Volume 1, Number 4
June, 1988

Personnel Assessment Monographs

a publication of the
Assessment Council
of the
International Personnel Management Association

ipmaac

EMPLOYMENT TESTING OF PERSONS WITH DISABLING CONDITIONS

Lorne Daley
Michael Dollard
John Kraft
Mary Anne Nester
Robert Schneider

Personnel Assessment Monographs is published by the Assessment Council of the International Personnel Management Association (IPMAAC), 1617 Duke Street, Alexandria, Virginia 22314. Copies are provided without charge as service to members of the Assessment Council. Members of IPMA and others may obtain copies by writing the Director of Assessment Services at the above address. The Monographs are intended to provide information on current topics in the field of applied personnel assessment. Manuscripts or proposals for manuscripts are solicited by the editor. Reviews of research, assessment methods, applications, innovative solutions to personnel assessment problems, and related subjects which are not generally available elsewhere are appropriate. Monographs are intended to be of value to practitioners of personnel assessment in such fields as employee selection, performance appraisal, program evaluation, recruitment, organizational assessment, and related fields. Manuscripts are reviewed by the editor and consulting editors, and accepted for publication based on the technical and professional soundness of the manuscript, and the extent to which conclusions and other information is relevant to applications in the field of personnel assessment. The editor seeks to balance topics covered to insure that subjects of interest to all readers are addressed.

Barbara Showers, Editor

- PREFACE -

This monograph is based on a symposium presented at both the 1987 IPMAAC Conference and the 1987 IPMA International Conference. The participants were:

Lorne Daley - Human Services Directorate, Canadian House of Commons
Michael Dollard - New York State Department of Civil Service
John Kraft - United States Office of Personnel Management
Mary Anne Nester - United States Office of Personnel Management
Robert Schneider - Pennsylvania State Civil Service Commission

The various parts of this monograph were originally developed independently of one another, and still retain some of that character. While the authors share a common goal, their experiences are diverse, and their opinions are not necessarily unanimous. We not only leave it to the reader to reconcile any differences, but invite him or her to enter the dialogue and contribute to the resolution of the difficult problem of employment equity for the disabled.

The first section of the monograph is devoted to Dr. Nester's review of research bearing on the accommodation of tests and testing procedures for disabled examinees. This research is fundamental to what follows, and we urge your careful consideration of both the concepts and the data. Section Two presents the experiences of two large eastern states and their programs of accommodated testing. Sections Three and Four were originally written as commentary on the material presented here in Sections One and Two, and reflect the perspectives of the public sector manager and of the disabled community.

We have included as an Appendix what we have somewhat grandly called "Model Guidelines for Accommodated Testing of the Disabled." These "Guidelines" provide a proposed policy statement on accommodated testing, and specific accommodation recommendations for a number of disabling conditions. These "Guidelines" were originally developed by the New York State Department of Civil Service and subsequently expanded and refined by the Pennsylvania State Civil Service Commission. Versions of the "Guidelines" currently undergird the programs in those states; they are offered as a guide to how you *might* proceed, not to how you *should* proceed.

Section 1 - Psychometric Implications of Test Modifications

By Mary Anne Nester

The title of this section suggests that it will be an attempt to answer the question, "How will a test's reliability and validity be affected if accommodations are made for disabled persons." In a sense this is the wrong question to ask, because it implies that modifying a test makes it less reliable and valid. We should start instead with the question, "How would the test's reliability and validity be affected if it were given *without* accommodation to disabled persons." Clearly, a paper-and-pencil test given without accommodations to, let's say, a blind person would have no validity whatsoever. The purpose of test accommodations is to make the test as reliable and valid as possible for the disabled test-taker. The goal of this paper is to describe how best to accomplish this and to present evidence on the success you can expect.

There is little research literature on the subject of making tests comparable for disabled and nondisabled persons. This is probably due to two causes: the relatively small numbers of disabled persons from whom to get data and the relative novelty of the idea of competition between disabled and nondisabled persons. The large literature on testing disabled persons is focused on education and placement, not competition for employment. There is a fascinating new source of data, however, that has been developed by the Educational Testing Service (ETS) over the last few years on the performance of disabled persons taking the Scholastic Aptitude Test (SAT) and the Graduate Record Examination (GRE) (Willingham et al., 1988). Some of these data will be presented later.

For the first time, the APA test standards, issued in 1985, have devoted a chapter to "Testing People Who Have Handicapping Conditions." The chapter stresses that caution must be exercised in interpreting the validity of modified tests because of the lack of data about modified tests. However, it states that the development of tests for persons with disabling conditions is encouraged. Eight standards are given. They are presented in Table 1 on the next two pages.

Table 1 - APA Standards,[*] Chapter 14: Testing People Who Have Handicapping Conditions

14.1 People who modify tests for handicapped persons should have available to them psychometric expertise for so doing. In addition, they should have available to them knowledge of the effects of various handicapping conditions on test performance, acquired either from their own training and experience or from close consultation with handicapped individuals or those thoroughly familiar with such individuals. (Primary)

14.2 Until tests have been validated for people who have specific handicapping conditions, test publishers should issue cautionary statements in manuals and elsewhere regarding confidence in interpretations based on such test scores. (Primary)

14.3 Forms of tests that are modified for people who have various handicapping conditions should generally be pilot tested on people who are similarly handicapped to check the appropriateness and feasiblity of the modifications. (Conditional)

14.4 Interpretive information that accompanies modified tests should include a careful statement of the steps taken to modify tests in order to alert users to changes that are likely to alter the validity of the measure. (Conditional)

14.5 Empirical procedures should be used whenever possible to establish time limits for modified forms of timed tests rather than simply allowing handicapped test takers a multiple of the standard time. Fatigue should be investigated as a potentially important factor when time limits are extended. (Secondary)

Table 1, continued

14.6 When feasible, the validity and reliability of tests administered to people with various handicapping conditions should be investigated and reported by the agency or publisher that makes the modification. Such investigations should examine the effects of modifications made for people with various handicapping conditions on resulting scores, as well as the effects of administering standard unmodified tests to them. (Secondary)

14.7 Those who use tests and those who interact professionally with potential test takers with handicapping conditions (e.g., high school guidance counselors) should (a) possess the information necessary to make an appropriate selection of alternate measures, (b) have current information regarding the availability of modified forms of the test in question, (c) inform individuals with handicapping conditions, when appropriate, about the existence of modified forms, and (d) make these forms available to test takers when appropriate and feasible. (Primary)

14.8 In assessing characteristics of individuals with handicapping conditions, the test user should use either regular or special norms for calculating derived scores, depending on the purpose of the testing. Regular norms for the characteristic in question are appropriate when the purpose involves the test taker's functioning relative to the general population. If available, however, special norms should be selected when the test takers' functioning relative to their handicapped peers is at issue. (Primary)

As you can see, Standards 14.2, 14.4, and 14.6 show a concern about the reliability and validity of modified tests for disabled persons. It should be noted that when we talk about the validity of modified tests, we intend that validity for disabled persons should be demonstrated according to the same strategy (content, construct, criterion-related) as for the original test. Public sector employers most often use a content validity strategy, but the

available evidence comes primarily from criterion-related and construct validity studies. Primoff's major study (U.S. Civil Service Commission, 1956) of blind persons in trades and industrial occupations is probably the most well-developed example of a content validity study. Content validity is more feasible technically than criterion-related validity because it does not require gathering data on large numbers of subjects. On the other hand, content validity depends more on judgments, and some of these judgments may be difficult to make, as the Primoff study points out.

Table 2 presents a categorization of the primary testing accommodations. The first category, change of medium, refers to the use of a different medium or method to present the same information. In testing, the information is usually presented in the English language. Therefore, braille, large print, reader, and audiotape are simply different ways of presenting test questions in the same language. In most cases, these media could be interchanged without a change in the effective question content or the ability being tested.

Table 2 - Types of Accommodations

Medium
Braille, Audiotape, Large print, Reader
Does not include sign language interpretation of questions
May not include embossed figural materials
Time Limits
Speed test: Do not give extra time
Power test: Unlimited time O.K.
Speeded-power test: Context dependent
Content Change
Change item or items
Change item-type
Change or deletion of knowledge, skill, or ability (KSA)

Sign language interpretation of questions, on the other hand, is not simply a medium change--it is a translation into another language. If done at all, it must be done with care (see Nester, 1984). The embossing of figural materials should not be viewed as a simple medium change. The tactual sense is so different from the visual sense that one cannot expect the fingers to perceive the same thing as the eyes (otherwise there would be no need for braille). Such changes must be carried out carefully, with adequate pilot-testing.

It should be noted that readers for visually handicapped applicants should be people who read well and articulate clearly, otherwise the reliability and validity of the test would be in danger (a poor reader is not simply a "change of medium"). A guide for examiners that OPM has published (Heaton, Nelson, & Nester, 1980) contains some suggestions for reading multiple-choice questions to applicants.

The second category of accommodation, time limits, may well be the most controversial issue in the testing of disabled persons. The controversy arises mainly because of the use of speeded-power tests. A pure power test is a test in which every applicant has an opportunity to attempt every question, and the applicant's score is based on how many questions he or she can answer rather than how fast he or she can work. The pure speed test, on the other hand, contains questions of trivial difficulty given with a very short time limit. The applicant's score is determined only by how fast he or she can work. (Speeded tests are clearly inappropriate for visually handicapped and some motor-handicapped applicants.) Unfortunately, most tests which are intended to be power tests are actually somewhat speeded; many applicants do not have the opportunity to attempt every question. This poses a problem in deciding how much extra time to give a person using large print, for example. If the test were a true power test, the applicant using a large-print test could be given unlimited time without being given an unfair advantage. A person who is given unlimited time on a speeded-power test, however, does have an advantage.

