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Canada

**The Integration of the Visually Impaired
into the Automated Office:
A Needs Assessment**

Mary Margaret Wheatley

**A Thesis
in
the Department
of
Education**

**Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montreal, Quebec, Canada**

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ABSTRACT

The Integration of the Visually Impaired
into the Automated Office:
A Needs Assessment

Mary Margaret Wheatley

Computer-based technology has given the visually impaired the technical means to function competently, productively, and competitively in the automated office. Through the use of needs assessment techniques, this qualitative study has gathered information about the integration of the visually impaired into the automated office in order to identify existing problems and then make recommendations to facilitate/improve the process of integration. The researcher interviewed 19 visually impaired employees, 18 employers of the visually impaired, and 11 co-workers in either Montreal or Ottawa using taped, telephone interviews based on 3 separate questionnaires developed for the study. The main findings show that most of the employees in the study are well-adjusted, exceptional individuals who are well-integrated into their offices and are perceived as performing well in spite of inadequate training; most employers are very satisfied with employees' job performance; employees need more job-related training courses/programs, and more accessible/appropriate equipment and materials. All 3 groups perceived that the sighted in the workplace need to

be sensitized to the special needs and capabilities of visually impaired employees; personal contact with the employee has changed the attitudes of employers and co-workers in a positive way. Among the recommendations that conclude the study are those for sensitizing the sighted in the workplace, and for improving the opportunities for technical skills training.

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I also owe sincere thanks to my good friends Jeannine Seguin for translating the questionnaires into French, and Janet Belzile for helping to transcribe the interviews and for proof-reading the final document.

Last but not least, my deepest appreciation goes to my family, especially my husband, for unwavering support and encouragement throughout the project.

The great law of culture is, Let each become all that he was created capable of being; expand, if possible, to his full growth; resisting all impediments, casting off all foreign, especially all noxious adhesions; and show himself at length in his own shape and stature, be these what they may.

Carlyle (1827)

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CHAPTER 1

Introduction

The modern world has been captivated by computer technology which it views as nothing short of miraculous; a technology which has put man on the moon and which astounds as it forges new frontiers. It fascinates because of its seemingly limitless possibilities and versatility. People want to believe that the arrival of the new technology marks the beginning of a new age of prosperity, productivity, and opportunity. For the visually impaired, that new age has begun because the new technology has already shown itself responsive to "communication problems which are a central feature of their disablement" (Vincent & Vincent, 1986, p.74). There is no doubt at all that computer-based technology has given the visually impaired the technical means whereby they can function productively in an automated office setting. However, there is some question as to whether the process of their integration into that environment is allowing them to work to potential to become competitive, creative, productive employees (Wheatley, 1986). Funk (1986) explains that "we have new tools, wonderful tools, but the task is still the same. It is attitudes, perceptions, priorities which are most urgently in need of change" (p.76).

Background

Until 1834, the visually impaired were virtually totally dependent upon the charitable nature of their families and the communities in which they lived. Very few would have been self-sufficient and thus able to enjoy an independent existence. However, thanks to the introduction of the revolutionary system of "writing" and printing called Braille, that situation of total dependence on the community was altered drastically. They had always been able to communicate with others orally, but the development of Braille brought with it the opportunity of communicating with others using a system of embossed symbols as a form of writing. As a result, they could exercise a previously unheard of measure of independence. Although there are visually impaired people who cannot use Braille, and although few sighted people ever learn to use it, it is still considered a powerful and very useful medium of communication.

Like Braille before it, the new computer technology is being heralded as a liberating force by the visually impaired, but one of far greater consequence. Scadden (1986) very convincingly describes the impact of computer-based technology on the visually impaired as follows:

Blind individuals ... who have no problem with data entry when using a standard keyboard, require means to access the information normally displayed visually on a video screen or the printed page. Braille displays and synthesized speech systems are now becoming common, if not always inexpensive. These are beginning to provide the highest level of equality between blind and sighted peers in tasks requiring independent access to, and manipulation of, alphanumeric information. The computer neither has prejudice nor preference as it relates to the physical characteristics of the individual user or the mode of information display. I know that I have the highest level of independence in the acquisition to, and creation of, written information that I ever had as a blind professional or prior as a blind student. Microcomputers, braille and speech displays, and the regular exchange of text files on disk, are providing me with this newly acquired independence. Now, optical character recognition systems are providing glimpses of expanded independent, productive activity in the future. (p. 45-46)

In terms of independence and self-sufficiency, the new technology has enabled the visually impaired to make a quantum leap forward because it has created employment

possibilities where none existed previously. According to Morris (1985), the disabled person seeks work "to maintain dignity and a meaningful role within the community, to have a purpose in life" (p. 12) just as sighted people do. Fortunately, what is being recognized and accepted little by little in our society is that disabled individuals are capable of contributing to society if only they are given the chance. The federal government's Public Service Commission is leading the way with its Access Program created to help people with disabilities apply for jobs (see Appendix J).

