxiliary aids such as interpreters, tape recorders, taped texts and other adapted equipment must be provided where the lack of these will keep students from participating in educational programs. Supporters of Section 504 point out that the key to the regulations is "program accessibility", and not the elimination of all architectural barriers. Structural changes need to be made only if other alternatives such as reassignment of classrooms, are not feasible. In situations where structural changes are needed, the deadline for compliance was June, 1980. This legislation attempts to normalize conditions allowing full participation by all students in all regular campus activities.

Section 504 has provided the impetus for opening college doors, but as Fonosch (1980) has pointed out, although educational institutions must meet the requirements of the act, successful integration of disabled students into campus communities is not guaranteed by good intentions. Newman (1976) notes that higher education, on the whole, has had little or no experience with disabled students and has not faced the necessity to learn about their educational needs.

Section 504 has provided a legal mandate for equal access to education. Universities and colleges have done a great deal in terms

of removing architectural barriers, providing auxiliary aids, and in modifying academic requirements. Still, there is no guarantee that when disabled students arrive on campus, professors and non-disabled students will be aware of, or be sensitive to, their needs in the classroom.

Nathanson (1983) writes that "the attitudes and behaviors of faculty, as members of that community who have front-line contact with these students beginning the first day they arrive in class, are critically important". He further indicates that the students' disability related characteristics - physical appearance, mobility limitations, speech irregularities and hearing impairments - are likely to affect faculty perceptions, expectations and attitudes regarding their students. These perceptions will naturally affect the ways that those faculty deal with their students who are physically disabled and "will subsequently have an effect on the students' achievement, self-concept, aspirations, career goals and general day-to-day coping attitudes". Disabled students who are met with positive attitudes and sensitive behaviors on the part of faculty may be encouraged to become successfully integrated into the college community. On the contrary, ignorant and/or negative perceptions and behaviors may pose barriers additional to those found in the physical environment.

#### Purpose of the Study

As a blind student, the author has noted that the teaching faculty vary in the degree of sensitivity they show to the special needs, problems or situations which concern disabled students. Others

in the field of rehabilitation have also found this variation in attitudes and behaviors. Nathanson (1983) surveyed 133 physically disabled students at the Brooklyn Center of Long Island University and asked them to indicate names of professors who exhibited awareness about the disabled and also had positive attitudes and behaviors toward them. He then interviewed the 15 faculty members receiving the highest number of votes, as well as the 15 who received the lowest number, indicating positive and non-positive attitude and behavior. The results showed that there was a range of positive and negative emotions, assumptions, expectations and behaviors that were common in both of the groups.

It was the purpose of this study to discover whether other disabled students encountered this same range of awareness due to a variety of attitudes on the part of faculty and others in the college environment. It was hoped that the study would elicit positive suggestions for improvement of awareness where needed. Another major objective of the study was to ascertain each disabled student's particular needs as he/she pursued the goal of higher education. The final outcome of the study will be an orientation manual for use by faculty and others which will serve as a tool to give teachers basic information on different categories of disability and the particular needs of these groups, thus facilitating more positive interaction between professor and student.

### Research Questions

This study was designed to answer the following questions:

1. Do disabled students experience any special needs in pursuing a college education? What are these needs?
2. If students do have special concerns, which of these are professors and nondisabled students aware of and of which are they not aware?
3. Are there any concerns common to all disability groups?
4. Do specific disability groups have specific needs?
5. Is there any relationship between the amount of these concerns, and the student's age, number of years disabled, year in school, or sex?
6. Are there students who normally would be classified as disabled who choose the option of not calling themselves disabled?
7. What suggestions do students have for improvement of awareness?

### Theoretical Rationale

The burden which disability places on society and the individual is staggering. The Community Outreach Program for the Deaf in Tucson, Arizona estimates that there are 16,000,000 hearing impaired individuals in the United States, with 500,000 being totally deaf. The National Society for the Prevention of Blindness says there are 564,000 individuals legally and totally blind nationwide, with 112,800 (or 20%) of these individuals being totally blind. Figures from the Arthritis Foundation indicate there are 36,000,000 Americans with this disease, of whom five to six percent are disabled. The National

Multiple Sclerosis Society gives a figure of 250,000 Americans having multiple sclerosis while the Cystic Fibrosis Society counts 30,000 with that disease. As many as 10,000 persons each year lose arms or legs, and 300,000 use prosthetic devices to replace lost limbs. Goldenson (1978) notes the National Health Survey results indicating that more than forty percent of the United States' population has some chronic illness or impairment. More than one out of ten individuals in the United States are disabled seriously enough to need partial or total rehabilitation.

The economic cost of disability is equally staggering. The annual cost of all forms of arthritis has been estimated at approximately \$9 billion. Rehabilitation itself is extremely expensive: for example, a cerebral palsy day program spends about \$5,000 per client per year. However, rehabilitation pays for itself in economic terms. Goldenson (1978) points out that for every dollar spent on vocational rehabilitation, an estimated \$5.00 will be returned to society in the form of federal income taxes during the first five years of employment, and for every dollar spent, \$35.00 will be earned in the individual's lifetime.

In other words, the physically disabled college student who earns a degree and subsequently becomes employed, will more than repay to society the money spent on vocational rehabilitation. Even more importantly in human terms, are the results of a college education in helping to overcome limitations, to increase the person's independence, and add to one's feeling of usefulness and the ability to face the future with hope.

"With gainful employment after college a realistic objective, increased financial support available for training, and comprehensive services being provided on university campuses, the number of severely disabled individuals applying for college can be expected to increase at an accelerated pace" (Kloeping, 1972).

In The American Freshman - National Norms for 1980, one finds the following information. Of the 187,124 college freshman returning questionnaires which surveyed various economic, social and individual characteristics, 2.8% indicated they were physically handicapped. This survey reported 1,711,681 entering freshmen in all colleges, in 1980. If one extrapolates that the percentage of students with physical disabilities who returned questionnaires is the same as the percentage of students with disabilities in the entire entering freshman population, this would mean there are some 47,927 students with physical disabilities in the entering 1980 freshman group alone.

This relatively new minority group brings to the college campus some unique problems for administrators, faculty, and students. Of particular importance is the idea of providing acceptance for the disabled as individuals instead of treating them on the basis of disability stereotypes. Before college personnel can deal effectively with this population, there must be a heightening awareness of existing attitudes. Rusalem (1962) states, "College instructors tend to bring their feelings about handicapped students into the classroom. These attitudes influence their concepts of how well disabled students can function in their courses. Often they will not be aware of such attitudes, or they will deny them for a variety of reasons. Somehow,

a way must be discovered to reduce the effects of preconceptions."

There have been many studies which suggest ways to reduce the effects of preconceptions, to change attitudes, and to increase awareness. Yuker (1965) found that meaningful contact with disabled persons may be one method of increasing positive feelings. Anthony (1972) supports a "contact plus information" approach for positively influencing attitudes, finding that neither contact with disabled persons nor communicating information about disability conditions would alone necessarily lead to change in attitudes in a positive direction, but this did take place when both contact experiences and relative information were presented. Genshaw and Maglione (1965) examined attitudes of non-disabled toward disabled students on two college campuses and found that college students who were more familiar with disabled students reported a more positive attitude than did the group which was less familiar. Urie and Smith (1971) found that 11 weeks of normal social interaction within a college classroom setting significantly changed the attitudes of non-disabled female students, but males in this study did not receive the same benefit from exposure to handicapped students and did not tend to change in attitudes as much. Fonosch's findings (1979) support the contentions of those researchers who have indicated that contact with disabled persons modifies attitudes of the non-disabled population in a positive direction. She studied the attitudes of faculty toward disabled students at two different universities. Faculty respondents expressed a positive attitude toward integrating disabled students into the normal classroom, and general willingness to help by adjusting procedures in the classroom, but tended

to be more undecided with regard to altering teaching styles, substituting assignments, making grading adjustments, modifying university requirements and offering the same field study opportunities as others had. Kaufman (1977) found that the disabled student can be an effective change agent. Informing an instructor that a problem limiting participation in the course exists, creates positive feelings and can raise the awareness level of the faculty member.

The studies cited above point out the need for information about the special needs of disabled students in the college setting. It is hoped that presenting the findings of this study in a written orientation manual for use by faculty will facilitate interaction between professor and disabled student, thus providing the information plus contact approach recommended by the research.

#### Definition of Terms

Physically Disabled: Any relatively severe chronic impairment of function resulting from disease, accident, or congenital defect. In general, a condition is considered disabling when it interferes with activity or adjustment in a substantial material way.

Handicapped: A term used here interchangeably with physically disabled. Government programs and legislation, as well as popular literature, rely on the term "handicapped" and do not differentiate between "disability" and "handicap".

Visually Impaired: Persons who are either functionally or partially sight, or totally blind. The term "blind" is used only for those people who have a complete loss of sight.

Functionally Blind: Those whose vision in the better eye, even with the help of corrective lenses, is either absent, or consists only of light perception or light projection.

Legally Blind: Those whose vision in the better eye, even with the help of corrective lenses, is no better than 20/200, or whose maximum visual field is less than 20 degrees. "Legally Blind" is a term used to define the people who are eligible for government funded services, but this term may be confusing because one legally blind person may have a great deal of residual sight and another may be totally blind.

Partially Sighted: Persons whose vision in their better eye, even with the help of corrective lenses, is no better than 20/70 but is better than light perception or light projection, or the maximum diameter of their visual field is less than 20 degrees.

Hearing Impaired: People with all types of hearing disabilities, ranging from a very slight loss to profound deafness.

Hard of Hearing: A condition where the sense of hearing is defective but functional for ordinary life purposes, usually with the help of a hearing aid.

Deaf/Deafness: A condition in which perceivable sounds (including speech) have no meaning for ordinary life purposes, even with the help of a hearing aid.

Mobility Impaired: A broad category used in describing those with partial or total loss of function in some body part. Such impairments may appear in muscle weakness, poor stamina, lack of muscle control, or total paralysis. People with these disabilities frequently use either wheelchairs, crutches, braces, walkers or canes for mobility.

Speech Impaired: Individuals with a communication disorder such as stuttering, impaired articulation, a language impairment, or a voice impairment.

Multi-Impaired: Those with concomitant impairments such as a blind-paraplegic, or blind-arthritic, neither of which conditions can easily be identified as primary or as secondary.

Other Health Impaired: Those who have limited strength, vitality or alertness due to chronic or acute health problems such as a heart condition, rheumatic fever, nephritis (kidney disease), epilepsy, leukemia or asthma, which adversely affects performance.