What is the solution to this problem? Time limits for regular tests should be liberal enough so that 90% or 95% of applicants finish the test. Unlimited time can then be given to disabled applicants who need extra time. In large-scale testing operations, it may be possible to establish time limits empirically, as recommended by the APA standards. For similar item-types, multipliers developed at OPM[1] for visually handicapped applicants on the Professional and Administrative Career Examination (PACE) might be used:

For questions which consisted of a single paragraph followed by five answer choices, the multipliers were as follows:

Large Print	1.7 - 2.4
Braille	2.1 - 3.3
Audiotape	2.0 - 2.9
Reader	2.4 - 2.6

(NOTE: A range of values is given because there were three such test parts, each of which had a different requirement.)

For quantitative items which had extensive computational requirements (electronic calculators not permitted), the multipliers were:

Large Print	5.0
All other media	7.0

The multipliers for the quantitative test are probably somewhat inflated because this test part was somewhat speeded for the non-disabled competitors. However they show that considerable extra time is needed for items which require computation.

Content change is potentially more controversial than time limit change, except that it does not occur very often. Three degrees of content change are given in Table 2. The first, changing an item, could be as simple as substituting one item for another in a construct-based test, which would have no effect on validity. Translation into sign language is a far more complex change, but it retains the same item-type. An item-type change would occur if another item-type was used to test the same ability, as was done on PACE. This would occur most readily in a construct-based test. Finally, there is the radical step of KSA change or deletion. This would be justified only if there is no way to test the intended knowledge, skill, or ability and if there

[1] Nester, 1984

was reason to believe that it would not be required on the job by the handicapped applicant. It is at this point that the validity of the test is most threatened and the decisions the hardest. The Section 504 regulations of the Department of Justice (*Implementation of Executive Order 12250, Nondiscrimination on the basis of Handicap in Federally Assisted Programs*, 28 CFR 41) prohibit using a test that discriminates against handicapped persons. At OPM, we often delete test parts that we know will screen out a handicapped person because in our large-scale operation we cannot be sure that there is no job that the handicapped person can fill without possession of that particular knowledge, skill, or ability.

Table 3 - Accommodations and Issues for Major Disability Groups

Visual Impairment	Hearing Impairment
Medium of test administration	Content: Verbal language
Time limits and speeded tests	Test instructions
Content: Figural materials, computation, "visual" content	Time limits for verbal materials
Ancillary personnel	
Motor Impairment	**Learning Disability**
Time limits and speeded tests	Definition
Ancillary personnel	Time limits and speeded tests
	Medium of test administration
	Content: Variable problems

Table 3 shows which accommodations apply most prominently to each of the disability groups. Most of these accommodations are straightforward and easy to understand. However, a few words need to be said about the hearing impaired group, which differs from the other three groups. First, the hearing impaired group can be roughly divided into two categories: the hard-of-hearing and the deaf. The deaf are those whose hearing impairment is so severe that they cannot understand speech through their hearing. For the majority of prelingually deaf persons, who lost their hearing before they acquired speech, verbal tests are not good measures of any ability. They only reflect the

deficit in spoken language. Deaf persons, unlike the hearing, have a low or no correlation between their verbal and nonverbal test scores. It is as though verbal tests prevent deaf persons from showing their ability in any other field. This fact has serious implications for test content and test instructions. Verbal tests should not be used with low-verbal deaf applicants to test anything except verbal ability. Test instructions should be given very carefully, with the use of sign language or demonstration. Time limits should be explained very clearly.

The learning disabled are the largest disabled group, and the broad definition of this group makes it impossible to prescribe test modifications in any general way. The legal definition of learning disability, paraphrased from the federal Education of the Handicapped Act (1975), is: A disorder in one or more of the basic processes involved in using spoken or written language in the presence of normal or above-average intelligence; the disorder may manifest itself in problems related to listening, thinking, speaking, reading, writing, spelling, or doing mathematical calculations. Obviously a variety of accommodations are necessary to mitigate the effects of such varied disabilities, and they must be handled on a case-by-case basis.

Reliability and Validity of Modified Tests

Table 4 on the next page summarizes the most pertinent research on the reliability of modified tests. These studies were chosen because (except for the WISC study) they deal with adults and with fairly general cognitive ability tests that were developed for nondisabled persons and modified to a greater or lesser extent for disabled persons. All of these studies found the reliability of modified tests to be comparable to those of the regular tests. In the case of the SAT studies (Centra, 1986), the correlation between the regular and modified test is possibly an underestimate of the reliability of the modified test, since the testing conditions were not identical in the two administrations. It should be mentioned that the SAT samples were a special class of disabled applicants--those who were able to take the regular exam at a national administration. Therefore there were no quadriplegics or braille users in the study. However, the sample probably contained some severely disabled persons, as the data on score gains suggest (see Centra, 1986).

Table 4 - Reliability of Modified Tests

Test	Disability	Modifications	Type of Statistic	Results
PACE[1]	visual (N=361)	medium, time, change in item-type	internal consistency reliability (KR-20)	reliability (*r*) approx. same as for regular test
PACE[2]	deaf (N=307)	change in item-type, time	same as above	same as above
SAT[3]	physical (N=96)	time, maybe other	*r* betw. regular and untimed admin. for same individuals	*r* similar to parallel forms reliability for SAT-V and SAT-M
SAT[3]	visual (N=177)	time, medium	same as above	same as above
SAT[3]	hearing (N=34)	time	same as above	*r* similar to reliab. for SAT-V, .07 lower for SAT-M
SAT[3]	learn. dis. (N=1,140)	time, medium?	same as above	*r* similar to reliab. for SAT-M, .14 lower for SAT-V
WISC[4] verbal	visual (N=30)		split-half and test-retest reliability	results comparable to those for WISC standardization sample

[1] Sapinkopf, 1978. [2] Nester & Sapinkopf, 1982. [3] Centra, 1986. [4] Tillman, 1973.

These data, taken as a whole, are very encouraging. They suggest that a well-developed test will not lose reliability if carefully thought out modifications are made. This makes sense, because the goal of the modifications is to maintain the test's essential measurement characteristics.

The data on validity are presented in Table 5 on the next page. Most of these data are from ETS's recent research project on the performance of disabled students on the SAT. For the most part, the modified tests retain approximately the same validity for disabled applicants as the regular test

Table 5 - Predictive Validity of Modified Tests

Test	Disability	Modifications	Criterion	Results		
ACT[1]	all	various	college GPA	.46 (disabled) .44 (nondisabled)		
					SAT-V	SAT-M
SAT[2]	L.D. (N=55)	various?	GPA at one college	LD Nonhand.	.32 .34	.29 .28
SAT[2]	hearing	various?	GPA at mainstream college	HI Nonhand.	.14 .38	.41 .32
					SAT-V	SAT-M
SAT[3]	control		College GPA (pooled data)	Controls	.26	.24
	disabled-modified test					
	visual (N=217)	time, medium	same		.20	.20
	physical (N=311)	time, amanuensis	same		.24	.24
	hearing (N=24)	time	same (mainstream school group)		-.09	.32
	L.D. (N=574)	time, medium	same		.12	.12 (overprediction)
	disabled-nonmodified test					
	visual (N=59)	none	same		.24	.13
	physical (N=89)	none	same		.28	.18
	hearing (N=69)	none	same (mainstream school group)		.47	.27
	L.D. (N=129)	none	same		.16	.22

[1] Maxey & Levitz, 1980.
[2] Jones & Ragosta, 1982.
[3] Braun, Ragosta, & Kaplan, 1986.

has for nondisabled applicants. The two problem areas are the hearing impaired and the learning disabled. For the hearing impaired, the table only shows the data from the mainstreamed college program. The SAT-Verbal has no validity for predicting first year GPA in the group that took special administrations (presumably a prelingually deaf group). The LD group has the lowest validity coefficients, and there is evidence that their freshman GPA's are overpredicted by a regression equation based on nondisabled controls who attended the same colleges. More detailed analyses had results indicating that the overprediction is greatest for LD applicants who required the most time to finish the test (Braun, Ragosta, & Kaplan, 1986). There is some suggestion that this group is getting an undue advantage in being allowed to take considerable amounts of extra time. The validity results are better in the single-college studies done by Jones and Ragosta (1982).

ETS's studies suggest that tests of developed verbal and mathematical ability predict college performance as well for the disabled as for the non-disabled. Why should this not be the case? There are two possibilities: the greater logistical difficulties that some disabled students have in accessing academic information and the possibility that school exams might not offer as many accommodations as the SAT does (Ragosta and Kaplan, 1986, offer data confirming this). However, the validity data suggest that for the most part such factors have not inhibited disabled people as college students.

The next pertinent question, then, is whether or not we can expect employment tests to retain their validity when modified. While the massive effort exerted by ETS to collect their validity data may never be possible in the employment context, careful accommodations that are made to maintain the measurement characteristics of the tests should lead to the retention of validity. As we move more into the "information age," the results of studies such as those on the SAT should be even more applicable to employment tests.

Section 2 - State Testing Accommodation Programs

By Michael Dollard and Robert Schneider

Many of us in the field of personnel assessment are well aware of the difficulties tests pose for disabled job applicants. All too frequently, however, the special testing needs of the disabled are overlooked, or minimally accommodated. There are a number of reasons why this has been so. For many years, conventional wisdom held that only standardized tests, given under uniform conditions, were fair. By definition, accommodation implies modification of the instrument or alteration of the conditions under which it is administered. Presumably, either action would introduce a measure of bias and detract from the validity of the test. From this perception, it is easy to infer that accommodating the special needs of disabled candidates somehow conflicts with the primary objective of testing, which is to identify those best qualified for placement. Certainly, there is little literature available to refute these views. Few tests are utilized on a wide enough scale to allow the accumulation of sufficient data on the performance of disabled persons for meaningful analysis. As a result, the subject of accommodation for the disabled in testing situations is, as yet, largely unexplored.