For the visually impaired who are interested in and motivated to do that kind of work, employment in the information processing field appears to be tailor-made. According to labour market forecasters and employment trends, there will be a steady increase in the number of positions available in the information handling services over the next few years (Beard, 1985; Scadden, 1986). According to Jan Duffy (1990), an office systems analyst, "for many organizations, the '80s have been a positioning decade. The information systems foundation was laid. And now as we move into the '90s, those organizations are poised to start taking real advantage of the technology. . . . People are starting to look at office technology as more than a labour-saving device. They're starting to look at office technology as something that will help change

the way they do business--and also add to the businesses that they do" (p.13). The visually impaired appear to have unlimited opportunities available to them in the information processing field.

Agencies such as the Montreal Association for the Blind (MAB), Institut Nazareth et Louis Braille (INLB), and the Canadian National Institute for the Blind (CNIB) provide essential services for their visually impaired clients which include employment services and training courses. Once the potential was recognized for their clients' employment in automated offices, some agencies quickly put together training courses on their own and began to provide technical skills training using automated equipment with the adaptive device(s) required (Wheatley, 1986). With new opportunities to develop their technical skills and the implementation of affirmative action programs sponsored by both government agencies and private businesses, some visually impaired persons who were already employed in offices have been retrained for work in automated offices at the same time that growing numbers of others have begun to be employed in that environment.

Rationale

The new technologies have provided the visually impaired with a remarkable opportunity to become

independent and self-sufficient to a previously unheard of degree. If the individual is allowed to prove him/herself, the potential benefits are enormous because both he/she and society stand to gain greatly. A confident, independent, self-sufficient individual can be a creative, productive, contributing member of society rather than a financial and social liability. In Canada, according to the 1986 census, 552,580 persons, aged 15 and over, reported having a visual disability (Health and Activity, 1988, p.29). Even if only one quarter of these individuals were employable, offering them opportunities for education/training in office automation skills would make good sense from a societal point of view.

Role of Educational Technology

Since educational technology, by nature, concerns itself with "improving opportunities for personal and cultural development" (Mitchell, 1986), it is eminently suited to play a significant role in the development of visually impaired employees who are capable of functioning competitively and productively in the automated office. As defined by Mitchell (1981), educational technology is an "area of study and practice (within Education) concerned with all aspects of the organization of educational systems and procedures whereby resources - human, material, electromechanical, monetary, and knowledge - are

allocated to achieve specified and potentially replicable educational outcomes" (p. 12). Its focus on a holistic, systems approach is vital to any study of the current state of affairs for the visually impaired in the automated office setting.

Coping with the new technologies is usually much more frustrating for the visually impaired than for sighted people. Although both must contend with fragmented training and information, often inadequate, poorly written documentation, and a lack of competent technical support, the latter have the additional problem of learning how to use the adaptive devices which provide the key that allows them access to the conventional hardware and software used by the sighted population. They are coping, for, in spite of enormous difficulties, visually impaired employees are now using automated equipment in offices.

According to Braham (1973), functioning as agents of change is a prime concern for educational technologists. In such a capacity, educational technologists can work to eliminate the fragmented kind of information being offered to the visually impaired by using a systems approach to problem solving, an approach that necessarily begins with a needs assessment.

Requirement for Needs Assessment

This study is a needs assessment which deals with the integration of the visually impaired into the automated office. According to Kaufman (1982), a needs assessment is " a formal analysis that shows and documents the gaps between current results and desired results (ideally concerned with gaps in the outcomes); arranges the gaps (needs) in priority order; and selects the needs to be resolved" (p. 75). With the information that was obtained in the interviews, the current situation has been compared with the desired situation as seen by the visually impaired, their employers, and their co-workers. The needs were then identified, and recommendations were made for changes and/or improvements that can narrow the gap between the two situations.

The problem identification approach to needs assessment described by Mayer & Kaufman (1985, cited in Mayer, 1986) begins with no assumptions about possible problem areas and for this reason is considered to be the most accurate approach for assessing needs. The problem analysis approach is considered to be less accurate than the former because it "focuses on analysing pre-determined problems without questioning the validity of these problems" (Mayer, 1986, p.122). Nevertheless, it is being used for this assessment because it is the more appropriate of the two approaches.

When one considers the employment of the visually impaired, several questions come to mind immediately: How adequate is their preparation for work in such an environment? What are the attitudes of employers and co-workers toward the handicapped employee and have they changed over time? Are the visually impaired really able to compete with their sighted co-workers? The researcher began the study making assumptions about problems that the visually impaired experience as they are integrated into the automated environment. It was assumed that those problems may have been the result of inadequate job preparation for the employee and negative attitudes on the part of employers, co-workers, and even the visually impaired employees themselves.