#### Limitations and Assumptions

The following are the recognized limitations of this study:

1. The study was confined to disabled college students, hence, no conclusions can be drawn about disabled persons in a non-college setting.
2. Since there is no way of knowing the total population of disabled students on the University of Arizona campus, this study may have sampled only a small proportion of the total number.
3. The participants were volunteer subjects and could have characteristics which differ from a non-volunteer group. It was assumed that defining a population in this limited fashion was practical and useful, since it was not ethically feasible to gather information other than from volunteers.

4. All subjects were disabled students on the campus of the University of Arizona, Tucson, Arizona, and might not be representative of disabled students elsewhere.

5. The Disabled Students Questionnaire was developed for use in this study. Since it was not tested prior to the study, its reliability and validity are questionable.

## CHAPTER 2

### REVIEW OF SELECTED LITERATURE

The literature supports the idea that physically disabled students have some needs and concerns in common, but also that different disability groups have different needs. The major classifications of disability groups in this study are the visually impaired, the hearing impaired, the mobility impaired, the speech impaired, those having multiple impairments and others who do not fit into the above categories.

Suffolk University (1978) studied areas of concern to its handicapped students. They found that the needs and concerns of physically disabled groups were: that library research presents difficulties; that extra time is needed to complete assignments and examinations; that handicapped students often experience emotional pressure in order to accomplish assignments on time; that there is some lack of understanding by faculty and students of their problems; that tape recorders would be helpful for transcription of lectures; that classroom numbers and posters are sometimes hard to read; that the crowded conditions in cafeterias present difficulties; and that transportation is a never ending problem.

#### Visually Impaired

Young and Leslie (1979) give this definition for the visually impaired on campus:

...students whose visual handicap is a factor to consider with respect to their learning experience at college. This would therefore include the whole range of handicaps--those students who are totally blind as well as those who are partially sighted. The important thing is that the visual handicap influence their education in some way.

#### Quebec's Colleges of General and Professional Education

(CEGEP) undertook a study concerned with disabled students and the obstacles to collegial education that they experienced (Young and Leslie, 1979). They were especially concerned with sensory impaired students. Among the recommendations they expressed were the need for identification of necessary books and materials that permit completion of course work, and the need for a process of sensitization within the college with respect to concerns of handicapped students. One of the trends which appears consistently in the data from all the groups surveyed by CEGEP is the critical need for education within the entire college population with respect to the concerns of the sensory handicapped. Because of the tendency for the handicapped to be dealt with in segregated institutional settings, many people in the college environment have never even come in contact with a sensory handicapped person before. Consequently, they lack much fundamental information and are often operating from stereotypic images of these people--perceptions which are often faulty.

This research found that the major problems for visually impaired students were in the domain of written communication. One of the most serious ways in which this affects students is the difficulty in obtaining the written material (texts, copies of handouts, library materials, registration information and tests) in time for it

to be useful to them in their courses. The lengthy and inefficient process of obtaining these materials is the largest retarding factor for visually handicapped students with respect to academic success.

Other areas of concern listed by blind students surveyed by researchers in the CEGEP study were the need for professors to verbalize what they were writing on the blackboard, the need for help with note taking, and difficulty if teachers make excessive use of visual demonstrations. The wealth of information that appears on bulletin boards, posters, etc. is lost to the blind. The standard time set aside for examinations and assignments is not usually sufficient and the mechanics of expressing themselves in written form typically take much longer than for the sighted students. Use of the library also constitutes a major dilemma for the visually impaired.

One of the most urgent needs expressed in the study was that of access to special visual aids and writing devices which can help the student compensate for a visual handicap. Devices they found to be helpful are closed circuit television, the Optacon (a device which reads print and allows the blind person to tactilely feel letters on his fingers), the Kurzweil Reading Machine, and the Braille-writer. The findings of the CEGEP study are backed up by Utz (1979) who suggests that blind students in mathematics classes need to use mechanical devices like the abacus, the talking calculator, raised line drawing kit and tape recorder.

Bissonette and Zawilski (1979) undertook research to determine the needs of the visually impaired at Dawson College in Canada. Their findings were consistent with those in the CEGEP study cited above.

They found that visually impaired students did not express concerns about general mobility but did express the same concerns detailed above.

### Hearing Impaired

While the CEGEP Study and the Dawson College Study emphasized the needs of the visually impaired student, a study by Michael J. Goodman (1978) elaborates the needs of the hearing impaired student. Goodman defines the deaf as those whose hearing loss has precluded normal acquisition of language, while the hard of hearing are defined as those having a hearing loss but in whom language acquisition has not been precluded. He includes in his study all degrees of hearing loss from total deafness to slight hardness of hearing.

Goodman considers communication one of the biggest issues for hearing impaired students in education. He points out that the percentage of most speech that can be lip read is about 20 to 30 at the most, providing the person is a good lip reader. Many hearing impaired people are not. Few people are aware that much of the English language has sounds that are just like some other sound on the lips. Added to this are factors such as poor lighting, bad speech habits, mustaches, head movements and countless other interferences. In view of the communication problems deaf persons face with speech, lip reading and writing, many find that they do much better in the language of signs and fingerspelling. This study suggests that there will be problems in the classroom when the student must use an interpreter who signs the lecture. It is helpful if faculty members speak slowly enough so that interpreters can keep up and it also helps if the

student and the professor have an agreed upon word such as "wait" or "please" when the student needs to stop or ask a question. Professors should not expect interpreters and hearing impaired students to keep up with what is going on if they turn their backs to the class as they write on the board and talk at the same time. It is also difficult for interpreters and hearing impaired students to keep up with the fast pace of group discussions. Goodman's study is extensive and would be an excellent resource for teaching faculty dealing with hearing impaired students.

Harkins (1978) did a feasibility study of the postsecondary education for hearing impaired people in Maryland. She notes that one of the greatest dilemmas faced in serving hearing impaired people is the high cost of services such as providing interpreters. Further, Harkins suggests that hearing impaired people would benefit most if a program of support services was located in a large community college.

Pima Community College's Support Services of Disabled Students (1981) has developed a set of video tapes with accompanying resource manuals which describe in detail the need of each of the disabled populations (Taylor and Plunkett, 1981a and b; Taylor and others, 1981). The manual on hearing impaired students discusses communication problems, ways in which professors can work with interpreters and the possible need for tutoring of deaf students whose reading and writing skills may not be at a college level.

Tuscher and others (1977) report on a comprehensive plan at West Valley Community College for providing special services for its students with communication, learning and physical disabilities.

This needs assessment resulted in development of programs in speech, hearing and language skills and reading and writing skills, also adaptive physical education and other programs.

The American Council on Education's HEATH Resource Center (Higher Education and the Handicapped) puts out a fact sheet on students with hearing impairments and gives the following suggestions for instructors (Stout and Krulwich, 1982):

1. Several things would be helpful for the students to see ahead of time: a brief course outline early in the term, a list of new vocabulary or specialized terminology before it comes up in class, and a copy of instructor's lecture notes.
2. Allow the student to be seated in a spot where he/she can maintain eye contact, away from light sources.
3. Allow the interpreter to sit or stand on one side of you, where the student may maintain eye contact with both the interpreter and you.
4. Speak clearly and naturally.
5. Don't smoke or block your mouth with your hands.
6. Try to avoid standing in front of windows or other light sources. The glare from behind you makes it difficult to read your lips and your expressions.
7. Body language, including facial expressions and gestures, can help get your message across effectively.
8. When communicating with the student, speak directly to him or her, not to the interpreter. For instance, ask "Do you?" instead of "Tell him" or "Does she?"
9. Try to avoid long periods facing away from the students or toward the chalkboard while you speak. Pacing around the room also makes it difficult for the hearing impaired student.

10. When another student speaks and is not in the hearing impaired student's direct line of vision, repeat the comment or question and point or motion to show who is speaking. This makes it easier for the student to follow the discussion.
11. In question-and-answer periods, the student may raise his hand, be recognized, and sign the question to the interpreter. The interpreter will verbalize the question to the instructor and the class, and then sign the response back to the student. Be sure to allow time for this to occur.
12. Be sure to allow extra time in science labs for the student to find things that you are pointing out. He/she may need to get instructions from the interpreter, locate the materials, and then turn back for the rest of the discussion.
13. If requested, assist the student in finding a volunteer notetaker. It is impossible to watch you and the interpreter and at the same time take notes.
14. Make important information (like assignments or changes in schedule) especially clear by writing it on the chalkboard. You should also have a system to notify the student if you must cancel a class, so that he/she can cancel with the interpreter.
15. The first term in college brings additional adjustment problems--have patience.
16. Don't talk down to the student--the hearing is impaired, not the intelligence.
17. Be objective about evaluating materials written by hearing impaired students. If there are problems of grammar, syntax, or fluency of expression, you can advise the student about such remedial services as tutoring, language department labs, or other resources which are available on campus for all students.
18. Sports is an area that is highly accessible. Deaf people are as likely as any others to be good athletes. Basketball players and teammates have reported successful use of nonverbal signals for when to pass, shoot or go into a zone defense. Coaches can do this in any sport.

### Mobility Impaired

The research that is available on mobility impairments has to do mostly with architectural barriers and accessibility. Rice and others (1980) have written a series of five guidebooks for improving secondary and postsecondary school accessibility. These guidebooks were helpful in describing needs assessment procedures used to identify barriers. Pima College's video tape and related manual on mobility impairments are aimed more at classroom considerations (Taylor and others, 1981). This manual, called Break the Barriers is a good resource for faculty and college personnel. It includes a true-false questionnaire whose aim is to dispel common misconceptions about persons in wheelchairs. The illustrations are clever and to the point, and the third section of the manual contains basic facts on how to deal with mobility impairments. Smith (1980) has written a similar handbook especially for use by faculty. Suggestions from these two books are: to allow extra time for wheelchair students who may be late to class because of too short breaks or because of circuitous routes, to encourage the student to participate in field trips and in recreational programs, to modify laboratory settings to include under-counter knee clearance, etc., to employ courteous actions such as kneeling when talking to someone in a wheelchair and refraining from hanging on the wheelchair.

The University of California at Northridge published Working with Disabled Students, A Faculty Guide in 1982. The information in this book is based on several workshops that the University conducted for faculty members in which disabled students gave valuable input.

Authors Fodor, Fonosch and Kline suggest that students with mobility impairments may have difficulty in getting from one location to another, may have impaired writing and/or speaking due to the handicap, may become fatigued and even experience absolute exhaustion temporarily, may need special assistance in laboratory situations, may experience difficulty in participating in classes involving physical activity, and may have difficulty in taking traditional paper and pencil tests.