There is also the question of economic utility. The identifiably disabled are typically a very small proportion of the candidates in any examination program. It has been argued that the resources needed to develop accommodations for the disabled are better directed toward improving the overall quality of assessment. On the basis of this argument, the subject of accommodation is too often approached cautiously, if at all. We dispute the merits of this position, even from a purely utilitarian point of view. Assume disabled candidates constitute .5% of the total candidate pool (usually the figure is closer to 1.5%). Over the course of a year in which 100,000 candidates are examined, 500 disabled persons will be disadvantaged. That is a prodigious waste of talent. Further, it is much less expensive, in the long run, to develop mechanisms through which all candidates can compete equitably, than it is to attempt to defend against a charge of discrimination, which, if won by the plaintiff, will likely result in monetary penalties far exceeding what it would have cost to run an accommodation program.

In the initial stages of development, a program of accommodation would indeed require some level of resource allocation. Because there are many open questions and few definitive answers regarding accommodation for the disabled, a few false starts and occasional failures along the way must be expected. These are an inherent part of the learning process. But as knowledge and experience are gained, the time needed to respond to a request for accommodation will drop, as will the cost of each accommodation made. There are several approaches which have proven themselves to be practical and reasonably economical. With careful planning and a minimum of resources, these approaches can be fashioned into highly effective accommodation programs. This monograph is intended as a practical guide for the development, implementation, and maintenance of such programs.

THE NEW YORK STATE PROGRAM

The New York State Department of Civil Service is a large and varied operation serving about 180,000 competitive class employees in the State Executive Branch, and another 250,000 competitive class employees in 110 municipalities. The Department holds approximately 4,000 tests each year with up to 250,000 candidates tested in 38 State centers and in more than 110 municipal centers. The Department's testing program utilizes all of the primary test modes, but the bulk of these 4,000 tests per year have a written test component, and it is for these written tests that most testing accommodations for the disabled are made.

Prior to 1980 the Department did provide accommodations for the disabled, but on an ad hoc basis with no records retained. The principal accommodations made were readers for the blind and visually disabled, amanuenses for those unable to mark a conventional machine readable answer sheet, and arrangements for the wheelchair bound and those on crutches to take a test in an accessible location. For all others, either they were forced to do as they could, or parts of the test were waived.

In 1980 the Testing Services Affirmative Action Committee took upon itself the task of regularizing the process of making accommodations for the disabled. As finally constituted, the Committee consisted of almost a dozen people -- both clerical and professional, disabled and non-disabled -- representing a number of different organizational units.

Over a period of several months the Committee developed a policy statement and a set of guidelines for the provision of testing accommodations for the disabled. These were officially promulgated in 1980 and have been in effect in relatively unchanged form since.

While there were several members of the Committee with disabling conditions, the policy and guidelines were also reviewed prior to promulgation by the State Commission for the Blind and Visually Disabled, the State Office of Vocational Rehabilitation, and by representatives of three advocacy groups for the disabled, as well as by the full administrative hierarchy of the Department of Civil Service.

The Guidelines cover the main disability groups: the visually impaired, the hearing impaired, and the mobility impaired, but they also cover a wide spectrum of other disabilities such as learning disabilities, mental conditions, disabilities associated with cardiac conditions, respiratory and urinary conditions, the lack of stamina, and the sequelae of common and uncommon chronic conditions, as well as the temporary effects of medication and other temporary disabilities.

Under the policy, testing accommodation for a disabled candidate is mandatory providing these three conditions are met:

1) The candidate must be able to document the disability.
2) The accommodation must be suitable for the job situation.
3) The accommodation must not impose an "undue burden" on the Department ("Undue burden" is strictly defined as requiring a large cost for the purchase or rental of equipment or facilities for a single or limited use by a candidate or candidates, or the moving or postponing of an examination to accommodate a single candidate.)

As an aid to the implementation of the accommodated testing program, the staff designed a training package consisting of: 1) an updating of the Test Administration Manual for Test Center Supervisors; 2) the creation of a video tape on providing accommodations, and dealing generally with people with disabling conditions in the context of a Civil Service test administration; and 3) an in-person training session -- introducing both the updated manual and the video -- conducted by the Testing staff.

<*> <*> <*> <*> <*>

In the five years following implementation of the program, 2,443 persons requested accommodations, and we were able to accommodate 2,434, or all but nine requests. The number of requests varied substantially from year to year, and is certainly a function of the number and type of examinations held in a given year. Because many candidates require more than one accommodation -- for example a physically disabled candidate might require an accessible test site and also a ten minute rest period every hour -- the number of accommodations made is larger than the number of requests made; for example 4,263 accommodations were made for the 2,434 disabled persons serviced during the period.

The greatest number of accommodation (3289 of 4263, or 77%) were those for accessibility and/or seating. This class of accommodation includes scheduling the candidate for a building with ground level entrance without stairs, or with a ramp or lift. Inside the building, it would include bathrooms accessible to a person in a wheelchair, seating at a table rather than at a student desk, or -- for persons with limited hearing -- seating at the front of the room or with close direct view of the monitor's face and/or the chalk board where instructions for candidates are written.

The next largest class of accommodation is that involving the use of an extra person -- a reader, an interpreter for the deaf or an amanuensis. Fourteen percent, or 614 of 4,263 requests for accommodation, were for this class of accommodation.

The third largest class of accommodation is for special services for the visually disabled. This class of accommodation accounted for 537 of 4,263 requests (13%) over the five-year period: 388 requests for large-print materials (9%), 102 requests for brailled materials (2%) and 47 requests for audiotaped materials (2%).

Other accommodations not included in the above amounted to 123, or 3% of the total and included such things as special timings, use of special technologies such as 'talking' calculators, 'Visualteks' and 'Optacons' (electrically operated reading devices), and other special services.

The mobility impaired constituted the largest group requesting accommodations: 861 of the 2,361 (36%) persons with recorded disabilities were in this group. The visually disabled constituted the second largest group with 600 of 2,361 (25%) recorded disabilities. The hearing impaired constituted an additional 16% (375 of 2,361). Persons with cerebral palsy and/or multiple disabilities constituted 9% (217 of 2,361), while persons with other disabling conditions (such as learning disabilities, various mental and emotional conditions, cardiac conditions, etc.) constituted 13% (308 of 2,361).

All of these figures varied from year to year, depending on the number and types of examinations held during that year. One figure that did remain more or less consistent over the five-year period was the proportion of disabled persons who failed to appear for testing after appropriate accommodations had been decided on, and arrangements made to provide them -- this figure ran pretty consistently at about one-fourth of candidates requesting accommodation.

Significant among all of the statistics related to the accommodated testing program is the fact that fully one-fourth of all of the persons requesting accommodations (655 of 2,443 over the five-year period) were at the time of the request, or later became, employees of the State of New York.

It is perhaps significant that most of these individuals are in jobs that are clerical in nature, and that the only 'professional' titles with five or more incumbents over the five years of the study were Employment Interviewer, Senior Computer Programmer/Analyst and Vocational Rehabilitation Counselor.

THE PENNSYLVANIA PROGRAM

The Pennsylvania State Civil Service Commission is responsible for maintaining a state work force of about 65,000, employed in roughly 2200 distinct job classifications. The Commission also provides service to a substantial number of local government agencies, collectively accounting for approximately 20,000 additional jobs. In a typical year, the Commission administers roughly 350 employment and promotional examinations to about 110,000 candidates. Although a wide range of assessment instruments are used, a majority of the examinations given, including virtually all of those for which large numbers of candidates apply, incorporate a written test component. With rare exceptions, it is these written tests that generate requests for accommodation.

Historically, the Commission has taken the position that candidates who identified themselves as disabled and indicated a need, would be accommodated to the extent that the accommodation did not adversely affect the validity of the test instrument. Typical accommodations involved providing a reader for a candidate, arranging special seating in a test room, and/or allowing a candidate extra time to complete an examination. In some instances, where past experience indicated a likelihood that non-sighted persons would apply, blocks of items in written tests (usually those incorporating charts, graphs, and other illustrations), were identified for deletion in the event it proved impossible for a candidate to respond to them. As there were relatively few candidates requesting any form of accommodation (perhaps 50 in an average year), the system worked fairly well. However, there were problems that became ever more apparent and caused increasing concern over time.

In the early 1970s the Commission opened field offices in Pittsburgh and Philadelphia, at opposite ends of the state. Testing in each office was conducted under local control. Because there was no standard policy on accommodated testing, instances arose in which candidates with essentially similar disabling conditions were accommodated inconsistently, and sometimes inappropriately. Worse yet, there was at least one instance in which the same candidate was offered entirely different accommodations on successive administrations of the same test. Moreover, the accommodation procedures the Commission traditionally employed were oriented exclusively toward dealing with commonly encountered physical disabilities. Although sensory-impaired candidates were readily accommodated, very little was known about ways to provide assistance to those having disabilities other than physical. As a consequence, little was done for such candidates.

Technological advances also proved to be a problem. By the late 1970s, increasing numbers of visually impaired persons were requesting to be allowed to use talking calculators or other types of electronic equipment to compensate for the loss of visual cues used to solve problems. Yet the use of such equipment during examinations was generally prohibited. The preferred alternatives were to delete from examinations those items which required calculations, or to provide extra time for testing but require the candidate to perform calculations mentally. In retrospect, the latter solution was particularly unfair because it introduced a dimension to the assessment process beyond that required of other candidates.