To date, there is very little information on the experiences and views of the visually impaired, and their employers and co-workers as they relate to the work of the former in the automated office environment, but some does exist. In 1985, Beard wrote almost pessimistically about the future of the visually handicapped as word processors using the adaptive devices, then available, which could not be interfaced with the existing wordprocessing equipment in order to share disk files. Unless the visually impaired were able to share disk files, a capability considered essential to the concept of office automation, it was obvious that their days as word

processors were numbered. Today, five years later, the technical capability exists for the visually impaired to function as capably and independently as word processors as their sighted counterparts can (Essenburg, 1986). Whether they can do so effectively and efficiently can best be determined with a needs assessment.

Competition

What is it that determines whether the visually impaired will be able to function successfully in the automated office? In a recent survey of automation in Canada, Betcherman & McMullen (1986) point out that "high tech in the office - particularly word processing, PCs, and networks - was driven quite simply by productivity concerns" (p. 32). It is reasonable to expect that, with the employers focussing so intently on productivity, the performance of all employees, including the visually handicapped, is going to be measured in terms of their contribution to the organization's productivity. If the visually handicapped are to function successfully in the automated office, they must be able to do so competitively. Obviously, accommodation has to be made by others for the specialized equipment which the visually handicapped may have to use in their work, but their performance will have to be judged as equal (probably even superior) to that of their sighted co-workers. It follows

that if they are to be competitive in the automated office environment, (1) their education and training must prepare them to be able to function productively; and (2) the stereotyped attitudes concerning the visually impaired as employees must be changed.

Comprehensive vs Crash Training

According to Beard (1985), the training should be such that the visually handicapped person is fully competent with the device to be taken to or encountered on the job. Moreover, those involved in business education (Regan, 1982; Neil, 1984) maintain that, in addition to technical skills training using specific equipment, training for employment in the automated office must include such instruction in office procedures as business fundamentals, communication skills, personal deportment, and interpersonal skills. They emphasize that the development of skills that will enable students to adapt to a rapidly changing technology in the automated office is essential in today's office procedures training.

Training in office procedures combined with their technical training would give the visually impaired an overall view of (1) the kind of work being done in automated offices, (2) the role of their current duties in relation to the whole, and (3) the opportunities for advancement. As Bloch (1985) points out, "this new set of

tools and this new environment can bring with it more responsibility and extend (the employee's) ability to communicate more rapidly and more easily across a whole spectrum of activities" (p. 83).

At the present time, very few opportunities exist for the visually impaired to get comprehensive training in office automation skills. In his examination of the impact of computers and high technology on employment opportunities for the physically disabled, Patillo (1986) identifies a small handful of programs across the country that offer comprehensive training in computer skills. Although these programs occasionally include courses in automated office skills, they usually focus heavily on computer programming. Unfortunately, the skills required for information processing tasks in the automated office environment are very different from those used in programming.

The courses that are currently available for visually impaired individuals seeking retraining for, or employment in, automated offices have been put together hurriedly by supporting agencies trying to respond to their clients' urgent demands as quickly as possible. The challenge is enormous. Trying to interface the adaptive device with other equipment often presents problems which must be overcome before instruction for its use can be given. Many of the adaptive devices are so new and in such demand that

the instructors providing the training have had to work by trial and error using only the technical reference manuals which accompany the devices as guides because virtually no instructional materials are available. Very often those providing the training may have themselves received a little technical training in the use of a device from a vendor but have had no training in how best to deliver instruction (Wheatley, 1986). It is hardly surprising that, even after completing crash training courses, clients sometimes find that they must contact their instructors for additional help in the use of their specialized equipment.

Attitudes, Perceptions, and Misperceptions

Now that the technology exists for the visually impaired to function competently in automated offices, the needs of both the employee and the employer can be assessed, and the appropriate training can be designed and then delivered. However, even the successful completion of a superior training program which would allow the visually impaired to function as competitive and productive employees does not mean that they will be given an opportunity to work to potential. Mullins' (1984) study points out that "opportunities for visually handicapped people to move beyond the lower grades are limited. This is particularly so for visually handicapped women and

people registered as blind" (p. 36). Other studies have indicated that, generally, the visually handicapped continue to perform the same duties for which they were hired without being given the same opportunities as their sighted co-workers for training, or for lateral or upward job mobility even when they are performing their tasks as competently (Beard, 1985; Mullins, 1984).

The problem appears to be one of perception, or rather, of misperception. If the visually impaired are perceived as being capable of a limited kind of work and are continually being given that kind of work, there is no way for them to be able to work to potential and hence to be competitive. Unfortunately, society's misperceptions concerning the visually impaired may well prevent their effective and efficient functioning in an automated office environment.