The Office of Services for Handicapped at the University of Iowa has also written a guidebook for faculty and staff (Van Meter, undated). She details some considerations for dealing with students with motor or mobility impairments. These are:

1. Wheelchairs are part of the person's body space. To push or grab the chair without permission would be considered a violation of that space.
2. Words like "walking" or "running" are appropriate. Sensitivity to these words is not necessary. People who use wheelchairs use the same words.
3. Conversation at different eye levels is difficult if the conversation continues for more than a few minutes. If it is possible to do so, sit down and share eye level.
4. Test procedures and written assignments may need to be modified. The student may need extra time, may need a test proctor, and may find a tape recorder and/or notetaker useful.

#### Speech Impaired

Smith's handbook (1981) includes a brief, but good section on speech impairments. He says that:

...impairments range from problems with articulation or voice strength to being totally nonvocal. They include stuttering (repetition, blocks and/or prolongations occasionally accompanied by distorted movements and facial expressions), chronic hoarseness (dysphonia), difficulty in evoking an appropriate word or term (nominal aphasia) and esophageal speech (resulting from a laryngectomy).

He suggests that faculty should set the tone for encouragement of self-expression. He suggests resisting the urge to finish words or phrases for a speech impaired person. He also discusses types of mechanical devices which may be used as aids, such as sophisticated electronic "speaking" machines activated by punching a keyboard with a Head Pointer, or Mouth Wand, also a Spellingboard and a Ticker-tape print out.

Van Meter (undated) provides, in her faculty handbook, some good guidelines for more effective instruction of the speech impaired who may, or may not be uncomfortable with oral communication:

1. If the student shows extreme discomfort with speaking in class or taking oral examinations, it is suggested that an alternative arrangement be developed. A student should be encouraged to use existing communication skills to the fullest extent. Even if it takes more time, it is important for these students to have equal opportunity to verbalize their reactions and questions.
2. Do not hesitate to ask the student to repeat words or phrases. Students with speech impairments would rather repeat a message in order to communicate them than have someone ignore them or pretend to understand what they are saying.
3. At times it is helpful to summarize the message and check with the student for accuracy.

### Multi-Impaired

There is very little written about the needs of the multi-impaired and the other health impaired in the college classroom. The review of literature about the multiple disabled yields an interesting study by Shoepke (1979) in which she studied 161 severely handicapped adults in seven disability groups. In looking for competency levels, she surveyed the disabled, their relatives, employers and teachers. Among findings summarized are that persons with multiple handicaps reported less ability to perform the competencies than other groups; relatives' perceptions tended to confirm the self reports of the disabled concerning career development competencies; and attitudes of others were noted as barriers to goal achievement by the disabled and their relatives.

### Other Health Impaired

There are many other disabilities that may affect a student's functioning in class, but these may not be visible. Some of them might be cardiac conditions, arthritis, chronic back pain, active sickle cell anemia, diabetes, kidney disease requiring dialysis, respiratory disorders, epilepsy and ostomies (urostomy, colostomy, ileostomy). The medications and requirements for each of these illnesses vary greatly and are individualized. Smith (1980) suggests that:

...if an instructor has valid educational questions about the potential effect of various medications on the student's performance, the student, if willing, can probably provide some information. The instructor should not hesitate to discuss such issues tactfully with the student. A student health services physician or disabled student services staff member may be able to provide relevant information.

#### Maintenance of Academic and Technical Standards

One final point that should be stressed when studying the needs of disabled students is that these students may need certain adaptations, but this does not mean that a lower academic standard should be set for them. The HEATH Resource Center addresses this point very well in a publication on "Measuring Student Progress in the Classroom" (Hartman and Redden, 1982). It states:

It is important to everyone, disabled or not, that assessment of proficiency means the same thing for all students. A grade of "B" should carry the same meaning no matter which student earns it. A disabled student is being given no favor by "watering down" the course objectives for him or her--in fact that would be a definite disservice! Instructors generally clarify for the entire class what objectives must be met to successfully complete a course of study. Discussion with a particular disabled student may warrant additional clarification and involve careful consideration of the key course elements so that classroom testing evaluates a student's understanding of course content instead of his/her manual dexterity or other physical attributes.

Verification of examination adaptation procedures by neutral resource such as office of academic dean, student special services, or vice principal can protect academic standards. For example, an instructor who waives an exam or allows a student to "take home" a regular exam may be providing an inappropriate adaptation because he/she "feels sorry" for the student. Not only does this give a disabled student an unfair advantage, but it also prevents the student from making necessary educational choices based on true assessment of performance.

If, despite reasonably developed adaptations, the student does not pass the exam, remember that he/she, just as any other student, may simply not have mastered the course material to the degree necessary to pass the exam. Disabled students have the same right as others to fail as part of their educational experience.

#### Summary

This chapter has reviewed the literature concerning the needs of physically disabled students in postsecondary education. Although specific needs were noted for those of each disability group, in general, professor awareness and sensitivity is highlighted. The majority of the researchers agree that adaptations would indeed be made for the disabled student, were his or her needs known.

## CHAPTER 3

### RESEARCH METHODOLOGY

The purpose of this chapter is to present the methods and procedures of the study. The chapter has been divided into four sections: 1) selection of subjects and sampling procedures; 2) description of the research questionnaire; 3) description of the personal interviews; and 4) treatment of the data.

#### Selection of Subjects and Sampling Procedure

The study was conducted over two academic semesters, fall of 1982 and spring of 1983. Physically disabled students attending the University of Arizona fall semester, 1982 received mailed questionnaires, while those attending spring semester, 1983, were asked to volunteer for a personal interview. Description of the two groups follows.

#### Students Receiving Questionnaires

One hundred and forty students whose names appeared on the Disabled Students' Program mailing list for Fall, 1982, were mailed questionnaires. There is undoubtedly a larger population of disabled students on the University of Arizona campus than this; however, both the Office of Admissions and Records and the Office for Affirmative Action on Regulation 504 pointed out that the University cannot legally ask students to disclose whether or not they are disabled, and so no

statistics were available on the number of disabled students campus-wide. The 140 students on the above mailing list were users of the Disabled Students' Program. Since these students were clients of the Disabled Students' Program, the Program could not simply hand out the names without violating confidentiality. Questionnaires were prepared in advance by the researcher and turned over to the Program personnel, who then addressed the envelopes and put them in the mail. Since the confidentiality of subjects was important, it was impossible to do a stratified random sampling.

#### Students Volunteering for Personal Interviews

Forty six disabled students who had post office boxes located in the Disabled Students' Center received a handwritten letter explaining the research and asking them to volunteer for a personal interview on teacher awareness of their needs in the classroom. In addition, notices asking for volunteers were posted on bulletin boards in the Disabled Students' Center and the researcher's personal contact with students there also resulted in several people volunteering. Fourteen students volunteered for interviews.

According to figures given by the Disabled Students' Program (see Table 1 of Results Section), the majority of disabled students on the University of Arizona campus were the visually impaired, the hearing impaired and the mobility impaired. For this reason, the personal interviews were confined to these populations. None of the students interviewed had previously responded to the mailed questionnaire.

### Description of Research Questionnaire

The research questionnaire was designed especially for this study, in such a way as to bolster the rate of returns. The questionnaire was only one page long, front and back, and appeared on colored paper. Return envelopes which were hand-addressed and stamped with colorful commemorative stamps were included to encourage returns. A brief cover letter telling something about the researcher and the purpose of the research study was also included. Both cover letter and questionnaire appear in Appendix A. Another step taken was that of writing an article on the purpose of the study which appeared in the disabled students' newspaper.

The questionnaire itself was designed using a funneling effect, that is, the survey proceeded from broad to more specific questions. Most questions were open-ended, thus ensuring a wider range of possible answers. Attempts at having reliability and content validity were made by first asking a general question about how teachers were aware or unaware of students needs in the classroom, and then asking several questions about specific needs in the classroom, like use of interpreters or notetakers, and problems with tests or assignments. Every effort was made to reduce negative bias in the wording of questions. For instance, "Do you have any problems with exams?" was changed to "Do you do anything special about taking exams?"

Question number one read "How have your professors shown that they are aware or unaware of your needs? Give specific examples that you consider important". This question was designed to allow students to express their true feelings about teacher awareness or

unawareness. For the most part, this question brought forth full explanatory answers, although more information might have been given if more space were allowed. The second question read, "How strongly do you feel about professors becoming aware of your needs?" Here, respondents were to indicate their feelings by checking a point on a five point, Likert-type rating scale. Endeavors were made to make the meaning of each point on the scale clear by offering operational or behavioral definitions for each one. For example, number one meant "It's not at all important to me" while number five meant "I feel strongly that professors should be more aware of my needs". The content of the other questions may be found in Appendix A.

#### Description of Personal Interviews

The questions in the personal interviews were identical to those in the printed, mailed questionnaires. The interviews lasted from 20 minutes to 75 minutes, with most averaging about 30 minutes. During the interview, the student was encouraged to elaborate on any question of importance and to speak freely about needs and concerns.

The purpose of following a mailed survey with personal interviews was to determine whether or not the interviews would verify the results of the questionnaires. Since the interviews did, in fact, verify these results and since no new information was derived from them, the researcher felt that the 14 personal interviews were sufficient to complete the study.

### Treatment of the Data

Questionnaires were sorted into categories according to type of impairment. A data matrix was set up following guidelines suggested by Kidder (1981). Each impairment group had its own data matrix with the basic unit of analysis being the individuals within that specific population. Their responses to each question on the questionnaire were recorded in abbreviated form on the data matrix. This was done so that comparison of subject variables, such as gender and number of years disabled, could be made. It also made it possible to describe the general patterns of needs which emerged from each group.

No elaborate statistical analyses were attempted, since the aim of this study was to describe the needs of disabled students in the classroom and to explore their depth of feeling regarding teacher awareness of these needs. Some results are given in simple percentages.

## CHAPTER 4

### RESULTS

This chapter presents the results of this descriptive research study. The research questions were restated and answered briefly. More specific results are presented under the headings of visually impaired, hearing impaired, mobility impaired, multi-impaired and other health impaired.

There were 67 physically disabled University of Arizona students involved in this study. A questionnaire return rate of 37.8 percent was obtained. This means that out of 140 questionnaires sent out, a total of 53 were returned. There were five returns from the visually impaired, nine returns from the hearing impaired, 24 returns from the mobility impaired, 10 returns from those having more than one disability and five returns from "other" classifications. In addition to the 53 students surveyed by questionnaire, an additional 14 were interviewed personally by the researcher. Five of these were visually impaired, four were hearing impaired and five were mobility impaired.