As increasing numbers of the Commission's examinations shifted from traditional written tests to instruments which incorporated writing exercises or other work sample components, the adequacy of the accommodations historically offered declined substantially. Clearly, a better approach was needed.

In 1983, the Commission initiated a structured program of accommodation for the disabled, loosely patterned after that used so successfully by New York State. Designed to be more responsive to the needs and abilities of disabled applicants, the new program addressed many of the problems described above.

Underlying the Pennsylvania program is the premise that many disabled persons develop unique, individualized skills which compensate for their dysfunctions. How a person goes about doing a job is less important than that the work be competently done. The proper role of assessment should be to measure a candidate's ability to do the latter.

Therefore, to the extent that it is reasonable and practicable to do so, testing should be structured so that the candidate may demonstrate possession of the knowledges and skills needed on the job in the same manner in which these knowledges and skills will be used by the candidate on the job. In other words, any accommodation utilized for testing should be tailored to the needs and abilities of the individual consistent with the types of accommodations which can reasonably be provided on the job. Determining the type and level of accommodation which should be used in any given instance is dependent on the nature of the disability, the nature of the job, and the form of accommodation initially requested. However, many specific accommodations for commonly encountered disabling conditions can be anticipated. (See The Appendix for many of these combinations.) Others will need to be developed individually, as situations arise. The mechanism used by the Pennsylvania Civil Service Commission to accomplish this is described below. The candidate is required to take the first step, by identifying the disabling condition and requesting accommodation at the time he or she files an application. The candidate must be able to provide verification of the the disabling condition. This is usually accomplished by means of certification from a physician, counselor, or other practitioner.

If the requested accommodation entails no test modification, appears to be appropriate as a means of compensating for the disabling condition claimed, and falls within the range of accommodations authorized under the Commission's written guidelines, arrangements for its implementation are handled directly by field office staff or, in the case of statewide tests held at high schools throughout the Commonwealth, by the staff of our Test Administration Division. Each year, the Commission routinely handles in this manner numerous requests for accommodation.

In the event the requested accommodation is one not generally authorized, involves test modification, or requires that the Commission contract for services it cannot provide directly, the field office will refer the request to the Commission's Division of Test Development. A senior test developer, familiar with the job and the examination, will be assigned to contact the candidate directly.

The test developer's initial task is to obtain information from the candidate as soon as possible regarding the extent and nature of the disabling condition. The test developer will then describe the work in detail and discuss with the candidate how the disabling condition might impact on the job. The purpose of this is to develop an understanding of the kinds of accommodations the candidate might need to perform the work. Next, the test developer will describe the examination and the manner in which it is administered. This is done to acquaint the candidate with those aspects of the test which are likely to cause problems because of the disabling condition. In this manner, the full range of options available to the candidate, and the Commission, can be considered.

Candidates are often unaware of the diversity of accommodations which can actually be made. Occasionally, the test developer can arrange an accommodation that is more satisfactory for the candidate than the one originally requested. In an average year, the Commission typically encounters no more than a dozen requests for accommodation that must be individually tailored in this manner. Most requests for accommodation referred to the test development staff are handled with a minimum of difficulty.

However, there are occasional instances in which the test developer, for a variety of reasons, cannot accede to an accommodation on which the candidate insists, or offer one the candidate finds acceptable. In these situations, the test developer will contact the employing agency, describe the disabling condition and attempt to determine the accommodations that can actually be provided on the job. The use of special equipment, changes in operating procedures, alterations in the physical layout of the workspace, and job restructuring are just some of the approaches which may be discussed.

The information obtained in consultation with the agency provides the bottom-line definition of what constitutes "reasonable accommodation" at the work site. In theory, any accommodation that can be made at the work site should be reflected in the accommodations made available to the candidate during the test. This premise determines the Commission's ultimate technical position on the accommodations to be offered in any given situation.

If the candidate, test developer, and agency cannot reach agreement, or the accommodation agreed to is technically complex, the problem is referred to the Research Division for resolution. Research staff may attempt to mediate a solution, or coordinate development of the accommodation. In some cases, outside assistance is requested from agencies or organizations routinely working with, or serving as advocates for, the disabled.[1]

In rare instances, the Research staff may undertake a study to determine if the job really lends itself to accommodation, given a particular disability. With very few exceptions, some degree of accommodation is possible. However, there are occasions when it is not. As a practical matter, the initiation of a study usually indicates that the candidate who initially requested accommodation will not receive it. The time frames involved in determining what, if anything, can be done to restructure work,

[1] The Pennsylvania Federation for the Blind (an advocacy group), the Bureau of Vocational Rehabilitation (a state agency), the Dauphin County Library (a local agency), and the Office of Technical Assistance to Sensory Impaired Persons (a semi-official agency) are just a few of the many outside organizations which have been of tremendous help to the Commission. Similar organizations exist in virtually every community, and need only be contacted for material aid and technical advice.

introduce new equipment, and then develop testing accommodations to match those changes, normally exceed the time frames in which testing is conducted. Sometimes insight is hard to acquire, and solutions take time and effort to develop. As an integral part of any formal program for testing accommodation for the disabled, it is recommended that a central resource file be developed and maintained. As new forms of accommodation are researched and utilized, a description of the disability accommodated, the nature of the job for which the candidate is being tested, the nature of the accommodation employed, the resources used to develop the accommodation, copies of the resulting assessment device and instructions for its use, and an evaluation of the relative success or failure of the accommodation should be documented. Over time, such a resource file will evolve into an extremely useful guide. It will also facilitate the handling of subsequent requests for the accommodation of similar disabilities.

A feature of Pennsylvania's program is that eligible lists developed by the Commission do not differentiate between disabled and non-disabled candidates. No special identifiers are used. The scores of all candidates whose names appear on the lists are presumed to be reflective of their relative abilities to perform on the job, irrespective of disabling conditions. Although this presumption may be somewhat idealistic, it does eliminate one potential source of discrimination. (It also underscores the importance of insuring that the testing accommodations provided give disabled candidates the opportunity to fully demonstrate their true capabilities.)

Pennsylvania does not have a job set-aside program for the disabled, as does the State of New York. The merits of set-aside programs can be debated. In my view, they are highly desirable, but subject to failure unless certain conditions are met.

First, it is essential to have a high level of commitment to the program from all parties involved, including the administration, agency managers, and any unions with whom the jurisdiction may have contractual arrangements. Without support, nothing of substance will occur.

Next, funding for the acquisition of special equipment needed by disabled workers, as well as things like restructuring work areas to provide access, is also needed. Any employee must have access to the tools needed to do the job. For disabled workers these tools may include such things as talking computers or braille printers, which must be leased or purchased. Operating budgets rarely provide for such equipment.

Finally, a mechanism must be established to monitor the effective utilization of the program. Without such monitoring there is always the risk that jobs identified for inclusion in the set-aside program may be degraded through restructuring in such a way as to effectively strip them of real responsibility. Though slight, the possibility exists that some managers might be tempted to reassign the essential work of a set-aside position to other employees rather than go through the difficult task of developing and introducing new work procedures, then training staff in their use.

Pennsylvania's accommodation program has proved to be beneficial in a number of ways. First, it provides disabled candidates a voice in determining how they will be tested. As a result, they are facilitators of solutions rather than simply being "another problem". The procedure also encourages candidates to realistically think through and evaluate their capabilities relative to the jobs for which they are applying. All too often, this is the first opportunity they have taken to do so. Sometimes this self-evaluation will lead candidates to adjust their goals and expectations in such a way as to maximize their chances of achieving success.

Agency managers benefit from the opportunity to evaluate the structure of jobs under their control, relative to the needs of disabled persons. The evaluative process can lead to the elimination of artificial barriers which tend to exclude disabled candidates.

The Commission has benefited from a program that promotes a structured, rational approach to accommodation requests and encourages cooperative problem solving. In the process, the Commission is learning a lot about how disabling

conditions can be surmounted. We have discovered that many disabled persons have developed useful techniques for working around their disabilities, techniques that simply hadn't occurred to us, but which can be adapted to the testing situation.

We are also gratified by the unexpected support we have received. We have found that line agencies and quite a few outside organizations are willing to provide resources for accommodation (such as free brailling services and professional audio taping facilities) that were previously unobtainable or too costly to consider.

We in Pennsylvania are quite proud of our program, but we also recognize that it is not without its problems. Although we have been able to handle most requests for accommodation fairly quickly and agreeably, others have taken considerable time and effort to negotiate and carry out. The lack of immediately available resources or the cost of obtaining needed services is sometimes a problem. Some complex accommodations, which required that we restructure examination material, have taken up to a year to develop because of the limited staff time available to work on them. A few line agency personnel were found to be decidedly unenthusiastic about the prospect of job restructuring or work modification. In those rare instances, cooperation suffered accordingly. Some candidates have come to us with unrealistic expectations from which they could not be shaken. Others have come to us with multiple requests for testing, not realizing that each accommodation honored requires considerable work in its own right. Though these difficulties can usually be overcome, it isn't always the case. The program is not perfect.

Looking to the future, the biggest problem may very well be volume. In a typical year the Commission may receive two or three requests for accommodation which, while legitimate, involve substantial amounts of work. We have been able to handle work at that level. However, if the number of such requests were to increase by no more than a factor of 2 or 3, it is difficult to see how we could meet the need in a responsible fashion. Neither the funds nor the staff are available to support accommodation activity of

that magnitude. Should that occur, the Commission would be forced to evaluate the proportion of its virtually fixed resources which could be allocated to serving a very small proportion of the total candidate population.