The successful integration of the visually impaired into automated offices will depend, to a very great extent, on society's changing its attitudes towards the handicapped. Even with the Canadian Human Rights Commission's efforts and the Public Service Commission's employment equity programs providing support to the handicapped, attitudinal barriers are still being pushed away very slowly and with difficulty. Although people theoretically agree that the handicapped should be integrated into society, many of them display negative

attitudes when dealing with the handicapped at close quarters. These reactions appear to parallel those described by Bogardus (1923) in his social distance experiment with racial groups. He discovered that the further away one was from the object of possible discrimination, the more positive the attitude towards it; conversely, the closer one was, the more negative the attitude.

In "Jobs for People with Disabilities", Suzanne Azzie, a co-ordinator of employment services for disabled persons at the Public Service Commission summarized the situation neatly when she pointed out that "managers and other employees still have to be educated about people with disabilities. Often, fear and ignorance enter the picture because of stereotyped views prevalent in society. Once barriers are broken down, wonderful things begin to happen. Workers with disabilities can be very productive, but they have to be given a chance" (p. 14). Her views are shared by many others who have expressed the need for the development of positive societal attitudes if the visually impaired are to have the opportunity of reaching their full potential (Beard, 1985; Mullins, 1984; Scaddon, 1986; Whaley et al., 1986).

Data Collecting Process

Before one can begin to think of implementing changes to rectify problems in a system, one must first gather the information needed to identify and analyse the problems which actually exist.

In order to get different perspectives of the existing situation, telephone interviews were conducted with visually impaired employees working in automated offices and also with the employers and co-workers of visually handicapped employees working in automated offices. No attempt was made to match employees and employers. For the purpose of structuring the interviews, separate questionnaires were prepared for each of the three groups. Since the study is exploratory and descriptive in nature, the instruments used contained questions which were both closed- and open-ended. The MAB and the INLB in Montreal as well as the CNIB and the Public Service Commission in Ottawa were helpful in finding participants for the study who belonged to the target population, that is, visually impaired persons currently employed in automated offices.

Following the advice of Miles & Huberman (1984) who maintain that "in qualitative research ... there is a danger of sampling too narrowly" (p. 42), the researcher conducted both face-to-face and telephone interviews with a few resource people such as employment officers and

those providing the visually impaired with instruction in using electronic equipment.

Operational Definitions

For the purposes of this study, the term automated office refers "to an office environment in which computers and communications technology exist (not only) to support administrative procedures" (Matherly, 1986, p.40), but also other functions that are performed therein.

The term visually impaired as used in this study is a generic term for those with a sight loss, however moderate or severe. It includes those who are totally blind as well as those who are partially sighted. (Whaley et al, p. 7). It is used synonymously with visually handicapped and visually disabled.

In this study, integration refers to the successful assimilation of one or more visually impaired persons into a functioning automated office environment.

Technical training skills refers to one's ability to physically manipulate the required electronic equipment including the adaptive devices.

Attitude is used as it is explained by Oppenheim (1966) who writes that "most definitions seem to agree that an attitude is a state of readiness, a tendency to act or react in a certain manner when confronted with certain stimuli. Thus, the individual's attitudes are

present but dormant most of the time; they become expressed in speech or other behavior only when the object of the attitude is perceived" (p. 105).

Person year is a resource control term used by the Federal Government. It indicates an authority to hire an unspecified number of people for an unspecified amount of time, the total not to exceed the equivalent of one person for one year.

Conclusion

The evidence that the new technology has become an equalizing force for the visually impaired is indisputable. As more sophisticated adaptive devices appear and as the technology expands to produce mainstream equipment capable of accommodating their special needs, the visually impaired are capable of developing a range of skills using automated equipment that has the potential of soon being indistinguishable from that of sighted people. If they are to be equal in the automated workplace, they must have the benefit of quality training and opportunities for advancement. There was some doubt that the optimal situation existed to provide such training and opportunities. This study concerns itself with the integration of the visually impaired into automated office environments. Since problems appeared to exist, the

information gathered in telephone interviews, both with those directly involved and those on the periphery, was used as the basis for the needs assessment that was carried out. This needs assessment, which should be viewed as the first part of a larger study, has used a systems approach to suggest changes and/or improvements that will allow the visually impaired to use their full potential to become confident, competitive, productive employees in the automated office environment. Both the individuals and society will be the richer for it.

CHAPTER 2

Literature Review

Although the body of literature dealing specifically with the integration of the visually impaired into the automated office is small, it provided the reader with a very clear picture. Technological advances have presented the visually impaired with an incredible opportunity for independence and self-sufficiency by providing them with the means to function effectively in automated offices. Unfortunately, competent training and technical support have been sadly lacking (Beard, 1985; Essenburg, 1986; Patillo, 1986; Scadden, 1986). In addition, negative attitudes and/or a lack of awareness on the part of employers have prevented the visually impaired from performing to potential (Mullins, 1984; Beard, 1985; Langone & Gill, 1985; Whaley, Mattison, & Mullins, 1986). In addition to material concerning training, equipment, and attitudes, the literature reviewed included material that dealt with needs assessment and office automation.