There were no returns from students having a speech impairment only; however, there were three individuals with speech impairments included in the multi-impaired category. It is possible that a speech impairment only group does not exist, or that the percentage of students having only a speech impairment was so low that returns were negligible. It is impossible to tell from the data given by the Disabled Students'

Program (see Table 1) which students fall into a speech impaired group.

Table 1 shows numbers of students using the Disabled Students' Program during the 1981-82 academic year. It also shows a breakdown of students according to type of disability and specific medical diagnoses. Table 2 shows the number of these students returning questionnaires, categorized according to disability groups. Tables 3 - 7 show demographic characteristics of each impaired group.

#### Answering Research Questions

The first research question was, "Do disabled students experience any special needs in pursuing a college education? What are these needs?" The results showed that disabled students did have special needs in terms of their college experience. These needs will be described in five sections: visually impaired, hearing impaired, mobility impaired, multi-impaired and other health impaired.

Research question number two was, "If students do have special concerns, which of these are professors and non-disabled students aware of, and of which are they not aware?" The results indicated a wide range of awareness on the part of the non-disabled population existed. There were professors who employ cleverly adapted techniques in teaching their disabled students, and also those who are less aware of how they might teach and relate to disabled students. There did not seem to be a list of what professors and non-disabled students were aware of, and another list of what they were unaware of. This seems to depend on the person's exposure to various disabled individuals, and on the responsibility the disabled student takes in presenting his/her own needs. Each

TABLE 1. Students Using Disabled Student Services at the University of Arizona, 1981-82 Academic Year

<u>Medical Diagnosis of Disability</u>	<u>Number</u>	<u>Percentage of Total Disabled Population</u>
Spinal Cord Injury	44	19%
Visual Impairments	31	13%
Hearing Impairments	26	11%
Cerebral Palsy	8	4%
Muscular Distrophy	13	6%
Multiple Sclerosis	10	4%
Arthritis (Associated with mobility impairment)	18	8%
Post-Polio	4	2%
Neurological Disorders	12	5%
Orthopedic Impairments	19	8%
Respiratory Ailments	8	3%
Spina Bifida	5	2%
Osteo-Genesis Imperfecta	3	1%
Head Trauma	5	2%
Amputation	5	2%
Other	17	9%
Learning Disability	<u>2</u>	1%
TOTAL	228	
Undergraduate	179	
Graduate	49	

TABLE 2. Students Participating in Research Study

<u>Impairment</u>	<u>Students Returning Mailed Questionnaires</u>	<u>Students Volunteering For Interviews</u>
Visual	5	5
Hearing	9	4
Mobility	24	<u>5</u>
Speech	0	
Multiple	10	
Other	<u>5</u>	
Total Questionnaires Returned	53	Total Students Interviewed 14
Total Questionnaires Sent Out	140	
Return Rate	37.8%	

impairment section below presents results in terms of students' impressions of others' awareness of their needs.

Research question number three was, "Are there any concerns common to all disability groups?" The results showed that there were common concerns. These included extra time needed for completion of course work, use of the library is often difficult, the disabling condition itself makes demands which interfere with completion of assignments, and students in each disability group have a desire to be accepted for what they are as human beings, rather than being judged by a disability label.

Research question number four was, "Do specific disability groups have specific needs?" The research showed that they did and these needs will be listed individually under each specific impairment section below.

Research question number five was, "Is there any relationship between the amount of these concerns, and the student's age, number of years disabled, year in school, or sex?" Analysis of the information charted on the data matrix showed no relationship between demographic variables and amount or type of response.

Research question number six was, "Are there students who normally would be classified as disabled who choose the option of not calling themselves disabled?" This question was included so that students would not feel that they were being labeled by a stereotypic image of a particular disability. It is interesting that of the 10 visually impaired students in the study, all considered themselves disabled. All of the multi-impaired also considered themselves

disabled, but in each of the other groups there were those who chose the option of not calling themselves disabled.

Research question number seven was, "What suggestions do students have for improvement of awareness?" Although there were many suggestions which appear in the specific impairment sections below, the number one suggestion given was for the disabled student to take the initiative in meeting with faculty members to make the specific needs and concerns known.

#### Visually Impaired Students: Mailed Questionnaires

In the first group, the visually impaired, all respondents listed areas in which professors were unaware of their needs. The need most frequently listed was for professors to verbalize the material being written on the blackboard. Four out of five students listed this. The next most frequently listed need was for clear, large-print copies of handouts on white paper for those who were not totally blind. Other areas of need were verbal rather than written notification of changes of room location and/or class activities. One student described sitting in a darkened room for an hour because the class location had been changed. The professor sent someone to tell the blind student of the change, but that person failed to look in the room since the lights were out, a fact not known to the blind person. On the other hand, two out of five respondents noted teacher awareness and wrote that some professors inquired about special needs for examinations and gave consideration to their limitations.

Question two on the questionnaire was how important is teacher awareness to the student? On a scale of one to five, two students marked number four which meant that most of the time it's important that professors understand the student's needs. Three of the five students marked number five which meant that they felt strongly that professors should be aware of their needs.

Questions 4, 6 and 7, which dealt with classwork, had the following responses. All students required some modification of course material because of their disability, needing textbooks on tape ordered approximately two months in advance, or Visualtech (a mechanical device which magnifies print), or larger print handouts, or a raised-line drawing kit, or, for music students, notes and music in braille. Four out of five needed either a test writer or an oral examination, and one said she needed extra consideration, being unable to take more than one examination a day. Another area stressed by a majority was the consistent need for extra time in the completion of assignments, in doing library research and in taking examinations. This finding is consistent with that of Bissonnette and Zawilski (1979) who suggest that blind students need time and a half for completion of exams. Problems with exams, other than time, were making sure the test writer transcribes exactly what the visually impaired person dictates, and dealing with the attitudes of some professors and non-disabled students that the blind are cheating on examinations because they are in a separate room with a test writer.

Questions dealing with communication and awareness of others had answers that stressed the need for others to identify themselves

verbally rather than playing games such as "Guess who this is?"

One surprising finding was that visually impaired students seemed to have few problems with mobility and accessibility to classrooms. Only one student listed the following impracticalities about the classroom layout--chairs crowded or in different places, lack of space for guide dog, need for orientation to a room in order to locate exits, rostrum, blackboard, light switches, and electrical outlets for use of tape recorder. No students listed problems getting in or out of classrooms, but some noted that occasionally they need to take someone's arm.

The following suggestion for improvement was given: three students emphasized the importance of the student meeting with the professor prior to the beginning of class to make him/her aware of the specific needs and learning systems of the disabled person. Other suggestions were for professors to spell out technical or newly introduced words, to give the option of taking exams on tape, to make library materials, including records, available for longer periods of time and to eliminate sight singing as a requirement for music students in this category.

The demographic section of the questionnaire yielded the following information on visually impaired students (see Table 3): Of the five respondents, four were female, one male, and there was no difference in amount or type of response. One student was in the age category of 25 years or under, while four were 26 years or older. One student was unclassified and the other four ranged from sophomore

TABLE 3. Visually Impaired by Gender, Age, Year in School, Number of Years Disabled, Self-Reported Concept of Disability

	Questionnaire Group	Interview Group
Total Number In Group. . . . .	5 . . . . .	5
Gender		
Male. . . . .	1 . . . . .	3
Female. . . . .	4 . . . . .	2
Age		
25 Years and Under. . . . .	1 . . . . .	5
26 Years and Older. . . . .	4 . . . . .	0
Year In School		
Freshmen . . . . .	0 . . . . .	0
Sophomore . . . . .	1 . . . . .	0
Junior. . . . .	1 . . . . .	1
Senior. . . . .	1 . . . . .	2
Graduate. . . . .	1 . . . . .	2
Unclassified. . . . .	1 . . . . .	0
Number of Years Disabled		
One to Five Years . . . . .	1 . . . . .	2
Six to Ten Years. . . . .	0 . . . . .	0
More Than Ten Years, But Not Since Birth. . . . .	2 . . . . .	2
Since Birth . . . . .	2 . . . . .	1
Consider Self Disabled?		
Yes . . . . .	5 . . . . .	5
No . . . . .	0 . . . . .	0
No Answer . . . . .	0 . . . . .	0

through graduate. No difference in types of response was found in comparing age groups and in comparing the year in school. All students considered themselves disabled. One interesting relationship is that the student disabled five years or less seemed the most dissatisfied with teacher and student awareness, listing the most needs. Two students were impaired for more than 10 years, but not since birth. One cannot assume that being disabled a shorter amount of time causes one to have more needs since there may be plausible rival explanations for this student expressing a desire for more teacher awareness. Perhaps this particular individual is more assertive than others.

#### Visually Impaired Students: Personal Interviews

There were five students in this category, all of them over age 29, and all considered themselves disabled. Diagnoses varied but included Nauries disease (a chromosome disorder), diabetic retinopathy, macular degeneration and uveitis. For further information see Table 3.

As in the mailed questionnaires, teacher awareness of their needs was important to these students, all of them marking a five on the Likert scale. The number one need discussed in the interviews was for teachers to verbalize what is being written on the chalkboard, to spell out new technical words and to be more specific in verbalization rather than using "this" or "that" in descriptions. The second greatest need was for teachers to be aware of the extra amount of time required by the visually impaired to complete their college course work. All five students interviewed referred to the above two needs.

In terms of extra time required, there were several areas of need. All of the visually impaired students in both groups needed to order books on tape, which requires at least two months advance notice. Interviewed students talked about the need to be well organized and the extra time it takes to accomplish this. Time is needed to arrange for readers and test writers (usually two to three days), to actually do the reading with the help of a reader, to listen to books on tape, to edit lectures on tape and also to do research and to write papers. One student described what he does to write a paper. First, he arranges for readers to meet him in the library and read the pertinent material while he takes notes in Braille. Next, he arranges his notes in order on file cards, writes a rough draft in Braille, and types the rough draft. Finally, he employs a professional typist to turn out the final copy, which is then read to him by a reader. This process means that most visually impaired students must start written assignments weeks in advance of other students. Several of those interviewed said that it is important for them to start reading at least a month in advance of the semester.

Those students who are partially sighted seem to have a more difficult time than those totally blind simply because they may not have a cane, may not use glasses and may appear to be sighted. Others wonder why these students ask for assistance or have special needs. When they did such things as ask for assistance in reading the chalkboard or in reading an unclear printed handout or failed to recognize someone visually, these students reported that they were thought of as stupid, retarded or rude. They felt it was especially important to

take the responsibility of explaining their special health problems and classroom needs to their professors from the very beginning since, otherwise, the handicapping condition would remain unknown.