Has the program worked, and has it made a significant improvement in the opportunities available to disabled candidates? In the absence of a centralized data collection function, hard information has been difficult to obtain. The number of candidates applying for any given examination who identify themselves as disabled is extremely small, in no case exceeding 2% of the total. Only a small proportion of this number request accommodation. Accordingly, statistical analysis is next to impossible. Other conditions, such as the overall state of the job market and fluctuations in the numbers and locations of different types of job openings in state government, must also be taken into account. But some data are available. By combining annual appointment data for all job classifications in which forty or more total placements have been made, some encouraging trends have been noted.

Over the two-year period immediately following introduction of the accommodation program, the job placement rate for disabled candidates has increased three-fold. Although it is highly unlikely that testing accommodations alone has produced this result, I believe the program has contributed significantly to the gain which has been made. However, it must be remembered that this increase in placement rate, although quite dramatic, is still the product of relatively small numbers. Consequently, the placement rate itself is highly sensitive to relatively small changes in numbers. Much more work needs to be done before we can claim to be providing truly equal access for the disabled, or effectively accommodating their special needs. What has been accomplished so far is but a step in the right direction.

A program of accommodation such as that described here is not difficult to set up or maintain and is extremely worthwhile. The principal ingredients needed are support from agency management, a commitment to fairness, and time to develop sources of information and technical assistance. Not much investment for a large return in terms of its effects on a valuable but often forgotten segment of our population.

ADAPTING TESTS FOR THE DISABLED

Testing accommodations by their nature must be handled individually, and many of them can be made wholly in-house. The great bulk of accommodations deal with physical accessibility and modification of seating plans. These, of course, can all be handled in-house, as can arrangements for readers and amanuenses, which are frequently drawn from the regular test monitoring staff.

However, many testing accommodations call for skills and equipment which are not normally found in personnel offices. For this reason, the people trying to adapt tests have found it useful to work with a variety of community agencies, both voluntary and governmental. The local public library, local colleges and universities, and the local Association for the Blind can frequently provide both facilities and equipment (such as magnifying devices, computerized text reading machines, and other specialized technology) for special testing needs. A little research in the local community will quickly reveal a number of more specialized service and advocacy groups serving the disabled. Many of these groups will have skills and/or services that they are willing to use in support of an accommodated testing program.

For example, the New York program located a voluntary organization called the "Sight Conservation Society of Northeastern New York." This group, sponsored by the Lions Club (an international service organization), is similar to groups found in many areas across the country, sustained wholly by contributions and by the volunteer efforts of a small group of people The society trains braillists to Library of Congress Standards, and provides free brailling of such things as school books and other educational materials, written materials needed on the job by blind workers, etc. New York worked out a deal with the group that has been mutually advantageous. The State pays the Society $9.00 per hour plus the cost of materials. This provides the Society with a small but regular source of operating funds, while providing the Department with a needed professional service at a "rock bottom" price.

A member of the merit system staff serves as liaison to the Society. This examiner is not disabled, but is a technically competent examiner, has an interest in this area, and reasonable experience in the making of accommodations. This examiner hand-carries test material to the Society Coordinator -- a full-time, voluntary position. They go over the test material together, discussing difficult parts of the material, and how best to present them. (Charts, tables, and line-drawings cause the greatest problem. The Society has a volunteer braillist who specializes in this type of material and the special conventions used by Level II Braille for numerical materials. The Society is also able to produce "raised-line drawings" for the presentation of certain graphic materials.) After this discussion, the Society takes possession of the test material, which it keeps under secure conditions. They produce a "master" copy of the test, which is then proof-read. After correction, the "master" is used to "Thermoform" the necessary number of copies. (For a major entry-level examination, as many as a dozen copies may be needed.) The original test materials, the "master" and the copies are then turned over to the liaison, together with any notes, surplus materials, discarded pages, etc. for shredding.

There may be areas where there is no local service of this type. Here, again, there are alternatives. There are at present at least four computer-ized brailling systems that produce acceptable Level II Braille. These systems, which run on a micro-computer and which drive an actual brailling device, can be operated by a secretarial employee without brailling skills.

While such computer-based systems are not expensive, they may nevertheless be beyond the budget of many merit systems. Fortunately, even here there are alternatives. Increasingly these computer-based systems are being purchased by local organizations servicing the visually disabled. At least two affiliates of the National Association for the Blind (one in western New York and one in Oregon) have expressed interest in brailling test material under a contractual relationship. The distance is not a factor, and from a security perspective may even be beneficial. With much test material now existing in electronic form, transmitting it as an ASCII file over a modem and a telephone line to a remote computer is a distinct possibility.

Clearly one key to success in providing services to the visually disabled is the Library of Congress. The Library has extensive experience in servicing the visually disabled, and has been very cooperative in assisting the programs described in this paper. The Library of Congress has created well-researched and well-thought-out standards for both large-print and audiotaped materials, and can arrange for the loan -- either directly, or through the State Libraries for the Blind -- specially designed tape players for use in administering audiotaped test material.

Getting something to play on the tape players is a further problem, but here again the Library of Congress may be able to lend a hand. Through their grant-in-aid and other programs, the Library of Congress is aware of a number of community groups that produce audiotaped materials for the visually disabled and which may be willing to assist in the audiotaping of test materials. The New York State program received a referral from the Library of Congress staff and has entered into a contractual arrangement with such a group for the production of audiotaped test materials. Here, again, one of the merit system staff was designated as a liaison to the group, and oversees the entire process. The product released by the recording studio is a high quality reel-to-reel "master" which is then used to produce production-quality audio-cassettes for test use.

While they may not be able to provide direct services, it is generally useful to talk to both the State Office of Vocational Rehabilitation and the State Commission for the Blind and Visually Disabled for advice on how to best accommodate specific disabilities, and for leads in locating particular types of equipment and/or services. Frequently the merit system staff will not even be aware of the existence of an appropriate technology or its availability. However, if a direct dialogue has been established with the candidate and his or her counselor sufficiently in advance of test administration, they can frequently direct the staff to appropriate technology.

Advocacy groups such as the National Federation of the Blind, and local Centers for Independent Living can also be useful in planning or reviewing accommodated testing programs, as well as in making accommodations.

<*> <*> <*> <*> <*>

Although it is clear that it is both possible and practical to provide testing accommodations for the disabled, it is not as clear whether merit system agencies should make such accommodations. There are two issues of concern to us in this regard:

1) Are adapted tests evaluating the same knowledges, skills and abilities in disabled candidates that we are evaluating in the non-disabled with the unmodified test?
2) Does the adapted test evaluate the skills the disabled worker will need on the job?

The first issue was actually the cause for implementing the programs described in this section. Ad hoc systems were certainly treating people differently. Some candidates were accommodated while others were not. Candidates with similar disabilities frequently received different accommodations. There was also the possibility -- if not the probability -- that with the use of untrained readers, visually disabled candidates were not receiving the same stimulus being provided to the sighted candidate (if, in fact, we were not testing the reader rather than the candidate).

Audiotaping eliminates most of the concern with respect to readers, and it is conceivable that videotaping may eliminate similar concerns with interpretation for the deaf. A training program for readers should also eliminate many problems. We are generally persuaded by our experience with these techniques, and by the research reported here by Dr. Nester, that with the exercise of due discretion we are, in fact, evaluating basically the same KSAs for the disabled as for the non-disabled.

The second issue - Are the adapted tests evaluating the correct KSAs? - is a greater concern. As we have worked with increasing numbers of disabled candidates, particularly visually disabled candidates, it has become apparent that most office procedures are organized to be performed by a sighted individual. It has also become apparent that many visually disabled individuals faced with an office situation develop their own methods of

dealing with information and data which are different from, but as effective as, the methods developed by sighted persons. When the individual would in practice use a totally different process or procedure, to 'accommodate' a visually oriented procedure is just not appropriate.

Our recommendation in situations like this is to waive that part of the test, and to rely on the probationary period for evaluation. This is not a solution that we like -- and it is a solution that has been attacked by the National Federation for the Blind -- but we do not see a viable alternative. This solution is used largely in those testing situations where highly speeded materials are used to evaluate basic abilities such as perceptual speed and accuracy.

Section 3 - Discussion From A Test Developer's Perspective
By John D. Kraft

There is a strong need for carefully thought-out test modifications for visually-, hearing-, and motor-disabled individuals. My general comments reflect on this need.

Since at least 1946, the U. S. Office of Personnel Management and its predecessor, the U. S. Civil Service Commission, has had active programs designed to permit disabled persons to secure employment in the Federal civil service. Historically and at present, two separate modes for entry into the Federal civil service have been maintained.

First, persons who are severely disabled can secure direct appointments into the excepted service without going through competitive hiring processes. This is essentially a job set-aside program for which people do not compete in terms of relative merit; they only need to show that they meet minimum qualification standards. These persons are required to show that they can do the job they are being considered for by presenting a statement from a state rehabilitation counselor to that effect or by presenting other satisfactory evidence -- such as by showing that they had previously performed the same job. After two years of satisfactory on-the-job work performance, these individuals may be granted status in the regular competitive civil service without further testing or evaluation.

Second, persons can take civil service examinations and compete on the same basis as non-disabled persons. These civil service examinations are often modified to meet the particular disabling condition of the person. For example, tests for the visually impaired will be presented in braille, or in large type, or in standard-size type with special formats, or by reader or by cassette tape. No flaging of the test results is allowed to indicate that the person has taken a modified test.