Skills and Training for the New Technology

Technology has resulted in drastic changes in life and in the way work is done. According to an Economic Council Survey (Betcherman and McMullen, 1986), office technologies were expected to remain the dominant force among computer-based technologies with the share of office

networks expected to double in the near future.

Technological changes in society have resulted in the need for new and/or substantially altered vocational skills.

Bloch (1986) has pointed out that increasingly rapid technological change is having a large impact on people in the workplace. Its impact on the the visually impaired could be even greater than it has been to date. "The data show that when appropriately accommodated, workers are motivated to perform at least as well as other employees" (Tausky & Kainen, 1986 p.39).

Those who have been concerned with the employment of disabled persons have repeated the same message time and time again; education and training are key factors if the disabled are to develop the skills and abilities they need to compete successfully in the regular workplace and be independent (Patillo, 1986; Beard, 1985; Morris, 1986; Tausky & Keinen, 1986; Scadden, 1986; Bloch, 1986; Vincent, 1986). The message is exactly the same for everyone who wishes to compete in the marketplace. Education, training and retraining are essential if people are to develop not only the skills and abilities to cope in the workplace, but also the flexibility to cope with the increasingly changing environment (Bloch, 1986; Lyrette, 1986; Dennis, 1986; Pitman, 1988; Neal, 1984; Regan, 1984; Mick, 1984).

What kinds of skills were perceived to be needed for employment in automated offices? Several authors indicated that new or substantially altered vocational skills and new resources were needed because the technological change had been so rapid and because the rate of change was ever increasing (Bloch, 1986; Dennis, 1986; Betcherman & McMillan, 1986; Matherly, 1986). In order to be able to cope with personal and job-related changes in the future, the individual had to develop a capability to learn and relearn many times throughout his/her working life (Bloch, 1986). The ability to learn was critical. Dennis (1986) maintained that employees who could learn were the most valued and had the greatest opportunities for advancement. As an employer, he believed that management had to be willing to invest more time and money in helping an individual develop knowledge and skills. Although higher skill levels were obviously required to cope with sophisticated electronic equipment (Regan, 1984), basic skills such as reading, writing, speaking, and listening, as well as skills in reasoning and problem-solving were acknowledged as being extremely important (Dennis, 1986; Neal, 1984; Regan, 1984). Because jobs would involve mastering new equipment as well as utilizing skills that could not be readily automated, Matherly (1986) stressed that "people need to be taught skills that will continue

to be useful during the evolution to a more highly automated office" (p.41).

Different kinds of problems pertaining to training were also identified. Moon and Weaver (1984) blamed inadequate educational preparation for the poor language, spelling, and grammar skills of those whose employers participated in a Survey on Automation. Meanwhile, Clarke, Dechman, Drake, and Snider (1987) cautioned that negative work attitudes could arise during the implementation phase of automation unless change were introduced through a plan that included user participation and comprehensive training. Vincent (1986) referred to a funding problem. A significant amount of funding for the disabled in the U.K. had been concentrated on the provision of equipment. However, without similar funding for assessment of capability and training in particular, he concluded that the full potential of information technology would not be reached by people with special needs. In another vein, Pitman (1988) was highly critical of Canada's retraining programs because they "have never pinpointed the exact level of technological skills that industry needs. We have trained, retrained, and trained again without knowing what we are doing. We have raced from one fast fix to another instead of developing the skills of our people" (p.A7). Menzies (1989) substantiated Pitman's argument by referring to case studies that detected a distinct

cleavage between the type and quality of training among demographic groups. "The training for clerical staff, both in government offices and business was inadequate and restricted to imparting technical operating skills, not thinking conceptual skills. . . . Theory and concepts are reserved for more in-depth professional and management courses" (p.207). The author concluded that the disparities in training and a growing emphasis on academic credentials had contributed to the polarization of professional and technical staff, creating a two-tiered society.

Productivity

The question of productivity is at the heart of the integration of the visually impaired into automated offices. Can they be as productive as their sighted peers? The Economic Council Survey (Betcherman & McMullen, 1986), and others (Deschenes, 1987; Clarke et al., 1987) observed that high tech in the office - particularly wordprocessing PCs and networks - was driven by productivity concerns. Most of those who wanted technological change in the automated office believed that it would increase productivity. Others argued that technology would not increase productivity because it focused on speeding up existing procedures rather than identifying new procedures that capitalized on technology (Regan, 1984). Improvements

in productivity were determined when decentralized management strategies were used (Drucker, 1982; Clarke et al., 1987). Deschenes (1987) pointed out that effectiveness lay less in machines than in the use made of them; unfortunately, technology was rarely exploited to its full potential. Katzan (1982) concurred saying that, "No matter how the terms are defined, office productivity has three dimensions: technical, behavioral and managerial. It is impossible to implement an effective office automation program without education, training, and planning in all three" (Preface).