Two students gave examples of professors who were very aware and helpful. One anatomy and physiology professor provided a visually impaired student with the student's own bag of bones and a felt skeleton and muscular system. A biology professor had a requirement that students must identify plants, insects and animals from slides, but was willing to type printed characteristics onto file cards for a visually impaired student who then had a reader go over the cards with him. Visually impaired students found that their classroom experiences with their professors varied, finding some faculty to be sensitive and helpful while some were unaware of ways to employ adaptive techniques.

This group of students had concerns about hazards in the campus environment, encountered because of impaired vision. Sometimes they cannot make out numbers on classroom doors, cannot see in dimly lit hallways and feel endangered in buildings where stairwells are not marked. Sometimes the marked buttons are missing on elevators and a marking on the outside of an elevator is needed to indicate the floor. Sidewalk hazards are caused by bicycle, motorcycle and skateboard riders. Curb cuts are sometimes a hazard for the partially sighted who need them outlined in a bright colored paint.

#### Hearing Impaired Students: Mailed Questionnaires

The literature indicates that the hearing impaired tend to have more to overcome than other disabled students in the classroom.

Michael J. Goodman (1978) says "the late start in learning languages, coupled with the fact that their exposure to language is only through vision, results in the average deaf person not developing a large vocabulary or skill in the use of English syntax". Robert J. Alexander (1979) agrees with Goodman and points out that all deaf people suffer some degree of impairment in the most fundamental ability in education: communication. Most learn English as a second language, their first language being American Sign Language which differs in many ways from English. For example, there is no verb "to be" and verbs are always the same no matter what their tense. There is no gender, no use of articles, and most English idioms and slang expressions are not used.

The literature suggested that the hearing impaired would indicate many problems in communication. The results did not uphold these assumptions. Only 55 percent of the respondents indicated that they had problems communicating with others, indicating on the questionnaire the vital role of the interpreter and the feeling that others are sometimes afraid to attempt communication with the deaf. Even in the area of classroom presentation, 55 percent were satisfied. The other 45 percent listed their dissatisfactions as follows: change of subject, or going off the topic causes confusion; some of the lecture is lost in translation; and films and tapes are difficult to grasp through an interpreter. One student said it this way, "Interpreters help some, but it does not give the same impact of understanding as through the ears, and it gets tiring watching all the time. Reading is more important".

While the percentage of students having trouble with classroom assignments and falling behind was not high, the problems listed by students are in accordance with those pointed out in the literature. Students listed having to keep ahead on the reading assignments in order to understand what is going on in class, trouble with understanding the English language, not being able to ask questions when the interpreters fall behind, and one student listed reading skills below the 12th grade level.

Almost 90 percent of students did mention some form of teacher unawareness. Students said that in some cases they had to inform the professor about their hearing difficulties and make their needs known, but even so, there was some feeling that professors improperly compensate, or expect more than the student can do. For example, some professors expected students to watch the blackboard, the interpreter, and take notes all at once. Forty-five percent of all students marked a five on the Likert-type scale and 22 percent marked a four, while the other 33 percent marked a three or below.

A concern frequently emphasized was that professors should make more of an attempt to question deaf students about their comprehension of material. Closer contact of professors with their students was often recommended.

Table 4 shows demographic characteristics of the hearing impaired. There were no students who had been impaired less than 10 years and there appeared to be no difference in the amount of problems between the congenitally deaf and others. There appeared to be no relationship between year in school and amount of problems, nor did a

greater amount of time in school indicate any greater responsibility on the part of the student to make needs known. Seven out of nine considered themselves disabled, and of the two who did not, one considered himself only inconvenienced.

#### Hearing Impaired Students: Personal Interviews

There were four hearing impaired students who volunteered for personal interviews. Demographic material for these individuals appears in Table 4. Three of these students reported the medical diagnosis of their hearing loss to be some type of nerve damage, while one reported a hearing loss due to premature birth.

Results of the personal interviews appeared to verify the results from the mailed questionnaires. All students interviewed discussed areas in which they wished professors would be more aware. One area of which students felt teachers had little knowledge was lip reading. Two of the four students interviewed rely on lip reading extensively. Both of them speak well enough that their hearing loss was not readily apparent and it therefore becomes very important to inform the professor that they are dependent on lip reading. Both students pointed out that lip reading provides only 30 percent of lecture content and the rest must be filled in by logic and guesswork. Classroom needs of lip readers were for professors to face the student, to speak more slowly, to keep mouths free of encumbrances such as cigarettes, hands and microphones, and to stand away from windows or glare which places the face in shadow. Another need was for professors to summarize or repeat what has been said by other students who are

TABLE 4. Hearing Impaired by Gender, Age, Year in School, Number of Years Disabled, Self-Reported Concept of Disability

	Questionnaire Group	Interview Group
Total Number In Group. . . . .	9 . . . . .	4
Gender		
Male. . . . .	7 . . . . .	3
Female. . . . .	2 . . . . .	1
Age		
25 Years and Under. . . . .	5 . . . . .	1
26 Years and Older. . . . .	4 . . . . .	3
Year In School		
Freshman. . . . .	0 . . . . .	0
Sophomore . . . . .	3 . . . . .	1
Junior. . . . .	2 . . . . .	2
Senior. . . . .	1 . . . . .	0
Graduate. . . . .	3 . . . . .	1
Unclassified. . . . .	0 . . . . .	0
Number of Years Disabled		
One to Five Years . . . . .	0 . . . . .	0
Six to Ten Years. . . . .	0 . . . . .	0
More Than Ten Years, But Not Since Birth. . . . .	5 . . . . .	2
Since Birth . . . . .	4 . . . . .	2
Consider Self Disabled?		
Yes . . . . .	7 . . . . .	3
No . . . . .	2 . . . . .	1
No Answer . . . . .	0 . . . . .	0

sitting where the lip reader cannot observe them. Foreign or regional accents are hard to lip read. Often the hearing impaired would prefer to sit in the front row, and a general comment from all was that they found it hard and/or embarrassing to interrupt the professor in order to meet their need of better understanding the classroom presentation.

All four students interviewed made use of either a notetaker and/or an interpreter. One student felt that one important step in making teachers aware of needs is for the professor, the student and the interpreter to meet early in the semester so the professor will have knowledge of how much information is getting through to the student. Sometimes others are unaware that interpreters have a professional and ethical code which does not allow them to help a deaf student in any way that could be construed as cheating. Students mentioned having extra attention focused on them because of the interpreter. Others in the class are sometimes distracted by the interpreter. Sometimes the professor lectures too fast and the interpreter cannot keep up, or sometimes the professor asks the class to read from a book but talks at the same time. Then the impaired student has to choose between reading the book or following the interpreter.

All of these hearing impaired students indicated they suffer indignities because of their handicaps. "People talk down to you, they make you feel stupid, they shout at you. Why do they have to yell? People don't see my handicap--so they make false assumptions." The young man quoted finds that when they address him and he does not

respond, they think he is rude, or has an emotional problem. They often feel left out--they cannot hear the joke that is being told and are the only ones not laughing. All students marked a four or five on the Likert scale, indicating that teacher awareness was very important to them.

#### Mobility Impaired Students: Mailed Questionnaires

We turn next to the mobility impaired category to evaluate whether or not this group has specific needs in the classroom of which professors are aware. This group had the highest percentage (54 percent) of students who felt that their professors were aware of their special needs. They said their professors are sensitive to their needs in the following ways: they open doors, move desks, move the class to an accessible room, provide special exam setups, allow printing in place of typing, get special materials, and allow extra time. Only 16 percent of these students said professors were unaware of their needs.

This group also had a higher percentage of students who felt that teacher awareness was not important to them. A full 54 percent of this group marked a three or lower on the scale, 29 percent marked a four, and 8.5 percent marked a five, with two people not answering.

One interesting finding was that while mobility impaired students had more mobility and accessibility problems than any other group studied, the number of students listing problems in these areas was not really high. Only five out of 24 students said they had problems getting in and out of the classroom. Mostly they

cannot manage the doors. However, 50 percent of respondents found something impractical in the physical layout of the classroom. They found it hard to find a place to park the wheelchair and since the desks are often bolted down they cannot arrange space. They found space too cramped, too overcrowded, the desks are too high, or they are forced to sit in front of the first row "looking up the professor's nose". They also wrote about problems getting to the classroom because of the elevators being out of order or being so slow it causes them to be late to class.

A majority of the mobility impaired did not indicate problems with assignments, but those who did said they needed more time in writing papers because of poor hand dexterity or weak muscles or lack of overall energy. They also indicated many problems with the use of the library. Access is difficult, parking is far away and several trips have to be made between library and car, handling of the books is hard and, in general, everything about the library use requires a great deal more time.

An important finding was that the disabling condition itself requires many hours of personal attention and medical care which limit the students' time to fulfill their school requirements and causes them to fall behind. Students indicated that they felt others are unaware in this area. This is consistent with Schoepke's (1979) findings that in goal attainment of the disabled, their handicapping condition was the number one barrier, followed by lack of education/training, attitudes of others, and transportation and architectural barriers.

Forty-two percent of these students required something special for taking examinations. Many required a test writer and a separate location, or another location better equipped, or a tape, or typewriter, or an oral exam, and some could not use a computer answer sheet. Some needed a small table to work on, and most needed extra time to complete the examination under these conditions.

This group of students was the most expressive in suggesting improvements. Here there were many suggestions about general accessibility which related more to the campus rather than the classroom. They said some elevators should be replaced, main doors to buildings should be electric, more curb cuts are needed and more handicapped parking spaces, and the latter need to be better monitored. A big complaint was that sidewalks and ramps are filled with unlawfully parked bicycles and motorcycles and bicycles are ridden on the sidewalks.

Table 5 shows demographic details for the mobility impaired group. Here, as with the other disability groups, there was a higher percentage of students 26 years and older (65 percent). Half of the students were at the graduate level and, in general, listed fewer problems than undergraduates. Although the researcher expected to find this relationship in all of the disability groups, this is the only one in which this relationship appeared. It is possible that students who have been in the academic system for a longer period of time have learned to deal with classroom problems or needs to some extent. It is not apparent why this relationship appeared only in the mobility impaired group. Perhaps this is an area in need of further research.