Historically, we have used a pragmatic approach to test accommodations--what changes in media and question-types could be used to fairly measure a required job-related ability of an applicant with specific disabilities? It was essentially a construct validity approach. This was done for two reasons; first, most of our tests are ability tests which could be easily modified using a construct approach, and second, we simply did not have enough applicants with any one disability for a particular group of jobs to carry out a criterion-related validity study.

In 1973, we began an active research program to modify our tests for the disabled. Early on, we recognized that some of our test modifications were based on misconceptions concerning the disabled. For example, for many years, we used figural classification and other spatial reasoning tests with blind applicants in which the figures were embossed on a flat surface--our reasoning was that blind applicants would have a keener sense of tactual perception. The fact is that disabled applicants often have multiple disabilities and many blind applicants have very poor tactual perception and spatial imagery. However, if the proper reasoning tests could be developed to measure their abilities, they could be hired and do the job. We quickly eliminated these tactual tests from use and replaced them with other construct-based reasoning tests. Dr. Nester, who heads up this test modification program, discussed this issue in her section.

We also have actively worked with other test publishers, with the American Psychological Association, and with various regulatory agencies on the national level to encourage test modifications for the disabled.

Dr. Nester's paper shows that modified tests do have substantial reliability and validity. The question she addressed is very pertinent: "How would the test's reliability and validity be affected if it were given *without* accommodation to disabled persons?" As she points out, a paper-and-pencil test given without accommodations to a blind person would have no validity whatsoever. As she has clearly stated, the accommodations we have made have been successful from a validity standpoint. We make these modifications even

if only one disabled person requests a modified test. As was indicated by both Mr. Dollard and Mr. Schneider, most of these modifications can be made with little or no cost. We use the Library of Congress and voluntary organizations to braille tests, and we use our regular staff as readers in the creation of audiotapes. We do hire interpreters for the deaf when they are needed.

As Mr. Schneider points out, the Pennsylvania Civil Service Commission has consistently tried to reconcile accommodation of the special needs of disabled applicants with its primary responsibility for identifying those best qualified for placement. That state, in using job knowledge tests, has a different type of problem from that of the Federal civil service, which primarily uses ability tests in selection. I like the state's emphasis on assessing the actual needs for individual jobs. Also, the preparation of specific policy guidelines on test modifications is to be commended. (On the Federal side, we only look at job accommodations when we have been specifically requested to do so by an agency.) Finally, the willingness to work with employing agencies in locating jobs is very favorable.

While we have never kept track of the number of accommodated tests we have administered in the Federal civil service, I suspect that it is close to that found in Pennsylvania, i.e., 500 to 600 per year. The increase in the number of placements over the past three years attests to the success of the state's program.

New York appears to be doing an excellent job of test modification and is doing the work quite systematically. Since 1980, the test development staff, as in Pennsylvania, has taken responsibility for modifying its tests. The policy statement the state has developed is excellent and should be adopted by all employers.

I noticed that New York averages about 500 people per year who request accommodations. This again is similar to the number who request accommodations in Pennsylvania and for the Federal civil service. I was surprised that most accommodations related to accessibility and/or seating (77%). I do not know the percentage of Federal applicants who request such accommodations but I suspect that it is much smaller. I was surprised that the bulk of the accommodations were for clerical jobs since New York tests a far greater percentage of professional, technical, and administrative jobs than does the Federal government.

These presentations have described the state-of-the art in test modifications for the disabled. Next, we need to focus on modifying the jobs themselves and in changing employer attitudes towards hiring and promoting the disabled. Clearly, when one studies the demographic situation we now face with the rapidly declining population of new entrants to the work force, the disabled are a key resource which must be drawn upon in order to meet our society's need for employees.

We do have some statistics as to the number of disabled people in our society. However, these data are not as complete as we would wish; for example, questions on disability are not included in the regular Census. Questions are included periodically in the Current Population Surveys of the Census Bureau. Also, the Public Health Service periodically asks questions concerning disability in its National Health Survey of 41,000 randomly selected families. These two sources of data show that there are approximately:

	Age 17-44	Age 45-64
Vision impairments	2.9 million	3.0 million
Hearing impairments	3.5 million	5.4 million
Speech impairments	.6 million	.3 million
Paralysis (complete or partial)	.4 million	.5 million

We know from our review of the Federal work force that there are a great many disabled persons working within the civil service. In 1986, we found that 6.6% of the Federal employees had one or more major disabilities. We also know that the employment of these individuals was not consistent across the Federal government; in fact, a few agencies accounted for almost all of the disabled employees. This means that there may have been selective differences in managements' perception of the worth of disabled employees. We know that attitudes can be changed; therefore, this is an area in which we must move aggressively or we will find ourselves and the disabled severely shortchanged.

Section 4 - Discussion From A Consumer's Professional Perspective

By Lorne Daley

It seems that professionals in the personnel field in the United States have made significant inroads on the problem of test accommodation for disabled persons. We are also looking at this issue in Canada. The foregoing sections by Dr. Nester and Messrs. Schneider, Dollard and Kraft indicate that a great deal of work and thought has been done on this topic. However, I feel that work in this area is still in its infancy, and further study and development are required. The fact that people are looking at this area is, however, very encouraging.

I appreciate the opportunity to take part in this dialogue since it concerns an area which is very important to disabled persons. Being in the personnel and employment equity field myself, I can relate to the time, effort and resources required to make these accommodations. On the other hand, as a consumer, I can well understand and appreciate the need of disabled persons to be equally evaluated and compared to their non-disabled peers in a fair, sensitive and responsible manner.

ACCOMMODATIONS, APPROPRIATENESS AND VALIDITY

The accommodations proposed in the earlier sections and in the Appendix only skim the surface. There is a need for further study in the area of test accommodations for disabled persons, particularly where the modified tests have not been validated for the disabled population for whom they are intended. Validating the tests is and will continue to be a problem in itself until norms and standards of performance related to each disability or disability-combination can be established. There are numerous categories of disability, and within each category there are a variety of functioning levels which vary not only from individual to individual, but also from day to day in some cases (e.g., visual acuity in a visually disabled diabetic). Therefore, in order to set standards, we have to know what the typical performance is for a group of disabled people with similar disabilities and similar functioning levels.

Total accommodation is virtually impossible in many cases. For example, in modifying a test to accommodate a blind person, it would be difficult for a test developer to deal with aspects that involve eye-hand coordination skills, or concepts that are visually learned such as "a body of water," "clouds," "shadows," the height of a building, etc. Not only will a congenitally blind person grasp a concept differently from a sighted person, but he or she may also comprehend it differently from other blind persons. Evidence of this may show up in seemingly inappropriate responses to word associations.

While there are a variety of communication media, especially for the visually- and hearing-impaired individual, proficiency in their use varies considerably from individual to individual. Since I can testify from personal experience, I will mention some of the limitations of braille, audiotape and live-readers.

First of all, less than five percent of blind persons in Canada can read braille at all. My skill in the use of braille varies from that of another user. It is a tactile medium and, therefore, scanning is difficult and time consuming when one must refer to an item on another page, or even elsewhere on the same page. Furthermore, material produced in braille is very bulky and cumbersome. Charts, graphs and tables are not easily presented in braille, and, as Dr. Nester points out, are difficult to convey and to grasp. With respect to embossed figures, construct-based reasoning tests have been substituted as a measure of the person's ability to reason. As Mr. Kraft notes in his section, perceiving something through the tactile sense cannot be compared to perceiving something visually.

In one of the earlier sections of this volume, a concern is raised about testing the knowledge of the live-reader rather than that of the disabled candidate, and the alternative use of audio-tapes, or, at least, trained readers is recommended. Audio-tapes present some difficulty in scanning and retrieval of material from various places in the text and then returning to the point of diversion. In using audio-tapes, one is subject to a rote procedure of reading.

On the other hand, the use of live-readers also presents problems. The live-reader must be cautioned not to convey his or her personal ideas or knowledge of the subject. But -- at the same time -- the live-reader must know the needs of the disabled individual, and have the necessary technical knowledge of the subject matter (e.g., statistical notation and symbols) in order to read the test material correctly and fluently. The live-reader should be able to read and articulate well. He or she should try to adapt to a rhythm and speed matched to the needs of the disabled individual. It is important that the reader comprehend the material being presented in order to facilitate referral to other sections or concepts in the text. Frequently a visually disabled person must concentrate not only on the subject matter but also location in the text in order to direct the reader to the required information or place in the text. This does affect the candidate's ability to concentrate on the subject matter.

Another section discusses the use of equipment as a means of test accommodation: for example, braillers, tape recorders, etc. While this is a good idea, equipment can break down or be in a poor state of repair, making its use difficult and frustrating. It is important to ensure that the equipment provided is well maintained and in good operating condition at all times. Asking the applicant to bring his or her own equipment for test use can sometimes pose a problem for the disabled person. If I was asked to bring my talking computer to a test session, transporting it would be expensive, time consuming and cumbersome.

Dr. Nester recommends extending the time for the learning disabled during testing, and points out that there are many types of learning disabilities to consider. I concur that time should be extended, and recommend that it be extended for the sensory disabled as well. To compensate for the inherent difficulties of reading, candidates with these types of disability should -- depending on the type of test -- be given either sufficient time to complete the test, or one and a half times the normal timing, whichever is more appropriate.

In his discussion, Mr. Dollard indicates that approximately one quarter of the candidates requesting accommodations do not show up to take the test. This is a significant number and should be investigated. Perhaps the test accommodations are not actually meeting the needs of disabled persons.

Mr. Dollard also makes reference to the guidelines used by the New York State Department of Civil Service (and included here in modified form in the Appendix). They are extensive and look very good. However, I think that the question of "undue burden" should be looked at carefully. Who determines that the burden is "undue"? Concerns over budgetary issues are certainly understandable and warranted, but what constitutes undue expense should be clearly spelled out. Various funding sources or other methods of dealing with the accommodation request should be investigated in consultation with the potential candidate.