Based on her research findings, Regan (1984) believed that by focussing on quantifiable benefits (productivity), organizations might be overlooking benefits such as improved decision making, better coordination between functions, and reduced duplication of effort. The results confirmed the importance of human issues in office technology and suggested that the human factors go beyond engineering of equipment.

Equipment

Most of the material concerning equipment emphasized that it had to be appropriate. Computerized work stations would lose much of their value if they could not be interconnected (Martin, 1983). There was little point in using equipment that could not communicate with others,

especially if one were expected to be competitive with one's sighted peers (Beard, 1985; Morris, 1986; Patillo, 1986). Moreover, Scadden (1986) insisted that if the disabled were to be able to keep abreast of the rapidly changing technology and remain competitive with their sighted peers, then it was imperative for them to have ensured access to future generations of computers.

Attitudes

Literature pertaining to the attitudes encountered by the visually impaired in an employment situation was scarce. One study showed that finding work was difficult for 20% of the group because of narrow-minded attitudes toward the visually impaired that extended to local and central governments, and caring agencies (Whaley et al., 1986). A second study found that employees were concentrated in lower clerical jobs; that people were in jobs below their ability; that opportunities for promotion and training were not available; and that social work was almost the only occupation where people registered blind progressed to higher administrative and professional levels (Mullins, 1984). Case studies showed that the visually impaired with appropriate aids/assistance could do most types of work (Mullins, 1984). Employers were not aware of the special aids and equipment available; did not think the visually impaired could cope on the job; and

were unsure of the kinds of jobs suited to them (Mullins, 1984; Patillo, 1986). Scadden (1986) urged the removal of attitudinal barriers from employment saying, "We want acceptance, not tokenism" (p.47). Stereotyped attitudes towards the visually impaired were identified in Mullins' (1984) study. Oppenheim (1966) explained that "stereotypes lead to overgeneralization . . . every member of a group is expected to have alleged group characteristics. We all need stereotypes to some extent, and no harm done as long as we are prepared to alter them or drop them when we are confronted by new evidence. Some people, however, use stereotypes as a realistic guide to action and this can be very dangerous" (p.211).

Literature dealing with the kinds of attitudes that might be found in the study was also investigated. Rokeach (1968) defined attitude as a "relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner" (p.450). He regarded attitude not as a single predisposition but as a set of interrelated predispositions focused on an object or a situation. As the situation (and the attitude toward the situation) changed, so would the attitude toward the object. An example would be Bogardus' (1923) social distance experiment which showed that the closer one was to the object of discrimination, the more negative the attitude.

The functional approach to attitudes is the attempt to understand the reasons why people hold the attitudes they do (Rokeach, 1968; Katz, 1960; Smith, 1968). Smith, Bruner, and White (1956) and Katz (1960) were among the first to recognize the positive functions that attitudes serve. Katz (1960) drew up a classification of four functions; namely, utilitarian, ego-defensive, value-expressive, and knowledge. In explaining the ego-defensive function, Katz (1960) stated that "many of our attitudes have the function of defending our self-image. When we can't admit to ourselves our deep feelings of inferiority we may project those feelings onto some convenient minority group and bolster our egos by attitudes of superiority towards this underprivileged group. . . . The attitude is not created by the target but by the individual's conflicts" (p.56). If an understanding of the nature of attitude and attitude change depends on the knowledge of their functional bases, the underlying motivational pattern must first be identified (Katz, 1960). From a functional standpoint, "the vigorous resistance with which persuasive efforts are commonly met suggests that people have a strong interest in maintaining their attitudes with as little change as possible" (Smith, 1968, p.465).

One cognitive theory that has contributed to an understanding of how attitudes and attitude change enable

the individual to deal with his/her social/psychological world is Festinger's theory of cognitive dissonance. Dissonance occurs when relevant cognitive elements, or cognitions, do not fit. Malec (1971) explained that, "Fundamental to the theory of cognitive dissonance is the postulate that dissonance produces pressure to change one of the cognitive elements . . . the arousal of dissonance can be an inducement for attitude change" (p.42). Perhaps the theory of dissonance could be used to change public attitudes towards the visually impaired.

Needs Assessment

Anyone faced with doing a needs assessment would understand Rossett's (1982) frustration with the lack of prescriptive detail in building print, observational and interview instruments which would gather useful data from the respondents. The pros and cons of different data collecting techniques such as face-to-face and telephone interviewing, mail survey, and focus groups, were dealt with in the literature (Mayer, 1986; Swierczek & Carmichael, 1985; & Witkin, 1977), but little appeared about instrumentation. Rossett addressed the problem by developing a needs assessment typology. A good place to have started would have been Sudman's and Bradburn's (1982) invaluable document on the formulating of questionnaires for various methods of data collection.