TABLE 5. Mobility Impaired by Gender, Age, Year in School, Number of Years Disabled, Self-Reported Concept of Disability

	<u>Questionnaire Group</u>	<u>Interview Group</u>
Total Number in Group. . . . .	24 . . . . .	5
<b>Gender</b>		
Male. . . . .	11 . . . . .	3
Female. . . . .	13 . . . . .	2
<b>Age</b>		
25 Years and Under. . . . .	8 . . . . .	3
26 Years and Older. . . . .	16 . . . . .	2
<b>Year In School</b>		
Freshman. . . . .	4 . . . . .	1
Sophomore . . . . .	0 . . . . .	0
Junior. . . . .	3 . . . . .	2
Senior. . . . .	4 . . . . .	0
Graduate. . . . .	12 . . . . .	2
Unclassified. . . . .	1 . . . . .	0
<b>Number of Years Disabled</b>		
One to Five Years . . . . .	3 . . . . .	1
Six to Ten Years. . . . .	12 . . . . .	0
More Than Ten Years, But Not Since Birth. . . . .	0 . . . . .	2
Since Birth . . . . .	1 . . . . .	0
<b>Consider Self Disabled?</b>		
Yes . . . . .	19 . . . . .	3
No . . . . .	5 . . . . .	2
No Answer . . . . .	0 . . . . .	0

### Mobility Impaired Students: Personal Interviews

There were five students interviewed in this category, three men and two women, two being younger than 25 and three older. Only one has been disabled less than five years, with the others being disabled 10 years or longer, two of them since birth. Table 5 summarizes this information. There did not appear to be any relationship between demographic variables and amount or type of response, except that the one student disabled four years seemed generally more content with his academic environment. Medical diagnoses in this area were spina bifida, poliomyelitis, osteo-genesis imperfecta, multiple sclerosis, and cerebral palsy. As in the mailed questionnaire, the students interviewed showed less concern than other groups about teacher awareness of their needs. Forty percent chose a five on the Likert scale, but 60 percent chose a three or lower.

The researcher/interviewer found that in general, the mobility impaired experienced fewer problems in the classroom than did other disability groups. The general attitude exhibited by these students was a proud, independent one of "I don't have many problems". As in the answers from the mailed questionnaires, the answers from the personal interviews indicated that the main concerns here were with campus and classroom accessibility. All students had a hard time maneuvering around bolted-down chairs, and found it difficult to find a spot for wheelchairs in classrooms with tiered seating. These students often must sit at the back of the room in tiered auditoriums where it is difficult to hear, and where they must depend on others to get handouts or turn in tests. Some students discussed building

accessibility indicating that buildings without electric eye doors are difficult to get in and out of, and that some ramps are too steep or have obstacles such as pigeon excrement which sticks to wheelchair tires, that are often hand maneuvered.

Three of these five students had concerns about using the library. Machinery such as xerox machines and microfiche machines are hard to reach as are upper level shelves, and impaired students must ask others for assistance. This is something they are reluctant to do. There were many complaints about getting through the library doors and the inner security gates.

Some of these students needed notetakers, test writers and/or separate rooms for taking tests. However, these were not viewed as major concerns. One student needed assistance in a mechanical engineering class where his professor did not want him to operate machinery. Another student assisted and the impaired student felt he was a burden.

As in the mailed questionnaires, suggestions for improvement centered around campus accessibility needs. All students evidenced concern about dangerous situations arising from encounters with motorcycles, bicycles and skateboard riders on the sidewalks. There was a strong concensus that at least one row of bolted chairs should be removed and replaced by movable tables so that not only would the mobility impaired students be able to maneuver, but they could also fit into the classroom without being obstacles. These students also suggested the elevators be improved, indicating that they had fears about elevator use. Some cannot reach buttons, some get jarred by

their vehicles when elevators do not stop flush with floors, some are frightened by being in an enclosed space and need a classroom on the main floor, and all are frustrated when the elevator they need is not operating.

One student suggested that all teachers be required to take a course on the various disabilities before being certified. He also thought that several days of simulating a particular disability would be an eye opener for any teacher or non-disabled student, since he found people to be afraid of contact with him due to the severeness of disability.

#### Multi-Impaired Students: Mailed Questionnaires

The next group for consideration is the multi-impaired. It is perplexing to try to describe the requirements of this group since their needs depend upon the combination of medical problems, and these are very individual. For instance, in this group was a blind quadriplegic with cerebral palsy, a rheumatoid arthritic with glaucoma, an autistic person with both mobility and hearing problems, and a person with brain trauma causing a speech problem. The majority of these respondents said that their professors showed considerable awareness of their needs. Ways in which this sensitivity was shown are as follows: some teachers write for them, others help them outline, one comes to the home and gives the examination, some give oral exams, some reschedule the student when necessary. Eighty percent of these students marked either a four or five on the rating scale.

This group was unique in that responses to most questions were equally divided between no and yes answers. Questions 6, 7, 9, 10, 11, and 13 had equally divided responses. On Question 6, which dealt with classroom assignments, students said they found reading difficult, one had difficulty in understanding directions, several had difficulty writing or typing, and they also mentioned needing more time to do assignments. They had some of the same needs as those in other disability groups when taking exams. Some needed writers or oral or taped exams. Unique to this group was a professor of the blind quadriplegic who came to the student's home to give him the examination. Question 9, which dealt with falling behind, brought out the finding that this group had many medical considerations which cause its members to need extra time for completion of school work. The five students who felt that non-disabled students were unaware of their needs did not elaborate, except for one student who said that others laugh when the individual falls down and when he/she does not understand. Three of the five students who had problems communicating with others had real speech impairments resulting in garbled speech or lack of projection of voice. One student cannot walk and talk at the same time. Those who found the physical layout of the classroom impractical had the same problems as the mobility impaired group-- mostly, they cannot find a place to put their wheelchairs.

Many students in this group recommended communication of needs to professors and said they felt that professors are very accommodating once they know the student's needs. Another student suggestion was that professors initiate talk about special needs, by saying something

like this: "If any of you have physical problems which cause you to have special requirements, I would be glad to discuss this with you in my office". Another suggestion was that disabled students should take advantage of the Disabled Student Program and Student Counseling.

Table 6 shows the demographic characteristics for this group. The most interesting fact here was that 9 out of the 10 students considered themselves disabled and one did not answer this question. There appeared to be no relationship between number of problems listed and the number of years disabled, or year in school.

Other Health Impaired Students: Mailed Questionnaires

The last of the five groups has the classification: other. Medical problems here were controlled epilepsy, non-organic brain syndrome, low back injury, distonia (lack of muscle control) and rheumatoid arthritis degenerative disc disease. Three of these students felt that professors were aware of their needs but two had nonvisible conditions which they did not care to make known to others. Two marked a five on the rating scale, two marked a two and one marked a three.

As with other disability groups, this group also indicated needing more time to complete assignments. One student had a comprehension and attention span limited to forty-five minutes. Only one student did something special about exams and this was to swim for an hour before the exam to relieve tension.

No problems were listed with modification of course material, classroom presentation, need for assistance in class, or classroom

TABLE 6. Multi-Impaired by Gender, Age, Year in School, Number of Years Disabled, Self-Reported Concept of Disability

	Questionnaire Group
Total Number in Group. . . . .	10
Gender	
Male. . . . .	5
Female. . . . .	5
Age	
25 Years and Under. . . . .	5
26 Years and Older. . . . .	5
Year In School	
Freshman. . . . .	1
Sophomore . . . . .	0
Junior. . . . .	4
Senior. . . . .	3
Graduate. . . . .	2
Unclassified. . . . .	0
Number of Years Disabled	
One to Five Years . . . . .	3
Six to Ten Years. . . . .	3
More Than Ten Years, But Not Since Birth. . . . .	3
Since Birth . . . . .	1
Consider Self Disabled?	
Yes . . . . .	9
No . . . . .	0
No Answer . . . . .	1

accessibility. There were some problems with layout of the classroom, however, with complaints indicating that the desks are too small, and in one case the desks contribute to the person's pain level.

Four out of five students thought that others were not aware of their needs. The individual with epilepsy worries that others will not know how to deal with his/her problem and feels that others would avoid and label him/her. One student listed communication problems, saying that words get scrambled between brain and mouth, causing verbalization problems. Another saw no hope for improvement, doubting that conditions will change; and still another commented that her greatest desire is to be accepted for herself rather than being labeled by her physical condition.

In looking at demographics for this group, Table 7, there were some similar patterns to other groups. All five respondents are 26 years or older, two consider themselves disabled and two do not. Again, no pattern developed between amount and type of response and year in school or number of years disabled.

TABLE 7. Other Health Impaired by Gender, Age, Year in School,  
Number of Years Disabled, Self-Reported Concept of  
Disability

	Questionnaire Group
Total Number in Group. . . . .	5
Gender	
Male . . . . .	3
Female . . . . .	2
Age	
25 Years and Under . . . . .	0
26 Years and Older . . . . .	5
Year In School	
Freshman . . . . .	0
Sophomore. . . . .	1
Junior . . . . .	0
Senior . . . . .	3
Graduate . . . . .	1
Unclassified . . . . .	0
Number of Years Disabled	
One to Five Years. . . . .	1
Six to Ten Years . . . . .	2
More Than Ten Years But Not Since Birth. . . . .	1
Since Birth. . . . .	1
Consider Self Disabled?	
Yes. . . . .	2
No . . . . .	2
No Answer. . . . .	1

## CHAPTER 5

### SUMMARY, DISCUSSION AND RECOMMENDATIONS

#### Summary

Since the enactment of the Rehabilitation Act of 1973, including Section 504, the regulation guaranteeing the right to equal access to education for the disabled, increasing numbers of disabled students have been entering this country's colleges and universities. While Section 504 has opened the door for these students, it cannot guarantee successful integration of the disabled into the campus community.

The literature revealed that one way such students could be encouraged to feel that they are operating at full potential, is for others, especially faculty, to exhibit positive attitudes and sensitive behaviors, and to be willing to make some helpful classroom adaptations. The literature further revealed that different disability groups have some specific needs related to their academic endeavors.

It was the purpose of this study to determine and describe needs and concerns of five categories of students with disabilities. These categories are the visually impaired, the hearing impaired, the mobility impaired, the multi-impaired and other health impaired.

The sample consisted of 67 physically disabled students on the University of Arizona campus. The study was conducted over two

academic semesters with 53 students answering questionnaires during the Fall 1982 academic semester and 14 students volunteering for interviews during the Spring 1983 semester. Students were asked to tell about teacher awareness of classroom needs. They were also asked specific questions about the use of auxiliary aids and support personnel (such as interpreters), as well as questions about classroom accessibility and attitudes of non-disabled students.

The results showed that each category of disabled students did have some needs that they would like professors and others to be aware of. There was actually a wide range of faculty awareness reported by these students, with some professors making adaptations which facilitated better learning and some professors needing encouragement, information, and more face-to-face contact with the disabled.

The visually impaired needed more verbalization in presentation of classroom lectures and materials, and this verbalization needs to be more specific. Another need was for better access to printed material.