In his description of the Pennsylvania program, Mr. Schneider states that while that program is currently capable of dealing with the few requests for accommodation that are currently being made, an increase in requests to four or five times the current level would result in the program's not being able to meet the need in a responsive manner, given the limitations of staff and resources. In a situation like this, where there are insufficient resources to accommodate the potential demand, I would recommend that the time and effort be put into job accommodation and finding employment for disabled persons rather than into test accommodation.

SELF-ESTEEM, SELF-IDENTIFICATION AND RELATED ISSUES

The self-esteem of disabled people is positively affected by their experience and involvement in the community. A study which I co-authored a few years ago found that disabled people who participate in community activities and sports had significantly higher self-esteem than those disabled persons who are restricted to institutional life.

The unemployment statistics are high for disabled persons in Canada. A significant number do not participate in community activities for various reasons, including the lack of discretionary funds. This is not surprising, nor is the fact that many of the unemployed disabled are also the inactive disabled, or that some are disadvantaged by a lack of confidence in themselves. Their own achievement and expectations are not high enough to drive them to succeed in the job hunt.

The three test-accommodation programs described earlier in this study all depend upon self-identification by the disabled applicant and a request for test accommodation. We must recognize that there remain a variety of attitudinal barriers in our society, as well as varying degrees of personal acceptance of disability by the individual. These factors could limit self-identification in some cases, particularly if the disability is not visible. For these reasons, the disabled person may not apply for accommodation and may try to "wing it" on the non-accommodated test, thereby further handicapping him- or herself in the process.

Mr. Schneider, in his section, discusses individual requirements in test accommodation, and how the disability impacts on the job. Again, the disabled person may not want to admit the full impact of his or her disability and will, instead, downplay the disability or his or her needs in order to win in the competition for a job. Or, they may believe that if they are seen as asking for too much in the area of job accommodation and/or personal requirements, they risk not even getting a chance at the job.

KNOWLEDGE AND INPUT

Dr. Nester mentions that persons designing test modifications should be aware of the disabling or handicapping condition and the effect it has on performance. This will probably require the services of knowledgeable consultants in most cases. I feel that input from the consumer/applicant should be taken into account as well. Besides knowledge of the disabling condition, the test modifier should also have an awareness of and sensitivity

to the needs and abilities of disabled persons. The orientation and training of test monitors and test center supervisors mentioned by Mr. Dollard is an important point. A portion of the orientation for these people should include awareness and sensitivity exercises, as well as "perception and attitudes" workshops to dispel myths and misinformation.

IN SUM ...

Despite the effort, imagination and resources that are being put into accommodating tests for the disabled and which are reflected in the earlier sections of this paper, I continue to feel that "tests," generally speaking, are a barrier to employment for many disabled persons. The significant factors to consider when placing someone in a job are the relationship among the individual, the system and the environment. In other words, there should be a holistic and common sense approach to placement. Tests measure one component only -- the individual. Relying on tests alone in job placement is not congruent with the holistic approach necessary for successful placement. Therefore, until a set of norms and standards based on the various functioning levels of the disabled population are developed, the main effort should be devoted to finding jobs for disabled persons. After all, it is performance in the job that ultimately matters.

Selected References

-- Education of the Handicapped Act of 1975. 20 U.S.C. 1401 et. seq.

-- Implementation of Executive Order 12250, Nondiscrimination on the Basis of Handicap in Federally Assisted Programs. 29 CFR 41.

American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (1985). Standards for educational and psychological testing. Washington, DC: American Psychological Association.

Braun, H., Ragosta, M., & Kaplan, B. (1986). The predictive validity of the Scholastic Aptitude Test for disabled students. ETS Research Report 86-38. Princeton, NJ: Educational Testing Service.

Centra, J.A. (1986). Handicapped student performance on the Scholastic Aptitude Test. Journal of Learning Disabilities, 19, 324-327.

Heaton, S.M., Nelson, A.V., & Nester, M.A. (1980). Guide for administering examinations to handicapped individuals for employment purposes (PRR 80-16). Washington, DC: U.S. Office of Personnel Management.

Jones, D.H., & Ragosta, M. (1982). Predictive validity of the SAT on two handicapped groups: The deaf and the learning disabled. ETS Research Report 82-9. Princeton, NJ: Educational Testing Service.

Maxey, J., & Levitz, K.S. (1980). ACT services for the handicapped. Paper presented at the meetings of the American Association of Collegiate Registrars and Admissions Officers, New Orleans, April 1980. Cited in Bennett, R.E., Ragosta, M., & Stricker, L.J. (1984). The test performance of handicapped people. ETS Research Report 84-32.

Nester, M.A. (1984). Employment testing for handicapped people. Public Personnel Management, 13, 417-434.

Nester, M.A., & Sapinkopf, R.C. (1982). A Federal employment test modified for deaf applicants. (OPRD 82-7). Washington, DC: U.S. Office of Personnel Management.

Ragosta, M., & Kaplan, B.A. (1986). A survey of handicapped students taking special test administrations of the SAT and GRE. ETS Research Report 86-5. Princeton, NJ: Educational Testing Service.

Sapinkopf, R.C. (1978). Statistical characteristics of the written test for the Professional and Administrative Career Examination (PACE) for visually handicapped applicants. (TM 78-1). Washington, DC: U.S. Civil Service Commission.

Tillman, M.H. (1973). Intelligence scales for the blind: A review with implications for research. Journal of School Psychology, 11, 80-87.

U. S. Civil Service Commission. (1956). Tests for blind competitors for trades and industrial jobs in the Federal service. Washington, DC: Author.

Willingham, W.W., Ragosta, M., Bennett, R.E., Braun, H., Rock, D.A., & Powers, D.E. (1988). Testing handicapped people. Boston: Allyn and Bacon, Inc.

2. Partially sighted - These candidates may be legally blind but have sufficient residual vision either to read printed material with the aid of enlarging devices or, as a minimum, to see the pattern or layout or graphs, charts, diagrams, etc. (possibly specially drawn on an enlarged scale with dark lines). Their vision may be limited in such a way that they can use it only in parts of the test and will need a reader or other aural means for the rest of the test.

Reasonable accommodations:

- brailled booklets
- tape recorded booklets
- large-type test materials
- mechanical enlarging machines and other magnification equipment
- a reader
- an amanuensis
- recording device for recording answers
- manual brailler for note taking*
- calculating devices such as abacus or "talking" calculator*
- use of personal tape recorder for note taking (tape to be furnished by and returned to Civil Service)*
- "magic marker" or black crayon for note taking*
- provisions for special lighting
- extra time
- individual monitor
- test centers accessible by mass transit

* To be provided by the candidate

3. Limited vision and specialized visual problems - These candidates typically handle reading tasks without special mediation but may encounter problems with certain types of printed material (e.g. very small or closely spaced type). Also included in this group are those who are color blind, have sudden periods of vision loss or have unusual eye problems.

   Reasonable accommodations: To be determined on a case-by-case basis.

B. Hearing impaired

For testing purposes these candidates fall into two categories:

1. Prelingually severely hearing impaired (prior to development of normal language facility) - These candidates may have limited language concepts that handicap them in comprehending some materials in standard English. They usually receive instructions either in print or through sign language, which may be furnished through an interpreter for the deaf who actually translates standard English into the language familiar to the deaf.

   Reasonable accommodations:

   - written instructions for all parts of the testing session
   - extra time
   - individual monitor or other special attention to assure that the candidate has grasped instructions
   - interpreter if requested, available, and appropriate

NOTE: An interpreter for the deaf may interpret all oral and written test instructions including internal directions. Specific instructions for interpreters should be provided if test material is to be interpreted.

2. Hearing impaired after development of normal language facility. These candidates usually function in the same way as non-disabled candidates with respect to written material but must receive some accommodation with respect to oral test instructions. They should be routinely seated where they have a clear view of the monitors giving instructions.

Monitors for hearing impaired candidates should be screened and briefed on their responsibilities.

Reasonable accommodations:

- written instructions for all parts of the testing sessions
- interpreter
- special seating as appropriate

C. **Print disabled other than visually disabled (This may include the learning disabled.)**

These candidates are disabled in processing information from the printed page. They vary in the degree of their disability and its consistency from day to day.

Reasonable accommodations:

- a reader
- tape recorded booklets
- extra time
- individual monitor
- amanuensis
- recording device for recording answers
- use of personal tape recorder for note taking (tape to be furnished by and returned to Civil Service; recorder to be provided by the candidate)

D. Manipulative/writing disabled (This may include the learning disabled.)

For testing purposes these candidates require accommodation only in the recording of their responses, not in reading the test questions.

Reasonable accommodations:

- amanuensis
- recording device for recording answers
- typewriter
- extra time
- individual monitor
- "magic marker" or black crayon for note taking*

E. Candidates with disabilities relating to use of time

For testing purposes these may be candidates with limited physical tolerance who need rest periods during the total test time, candidates whose disabilities reduce available test time because of such things as a need for frequent elimination, a need for change of position, etc.

Reasonable accommodations:

- special timing (e.g., ten-minute rest period during each hour plus 30-minute rest period after three and a half hours), rest periods not to count toward total test time allowance
- breaks for use of toilet facilities, time not to be counted toward total test allowance
- individual monitor

* To be provided by the candidate

F. Mobility disabled candidates

For testing purposes this group includes candidates whose disabilities limit ambulation and/or ability to drive a car.