According to Witkin (1977), there was not a right way to do a needs assessment. Kaufman's (1982) discrepancy model that identified a gap between current results and desired results, was one of several models. Kaufman and Mayer (1985, cited in Mayer, 1986) offered three alternative approaches identified as problem identification, problem analysis, and problem verification. According to Kaufman (1983), attempts at improving organizational effectiveness and efficiency have generally been approached on a fragmented basis. He developed the Organizational Elements Model and a six-step problem-solving process as the two basic tools of his Systems Approach. According to Sarthory (1977), needs assessment has often been misunderstood as a tool for identifying and prioritizing needs only. In fact, English (1977) called it a 'priority establishing tool for the purpose of aid in the decision-making" (p.18). Instead of being viewed as only one element in a results-oriented system, it has been seen as a complete entity by itself. The other critical elements in the system were dealt with by Kaufman, Stakenas, Wager, and Mayer, (1981) who explained and differentiated among several types of needs assessment from the beginning through to the evaluation for anyone dealing with a single organization.

CHAPTER 3

Method

Design

The purpose of this study was to gather information about the way in which the visually impaired are integrated into the automated office environment and to use that information as the basis for first, identifying any problems that may exist, and then, making recommendations which might be used to facilitate/improve that process of integration for the benefit of visually impaired employees, their employers, and their co-workers in any automated office setting. The ideal would be for all concerned to get beyond the visual handicap in order for the visually impaired employee to do the best job possible, and to be judged as "normally" as possible.

In order to obtain the required information, prepared questionnaires were used as the basis for structured telephone interviews with visually impaired employees, and employers and co-workers of the visually impaired. In addition, resource persons knowledgeable about both the visually impaired and electronic equipment were asked to provide information about the subject from their particular perspectives. Once the interviews had been completed, the data were consolidated and interpreted, conclusions drawn, and recommendations made.

Subjects (Respondents)

The population used in the study consisted of three different groups of individuals:

(a) visually impaired persons, both male and female, who are currently employed in automated workplaces in which they are using automated equipment. (These persons may have been employed initially as visually impaired workers or they may have developed their impairment while working in the current environment. As for training in the use of automated equipment, they may have received it on-the-job, as part of a retraining scheme, or entirely on their own initiative separate from any specific employment);

(b) employers (and/or supervisors/managers) of visually impaired persons working in automated offices.

(c) co-workers, both male and female, of visually impaired persons employed in automated offices;

Contact persons at the Montreal Association for the Blind (MAB), the Institut Nazareth et Louis Braille (INLB) in Longueuil, the Ottawa branch of the Canadian National Institute for the Blind (CNIB), and the Public Service Commission in Ottawa responded in one of three ways when the researcher approached them to help locate respondents for the study:

(1) they first contacted potential respondents themselves and then provided the researcher with a list of names and telephone numbers of those willing to be interviewed;

(2) they provided names and telephone numbers of other contact persons whom the researcher could approach for further information and/or assistance;

(3) they mailed out information sent to them by the researcher (see Appendices G and H) to potential respondents who were then asked to contact the researcher directly if they wished to participate in the study.

Since this study is more qualitative than quantitative in nature, the type of sampling which was used was purposive, or theoretical, as opposed to conventional. According to Lincoln and Guba (1985), "in purposeful sampling the size of the sample is determined by informational considerations. If the purpose is to maximize information, then sampling is terminated when no new information is forthcoming from newly sampled units; thus redundancy is the primary criterion" (p.202). The researcher believed that approximately twelve respondents in each category would provide information to the point of redundancy.

No attempt was made to match the visually impaired employees with their own employers/supervisors and co-workers. However, since the objective of the study is

to provide a general picture, the researcher kept track of those situations in which matching did occur for the additional information that they might provide.

Of the 48 respondents who were interviewed, 19 were visually impaired employees, 18 were employers/supervisors and 11 were co-workers. Sixteen interviews were conducted in French and the remaining 32 in English. All the respondents in each category participated in the study voluntarily.

Materials

The materials used in this study were three questionnaires (see Appendices A - F), one prepared for each of the three categories specified in the preceding sub-section. The questionnaires were prepared in both English and French. Their contents are as follows:

1. The questionnaire for category (A) asked for factual information concerning the nature of the respondent's disability and its onset, his/her academic and/or technical training, his/her preparation for work in an automated workplace, and his/her current employment. In addition, the respondents are asked about their perceptions concerning their disability, their work, their place in the workplace, and possible improvements.

2. The questionnaire for category (B) asked for both factual information and the respondents' perceptions

concerning the integration of visually impaired employees into a specific automated office setting.

3. The questionnaire for category (C) asked not only for factual information concerning the respondents' experience with visually impaired co-workers but also for their perceptions concerning the integration of those individuals into the current workplace.

It should be noted here that questionnaires used in two different studies conducted for the Royal National Institute for the Blind (RNIB) in the U.K. were used as guides in the preparation of the questionnaires for this study (Mullins, 1985; Whaley et al., 1986).