The hearing impaired had concerns about lip reading and use of interpreters, as this use caused many hearing impaired students to miss some of the classroom presentation. These students needed to meet regularly with professors, so that together the two parties could determine if essential material is being learned.

The mobility impaired, more than any other group, felt that although the majority of professors are aware of their needs, this awareness was not that important to these students. The major

concerns of this group were classroom layout, the need for special arrangements for examinations, and general campus accessibility.

The multi-impaired, although frequently more in need than other groups, are difficult to categorize as to general concerns. Their needs depended more upon their combination of medical problems, these being very individual. Since their disabilities are generally more visible, the majority reported that professors were aware of their needs.

Students with other health impairments demonstrated great variance in their responses, a result easily explained by the variety of disabling conditions. Several with nonvisible conditions chose not to make their disabilities known to professors. As a result, their needs were not addressed and thus were unmet.

There were specific needs common to all groups. First, the majority of respondents expressed a need for more time--time to complete assignments, to get to class, to make special arrangements for support personnel including notetakers, interpreters, or test writers; to prepare for exams and to do research or background reading. Secondly, respondents from every disability group reported some sort of problems using the library facilities. It is difficult for one in a wheelchair to reach the upper shelves. It is nearly impossible for the visually impaired to use indices, the card catalog, or even find books on shelves. The hearing impaired frequently find it difficult to make use of information specialists at reference desks. Even access to the physical plant itself is

often impeded due to steep ramps, parking difficulties, and the turnstiles and/or security gate. In short, comments about difficulties using the library elicited more expressions of frustration than any other single concern.

### Discussion

The results show that there were indeed needs and areas of concern that professors were unaware of in interacting with the physically disabled students. There were also professors who were sensitive to the needs of these students. It seems apparent that the different disability groups had some different needs although some of the findings about these concerns were surprising. Some of the literature (Warnath, 1981) suggested that mobility is the main concern of visually-impaired students on campus. The results of this study did not support this. An explanation of this might be that visually impaired students must deal with being mobile in their environment constantly, so that this aspect of need is something to which they have already adjusted. This does not mean there are no problems, but mobility is not the primary barrier in attainment of educational goals. Even in the mobility impaired group, although there were some problems with mobility, they were not as extensive as one might expect. This is probably due to the fact that the survey did not ask about mobility and accessibility in the total campus environment but concentrated, instead, on the classroom. Students did write about mobility and accessibility problems in their comments section which shows these are important issues to them.

This group also had the highest percentage of students who felt that professors were aware of their needs. While this study cannot offer proof, a hunch is that students in wheelchairs are much more visibly disabled than some other groups and perhaps even their needs are more visible. This group is the largest population of disabled students on the University of Arizona campus and surely faculty and non-disabled students have had more exposure to them than to any other group. This could account for others being more aware of the needs of mobility impaired students.

The findings showed that all groups experienced the need for more time to complete their coursework. While this may not appear to be of much importance to those who have not experienced disabling conditions, it is agonizing and frustrating to those who must spend many extra hours employing mechanical devices or other people in place of their own eyes, ears and limbs. The motivation to successfully accomplish any task, has to be infinitely greater for the disabled.

The other problem common to all groups was the difficulty experienced in using the library. Rusalem (1962) states, "A student's intellectual ability to master the content of a course is conditioned by his capacity to gain access to the classroom and library materials associated with the course". One respondent has suggested the library is not really in compliance with Section 504 since disabled students are not really afforded "equal" use of the library. Undoubtedly, those in charge of the library do not intend to discriminate, but the fact of the matter is that many disabled students

are at a great disadvantage in the use of a facility that is absolutely vital to getting their education.

In looking at the demographic characteristics and their relationship to type and amount of concerns listed by various groups, very few direct causal relationships were manifested. However, a more tightly controlled research study, whose aim would be to discover causal relationships rather than describe elements or situations, might show closer links of cause and effect.

An interesting question raised by this survey was why some students who would be classified as disabled, chose the option of thinking of themselves as not disabled. This might be seen as a statement of independence, or it might be that some consider "disabled" as too debilitating a label which they prefer not to use. It also might be that the medical condition experienced by these people was not severe enough to warrant the label.

While much of this study has focused on negative aspects of awareness, it was not the intent to criticize the teaching faculty and non-disabled students. In the past, their exposure to the disabled population has been limited and it is difficult for anyone to understand the special needs of so varied a group. Even though students described areas of concern, they also indicated that many people do respond with consideration and alertness to their needs. It is hoped that more information will help to facilitate greater interaction between the disabled and non-disabled.

Many students answering this survey felt that it was most important for the students themselves to take the responsibility of discussing their needs openly and freely with others. Comments from the survey pointed out that disabled students are not looking for a "free ride" when it comes to academic accomplishment, but do need some consideration in areas where adjustments can be made in environment or in teaching style.

#### Recommendations

The recommendations which will be made in this section are aimed at ways in which college communities may increase awareness on the part of the faculty, staff, and the student population. It is hoped that this section may serve as a resource guide for those who are interested in using some techniques which could sensitize faculty and non-disabled students to the needs of disabled students. Students involved in this study suggested the use of many of the techniques which are described in this section.

As a part of this survey, the researcher wrote to universities across the country to ascertain what awareness building techniques are being used nationwide. Only universities were contacted having disabled students support services in which a staff member is a member of the Association on Handicapped Student Service Programs in Postsecondary Education (AHSSPPE).

These awareness techniques seemed to fall into some general categories: (1) disability simulation, that is, having able bodied individuals attempt to duplicate the daily experience of a disabled

student on campus; (2) sensitivity workshops and seminars, where professors and non-disabled students may meet with disabled students, hear lectures on disabilities, and receive strategies on adaptation of classroom teaching methods; (3) Awareness Days, where the aim is to involve the entire campus in acquiring information and insight about what it is like to be disabled; (4) surveys of faculty and students, which try to determine faculty attitudes and awareness, or student needs; (5) printed material and pamphlets on various disabilities and on special issues related to the classroom; (6) displays of special aids and equipment used by disabled students; (7) student speaker programs, where panels of disabled students give presentations on disability to individual classes or outside groups; and (8) individualized contacts between faculty and/or non-disabled students, and the disabled students.

It is recommended that these techniques be employed wherever colleges and universities are seeking practical solutions to both common and unique problems in integrating the disabled population into the mainstream of campus life.

#### Disability Simulation

At Wichita State University, a student having cerebral palsy designed and led a tour for University President Dr. Clark Ahlberg, so that he could experience firsthand the obstacles that regularly face students in wheelchairs (Anderson and Coons, 1979).

East Tennessee University involved its college students and personnel in some disability simulation activities and asked for

their responses by questionnaire (Anderson and Coons, 1979). The experiences of those who took part are recorded in Steps Toward Campus Accessibility, a publication of the Association of Physical Plant Administrators of Universities and Colleges. "It made me feel like I was a freak or exception because people kept looking at me funny, and saying things about what was wrong with me", one person wrote. Another who had been sightless, wrote that he was "considerably less confident". Some said the experience had made them "very much aware of the problems handicapped persons encounter".

Some of the mobility impaired students in the present study thought that professors would learn a great deal about the difficulties encountered by individuals in wheelchairs if these professors were required to spend one or two days in a wheelchair. A visually impaired student suggested blindfolding instructors and giving them the task of searching out materials in the library.

#### Sensitivity Workshops and Seminars

California State University at Northridge ran a series of workshops which focused on bringing disabled students into contact with faculty. Gail Fonosch, (personal communication, May 1983) a faculty member on that campus, wrote that workshop activities were designed to give a glimpse of the every day life of students who use a wheelchair, who have a visual impairment, etc. The workshops included some simulation exercises for faculty as well as focusing on Section 504, classroom needs of disabled students and appropriate modifications.

The University of Wisconsin-Madison also holds awareness workshops. Lloyd W. Tindall, Project Associate for the Vocational Studies Center (personal communication, May 1983) wrote that "We have found that awareness workshops by themselves are not enough or really appropriate unless participants are provided with strategies on how to teach persons with specific problems or disabilities. Therefore, the resolution of problems needs to be part of the workshops". Their publication, Puzzled about Educating Special Needs Students? (Tindall, 1980) details these strategies and techniques. Short handouts listing useful strategies could be prepared and distributed to faculty at workshops. Additionally, faculty could be asked for some feedback to determine other areas where strategies are needed.

#### Awareness Days

A variety of activities can be planned for Awareness Days. The key issue is to get students and faculty involved. The University of California-Berkeley's 1982 third annual Campus Disability Day provided the following activities: a comedy vignette called "Artie Goes to College"; some interesting workshops on independent living; a walking tour of campus access problems with some persons trying wheelchair access; an award winning documentary film about the disabled movement in Berkeley; and a "Name-That-Barrier" contest based on viewing photos of barrier problems. Other campuses have provided wheelchair basketball games, obstacle courses in which contestants simulate blindness, wrestling matches between blind vs. sighted, and performances by a children's theater company

featuring actors with and without handicaps. Awareness Days would be an appropriate time to bring recognition to faculty who have shown outstanding accomplishment in working with their disabled students. University of Arizona students questioned in this study suggested names of several professors to whom special recognition or awards could be given.

### Surveys

Sharon Van Meter, (personal communication, May 1983) Coordinator of Services for Handicapped at the University of Iowa conducted surveys of teacher attitudes towards the handicapped (see Appendix B) on that campus. Teachers are sent questionnaires which survey demographic information, instructional methods used, prior contact with disabled persons, and attitudes towards disabled students in the classroom. By pinpointing areas where more awareness is needed, support services can determine effective ways to educate others on the needs of the disabled.

The University of Arizona's Disabled Students' Program surveys disabled students via questionnaire for feedback about its support services (Kloepping, 1983). This program tries to determine if such services as notetaking, interpreting, reading, and test proctoring are adequately meeting needs.

### Printed Material

Janet Huss (personal communication, May 1983), Coordinator of Handicapped Student Services at Iowa State University uses a variety of printed material for heightening awareness on that campus.

Brochures for Handicapped Awareness Days, an annual event, are available. Newsletters are disseminated to both disabled students and selected faculty/staff including top administration. Mini-sheets are distributed to all faculty through department heads. Descriptions of educational programs are offered through the Office of Student Life. Brochure and accessibility maps are also available.

#### Displays of Special Aids and Equipment

Several campuses have included equipment displays as part of their Awareness Days activities. Prosthetics and orthotics (artificial limbs and braces) are devices which could be displayed. Special equipment used by visually impaired students such as a Braille slate and stylus, Perkins Braille Writer, raised-line drawing kit, Opticon, Visual-Tek or cane with laser warning device would be of interest to the general public. Campuses having Kurzweil Reading Machines could give demonstrations of how they work. A device used by the hearing impaired which could be displayed or demonstrated is the sound level meter which is a flashing light system hooked up to a sound level light meter. Indiana University at Bloomington (Anderson and Coons, 1979) displayed models of telephone booths, water fountains, rest rooms and ramps which would accommodate handicapped persons better than those now in use.