Reasonable accommodations:

- test facilities accessible to persons with mobility disabilities (ambulatory or in wheel chairs)
- parking arrangements
- toilet facilities accessible to persons in wheelchairs
- table or desk at appropriate height and with sufficient clearance to permit comfortable work for a person in a wheelchair
- sturdy armchair and table for person ambulatory with crutches, canes, etc.
- test center accessible by mass transit
- testing rooms as close as possible to entrance and elevators

NOTE: Some candidates will drive and need parking arrangements; others who are unable to drive may be able to use mass transit; still others must be transported to the test center. The candidate's travel plans should be verified to assure reasonable accommodations.

G. Debilitating Conditions

Persons with conditions which tend to impair their strength or other faculties -- either chronically or on an occasional or temporary basis -- but who can perform the required duties of a job are protected under the Federal Rehabilitation Act of 1973. Examples of such conditions are the weakness or fatigue or loss of vision found in some persons with the Acquired Immunodeficiency Syndrome (AIDS) and related illnesses. While most persons with a debilitating

condition will not require test accommodation, some will manifest disabling conditions similar to those discussed above (including vision-related disabilities or disabilities relating to the use of time), and should be accommodated accordingly. It should be noted that although heart disease, diabetes and cancer are well recognized chronic conditions, AIDS is increasingly becoming a chronic condition with which individuals can be expected to live productive lives for several years after diagnosis.

V. Written Test Modification - In the case of disabled candidates for whom accommodation on the job is likely, equivalent modification of test material is appropriate. Although each case should be evaluated on an individual basis, the following guidelines should be considered.

A. Test Modification

1. Test material may be deleted if it relates to specific job functions likely to be substantially restructured, or removed from the job.

2. Test material which presents a clearly impossible task for a disabled candidate should be deleted or replaced if the validity of the test can be maintained.

3. If alternate test material is available which can be used to fairly assess in the disabled candidate the knowledges, skills and/or abilities which would be assessed in the non-disabled by a testing method inappropriate to the disabled candidate, the alternate test material should be used.

B. Scoring Modified Tests

Whenever a test is modified to accommodate the needs of a disabled candidate, the score yielded by the modified test must be adjusted in order to place it in its appropriate place in the distribution of scores on the unmodified test. The following formula should be used for adjusting scores:

$$\frac{\text{Raw Score on the modified test}}{\text{Maximum possible score on the modified test}} \times \text{Maximum possible score on the unmodified test}$$

VI. Accommodation of Non-written Tests

Although most requests for accommodated testing involve written tests, other test modes may present serious difficulties for certain candidates. Accommodations involving these other test modes should meet the same tests as accommodations involving written tests. In all cases the goal is to maintain the competitive nature of the selection process.

A. Oral Examinations - These examinations are likely to pose problems for the hearing impaired and those with certain kinds of speech impediments. Any of the accommodations listed in the section on the hearing disabled should be appropriate. In addition, oral examination questions should be provided to hearing impaired candidates in hard copy. In the case of speech impaired candidates, special care should be taken to select oral examiners who will be understanding of the disabling condition, and be able to fairly evaluate the candidate's responses.

B. Performance Tests - The physical needs of disabled candidates taking performance tests should be taken into account in the same manner as for written tests. However, because performance tests generally approximate actual tasks performed on the job, modifications or adjustments to test materials must be subjected to close analysis before implementation. Only those modifications that match modifications that are likely to be made on the job should be considered.

C. Ratings of Training and Experience - Disabled candidates may require the same assistance in filling out questionnaires or applications that they do in taking a written test, and the same types of accommodations are appropriate.

VII. Time allowances - Consistent with the nature and purposes of the test, additional time will be provided for disabled candidates to complete a written test when necessary to assure equitable competition with non-disabled candidates.

A. Power tests

A power test is one in which speed is not a major consideration in rating and all or nearly all candidates are expected to be able to complete the test within the time allowance. Maximum time allowance for disabled candidates for a power test will be set according to the following guidelines.

1. Disabled candidates who are deemed to need additional time to complete a written test or combination of tests will be allowed double the regular time allowance provided for other candidates.

2. The double time allowance will be computed on the basis of the tests the candidate is actually taking, not the total group of tests included in a package which has an overall time allowance.

3. The maximum testing time allowed on any one day is eight hours.

4. The maximum total testing time for disabled candidates for any and all tests scheduled for the same date is 16 hours.

5. If the time allowance for a disabled candidate is more than eight hours but less than 16 hours, the total testing time will be divided into two testing sessions, with the length of the sessions to be determined by the agency; but no single session shall be longer than eight hours.

6. If the maximum total testing time requires more than one day of testing, the candidate may continue work until the end of the maximum time allowed for the first day's session even though this may result in stopping work in the middle of a test booklet. Under such circumstances the candidate will be required to sign a written affirmation that s/he has not used the intervening time to discuss the test material or to research answers to the questions which s/he has already seen.

7. Candidates taking a combination of unrelated examinations for which the written tests are scheduled on the same day(s) will be allowed to choose the order in which they wish to take the written tests. The time allowance for the combined examinations should be considered carefully, and should factor in the needs of both the candidate and the employer. The time allowance for a disabled candidate should never be less than that for a non-disabled candidate, and will usually not be more than double that allowed for a non-disabled candidate.

B. Speeded tests

A speeded test is one in which most candidates are expected to answer correctly all items which they attempt, but not all candidates are expected to attempt all items because of the limited time allowance to complete the test.

Speeded tests introduce elements that cannot readily be reduced to a set of guidelines designed to cover candidates with a variety of disabling conditions. Accordingly, the means of handling speeded written tests for disabled candidates will, for the present, be determined on a case-by-case basis.

VIII Sharing of information and responsibilities

Arrangements for testing disabled candidates are the responsibility of the professional testing staff. Where necessary and appropriate, the assistance of the Affirmative Action Office may be requested to aid in making determinations or arrangements.

A. To facilitate the process of making accommodations, information on test content should be available:

1. the number and type of questions (e.g., 60 multiple choice, three essay)

2. whether the test includes tables, charts, diagrams, graphs, or other pictorial material

3. whether the test includes lengthy narratives (e.g., reading comprehension, etc.)

4. Whether the test includes lengthy or detailed instructions or reference material (e.g., record keeping, legal opinions, etc.)

5. whether the test requires the candidates to take notes, maintain records or complete forms (e.g., certain types of clerical processing and record keeping materials, paragraph organization, etc.)

6. whether the test includes coding operations (e.g., name and number checking, certain types of clerical processing and record keeping, combination/permutation question format, etc.)

7. whether the test requires computation (indicate the type of computation to be made - e.g., four basic arithmetic processes, solution of simultaneous equations, etc.) and whether hand-held electronic calculators are permitted

8. whether the test requires the candidate to use supplementary reference materials (e.g., trig tables, summaries of regulations, etc.) and whetehher the candidate is permitted or required to provide his/her own copy of the material

9. whether the test contains unusual or cumbersome formats (e.g., fold-out pages, color-coded pages, etc.)

10. whether the test contains separately timed test booklets and/or speeded test components

11. the time limit for the disabled candidate

12. the time limit for non-disabled candidates

B. The Affirmative Action Office should be consulted when necessary for assistance in identifying or obtaining appropriate accommodations, resolving unusual testing problems, and advising as to what constitutes "undue hardship."

In order to gain an understanding of the test material necessary for making arrangements for appropriate accommodations, it may be necessary for the Affirmative Action Office to see the actual test or representative sample test materials subject to normal test security constraints. Under no conditions should the details of the test, subtest or item contents be discussed with the candidate.

IX. Alternate test dates

If reasonable accommodation is possible but, through no fault of the candidate, the agency cannot provide that reasonable accommodation on the regularly scheduled test date, the agency shall schedule the affected candidate for an alternate test date, which shall not be more than one month following the regularly scheduled test date.

X. Temporary Disabilities

A. Reasonable accommodation that does not require excessive expense to the agency will be provided to candidates who are temporarily disabled, upon documentation of their need. Such accommodations may include such items as a physically accessible test site, table and chair instead of student desk, or amanuensis.

B. More extensive accommodation will not normally be provided to candidates who are temporarily disabled. When special circumstances justify providing more extensive accommodations, the candidate may be required to bear the expense.

XI. Test Administration

Patience, tact and special care are needed in administering selection instruments to any population, but this is especially true with populations whose needs go beyond the normal test anxiety and confusion resulting from dealing with unfamiliar, complex, even arcane procedures and routines. Issuing test materials, giving instructions, and answering questions all require special attention when working with disabled candidates, particularly those with sensory and/or learning disabilities.

Test monitors should be carefully selected with this in mind, and should be trained appropriately. Test monitors should never be selected "because they are available"; they should be selected because of special skills, and demonstrated ability to empathize with and assist disabled candidates.

In selecting readers, interpreters for the deaf, or test monitors for the hearing impaired avoid persons with beards or mustaches, or who wear dark glasses or other items which might mask facial expression.

XII. Miscellaneous arrangements

A. Audiotape players - Candidates using tape players should be assigned to rooms with electric outlets or should be advised prior to the test date to bring battery-powered equipment.

B. Separate rooms - Candidates using a reader, amanuensis, or technical equipment that might disturb other candidates or interfere with standard testing conditions for other candidates should be assigned individual rooms.

C. Guide dogs - Local supervisors and monitors who have candidates who use guide dogs should be alerted to their responsibility to arrange with these candidates for appropriate breaks in testing time for the physical needs of the dogs.

XII Exceptional situations

Testing problems which cannot be resolved through accommodation should be thoroughly evaluated by the responsible professional staff and/or outside consultants in an effort to reach an appropriate solution to the selection problem involved.

ipmaac
June, 1988