#### Student Speaker Program

California State University at Northridge is one of the schools using the student speaker program (Loving, 1983). Panels of disabled students are sent to 15 to 20 classrooms during a

typical semester, at the professor's request, to speak to students on the psychological and social ramifications of being disabled in our society.

At the University of Arizona some faculty in the Rehabilitation and Special Education Department utilize disabled students as guest speakers. One hearing impaired student who gave lectures on what it is like to live in a "soundless world" suggested that panels of disabled students speak at freshman orientation.

#### Individualized Contacts

The University of Iowa's Services for the Handicapped (Van Meter, 1983) makes every attempt to facilitate interaction between faculty and handicapped students. These students are encouraged to sign a permission letter allowing an information sheet to be sent to their professors. This sheet states the name of the student and indicates an unspecified disability. It is intended to "break the ice" for students who might otherwise find it hard to discuss needs or special accommodations with their instructors. In addition, the Handicapped Services Office keeps a record of faculty contacts with that office and sets up special consultations between instructors and students when needed.

Gail Fonosch (personal communication, May 1983) summed up what is necessary for good student-faculty communication. "Genuine concern on the part of disabled students and faculty is the key to successful relations. Both parties must be willing to reveal themselves. To the greatest extent possible, the relationship between

student and faculty member is a personal one. Student service offices are necessary but should be a facilitator".

Finally, the strongest recommendation that can be made is for disabled students themselves to take the initiative in being open and revealing with faculty members; to go to them and talk about their needs and concerns or special issues with the expectation that together both faculty and students will establish an atmosphere and environment in which all students can learn on equal footing. Perhaps with more contact between disabled students and faculty, instructors will become more accustomed to working with these students and will employ adaptive methods that will result in feeling more comfortable with both students and methods.

APPENDIX A

COVER LETTER AND QUESTIONNAIRE FOR DISABLED STUDENTS

## QUESTIONNAIRE FOR DISABLED STUDENTS

1. How have your professors shown that they are aware or unaware of your needs? Give specific examples that you consider important. Use extra paper if needed.

2. How strongly do you feel about professors becoming aware of your needs? Is this important to you? Please circle one answer on the following scale.

1                      2                      3                      4                      5

1. It's not at all important to me.
  2. Maybe professors should be more aware, I'm not sure.
  3. Sometimes I wish professors were aware of what I need.
  4. Most of the time it's important to me that professors understand my needs.
  5. I feel strongly that professors should be more aware of my needs.
3. In order to write an orientation manual for use by professors, I need some specific information that describes you. This information will help me sort out each disabled group's needs.

AGE \_\_\_\_\_ SEX \_\_\_\_\_ YEAR IN SCHOOL: FRESHMAN \_\_\_\_\_  
 SOPHOMORE \_\_\_\_\_  
 JUNIOR \_\_\_\_\_  
 SENIOR \_\_\_\_\_  
 GRADUATE \_\_\_\_\_  
 UNCLASSIFIED \_\_\_\_\_

Do you consider yourself disabled? YES \_\_\_\_\_ NO \_\_\_\_\_

Check category below:

1. Visual impairment \_\_\_\_\_
2. Hearing impairment \_\_\_\_\_
3. Mobility impairment \_\_\_\_\_
4. Speech impairment \_\_\_\_\_
5. Other impairment \_\_\_\_\_

What is the medical diagnosis of your disability? \_\_\_\_\_

How long have you been disabled? \_\_\_\_\_

4. Do you require any modification of course material because of your disability? (Example: books on tape) Yes \_\_\_\_\_ No \_\_\_\_\_

Please describe:

5. Are you satisfied with presentation of materials in the classroom? Yes \_\_\_\_\_ No \_\_\_\_\_

If no, please explain:

6. Do you have any problems with assignments? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please describe:

7. Do you do anything special about taking examinations? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, what do you do?

## Page 2 - Questionnaire for Disabled Students

8. Do you require assistance in class? (Example: notes taken or interpreter)  
Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, explain:
9. Does your disability cause you to fall behind in accomplishment of classwork?  
Yes \_\_\_\_\_ No \_\_\_\_\_  
Explain what happens:
10. Do you feel other students are aware of your needs? (Example: a blind person needs to be addressed by name to know he/she is being spoken to) Yes \_\_\_\_\_ No \_\_\_\_\_  
If no, list specific needs.
11. Do you have problems communicating with others? Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, explain:
12. Can you get in or out of classrooms readily? Yes \_\_\_\_\_ No \_\_\_\_\_  
If no, please explain:
13. Is there anything impractical for you about the physical layout or arrangement of classrooms? Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, please describe:
14. Do you require physical assistance to get in and out of the classroom or during class? Yes \_\_\_\_\_ No \_\_\_\_\_  
If yes, who provides this assistance and what do they do?
15. How might the situations you have described in this questionnaire be improved?
16. This is a space for you to comment on anything not previously covered.

Thanks again. Please return this questionnaire to me by December 4 at:

3031 N. Dodge  
Tucson, AZ 85716

Sincerely,

*Jon Moore*

3031 N. Dodge  
Tucson, AZ 85716

November 18, 1982

Dear Fellow Student:

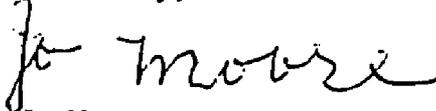
As a blind student at the University of Arizona, I have observed that professors and others are not always aware of the needs of disabled students in the classroom. Therefore, I am making a study addressing these needs. Won't you please cooperate by filling out the enclosed questionnaire?

This is your opportunity to identify situations where your needs have not been met and to offer suggestions for improvement. The information you provide will be used for an orientation manual for professors and teaching assistants.

You need not sign your name since anonymity will not affect the results, but please feel free to contact me personally if you wish to say more than the questionnaire allows. My phone number is 326-3055.

Thank you for your help.

Sincerely,

A handwritten signature in cursive script that reads "Jo Moore". The signature is written in dark ink and is positioned above the printed name.

Jo Moore

JM:crd

P.S. The target date for return of this questionnaire is December 4.  
I really need your response! Thanks.

APPENDIX B

FACULTY QUESTIONNAIRE

FACULTY QUESTIONNAIRE

## Part One

Instructions: Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write 1, 2, 3, 4, or 5 in the blank depending on how you feel in each case.

Answer scale:

- 1 : Strongly agree
- 2 : Agree
- 3 : Undecided
- 4 : Disagree
- 5 : Strongly disagree

- 
- \_\_\_ 1. A disabled student should be advised not to enroll in a class if the disability might hinder the student's performance in that class.
  - \_\_\_ 2. When assigning classrooms, the University should take into account whether that classroom is accessible to physically disabled students registered for that class.
  - \_\_\_ 3. The University should provide alternative classroom space so that a faculty member can request a change of classroom to accommodate a physically disabled student.
  - \_\_\_ 4. Faculty members should encourage physically disabled students to use available devices such as tape recorders, braille writers, etc., to help assure those students master the course content.
  - \_\_\_ 5. A faculty member should encourage a physically disabled student to bring any problem in course presentation to his or her attention when that problem is directly related to physical impairment.
  - \_\_\_ 6. Taking into consideration a student's physical impairment, a faculty member should require the physically disabled student to participate as fully in class activities as the non-disabled student.
  - \_\_\_ 7. A faculty member should be willing to hold office hours with a physically disabled student in a location that is easily accessible to that student.
  - \_\_\_ 8. Taking into consideration a student's physical impairment, the faculty member should encourage the physically disabled student to take advantage of the same or similar field trip or study opportunities as the non-disabled student.
  - \_\_\_ 9. A faculty member should encourage the physically disabled student to approach him or her with suggestions on the best method to test the student's knowledge of course materials, given the student's disability.
  - \_\_\_ 10. University policy should allow modifications or substitutions in University requirements if the physically disabled student cannot successfully meet the standard requirement because of his or her disability.
  - \_\_\_ 11. A physically disabled student should be advised against enrolling in a course if the student's performance is difficult to evaluate due to the disability.

**Part Two****Instructions:** Please check the space which corresponds with your answer.

- 
12. A. Have you ever referred a student to the Office of Services for the Handicapped?  
\_\_\_\_\_ Yes \_\_\_\_\_ No
- B. Have you ever contacted the Office of Services for the Handicapped?  
\_\_\_\_\_ Yes \_\_\_\_\_ No
- C. Have you ever used the Office of Services for the Handicapped to meet the needs of physically disabled students in your class?  
\_\_\_\_\_ Yes \_\_\_\_\_ No
13. How could the Office of Services for Handicapped help you to meet the needs of physically disabled students? (Comment)
14. Do you have any suggestions for improvement of our services?

BACKGROUND INFORMATION

1. Age
- under 30  
 31 - 40  
 41 - 50  
 51 - 60  
 over 60
2. Sex
- Male  
 Female
3. Academic Rank
- Professor  
 Associate Professor  
 Assistant Professor  
 Instructor  
 Teaching Assistant
4. General Academic Area
- College of Liberal Arts  
 College of Business Admin.  
 College of Education  
 College of Engineering  
 College of Nursing  
 College of Pharmacy
5. Place a check by instructional methods you utilize.
- Lecture  
 Instructor-guided group discussion  
 Group activity with some instructor involvement  
 Programmed or individualized instruction  
 Laboratory direction  
 Other - Please specify \_\_\_\_\_
6. How many years have you been on the faculty at this institution?
- 1 - 3 years  
 4 - 7 years  
 8 - 11 years  
 over 11 years
7. What is the estimated cumulative number of disabled students enrolled in your courses since you began teaching in higher education?
- none  
 1 to 5  
 6 to 15  
 16 to 30  
 over 30
8. Under which department within your academic division do you teach?
- \_\_\_\_\_
9. Place a check by all statements which describe your contact with disabled persons.
- I have a disability.  
 A member of my household has a disability.  
 I have resided at some time in the past with an individual who has a disability.  
 A close friend of mine has a disability.  
 A friend has a disability.  
 I have had interaction with persons who have severe disabilities.  
 I have had extensive professional interaction with persons having disabilities.  
 I have had moderate professional interaction with persons having disabilities.  
 I have completed at least one academic course where content emphasized the needs of individuals with disabilities.  
 I have had limited interaction with individuals with disabilities.  
 I have had limited exposure to persons with disabilities.
-

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