The three questionnaires prepared for the current study provided the basis for structured interviews which were conducted by the researcher and by 2 assistants using the telephone as the interviewing medium.

In addition, a tape recorder was used to tape those interviews for which permission to tape had been obtained.

Procedure

The researcher prepared separate questionnaires for each of the three groups of respondents. Since there were to be both English-speaking and French-speaking respondents in the study, each questionnaire was also translated into French. Two French-speaking assistants were trained in interviewing and data-gathering techniques

in order to conduct the interviews given by the French-speaking respondents. The researcher conducted all the interviews given by the English-speaking respondents.

Several agencies for the blind in the Montreal-Ottawa area were contacted for their help in finding respondents for the study. Following the researcher's verbal request for help, a brief outline of the study (see Appendix G) and a guide for the first telephone contact with the respondents (see Appendix H) were sent to the contact persons at the INLB in Longueuil, the MAB in Montreal, and the CNIB in Ottawa for their information.

The INLB contact provided the names and phone numbers of 7 visually impaired employees willing to participate in the study. From an alphabetical list of 36 names stored in a database at the INLB, the contact person started at the top and worked down through the list until 7 people currently employed in automated offices agreed to participate in the study. Only 1 of the 8 individuals contacted was unwilling to give an interview. The same procedure was used to locate respondents for the employer/supervisor category. The 6 who were contacted were willing to participate. In addition, those persons in turn provided the names of 6 co-workers who were willing to be interviewed. The two French-speaking assistants helping with the collecting of the data conducted interviews in French with 6 visually impaired employees,

6 employers/supervisors and 4 co-workers from the INLB lists. (One of the employees, also on the MAB list, chose to be interviewed in English. Two co-workers were unavailable for interviews).

The researcher's MAB contact approached several potential respondents individually to determine their interest in participating in the study. A list of six names with telephone numbers was obtained. Additional information from the contact person resulted in the researcher's being able to locate four other members of the target population willing to be interviewed. In the Montreal area, the researcher interviewed 8 visually impaired employees, 1 employer, and 1 co-worker.

The contact person at the CNIB in Ottawa sent out information about the study to individuals whom she believed to be potential respondents. She asked them to contact the researcher directly if interested. Three visually impaired employees and one resource person did so, and all were interviewed. A second contact person at the CNIB was responsible for providing information which resulted in 1 employee, 2 employers/supervisors/managers and 4 co-workers being interviewed.

Finally, the researcher contacted the Employment Equity Branch of the Public Service Commission in Ottawa for help in locating more respondents for the study. The senior official who was approached with the request

provided the researcher with a list of the names and telephone numbers of the Affirmative Action Officers in the various departments in the Federal Government in order for her to make her own contacts. That official helped further by identifying the six departments in which he believed visually impaired persons were likely to be employed. The researcher began with those. Four departments reacted quickly and enthusiastically with the result that 7 employers/managers/supervisors and 2 co-workers were interviewed. The other two departments contacted by the researcher, although seemingly interested during the first and then follow-up conversations, did not provide any respondents.

The data collection process (from mid-November to mid-February) took much longer than anticipated because of the length of time required first to reach individuals, then to make follow-up telephone calls when needed, and finally to schedule convenient times for the respondents to give an interview. Most of the interviews were conducted during the respondents' regular working hours.

It must be noted here that the interviewers failed to notice some instances when the tape recorder was not functioning properly. As a result of the technical failure, some of the interviews did not give complete results and data were lost.

Before the data that had been collected could be consolidated and interpreted, they first had to be transcribed from the tapes. All 48 respondents who had participated in the study agreed to the taping of their interviews. After the consolidation and interpretation of the data, conclusions were drawn and recommendations were made.

Data Analysis

Since this research study is basically a piece of qualitative research, the data analysis has been "open-ended and inductive ... , in contrast to the focused and deductive analysis common in conventional inquiry. Since the form of data that will ultimately be produced by the human instrument is unknown in advance, the data cannot be specified at the beginning of the inquiry" (Lincoln & Guba, 1985, p. 224).

CHAPTER 4

Results

This chapter consists of three separate sections. In Section I, the quantitative data gathered for each of the 3 different groups of respondents are summarized and are treated in 3 separate parts: A, B, and C. The questions as they appear in the questionnaires for the structured interviews (see Appendices A, B, C) are given with the results obtained. Where relevant, these in turn are followed by additional comments from the respondents. Section II contains a comparative treatment of the quantitative data from the 3 groups shown in Section I. Finally, Section III deals with the qualitative, descriptive data produced by the study.

Percentages have been rounded off to whole numbers throughout. As a result, totals may not equal 100.

Section I

Part A: Visually Impaired Employees.

In the questionnaire used to obtain data from the visually impaired employees, those questions dealing with demographic data appear at the end as numbers 20, 21, 22, and 23. In addition to its proper numerical positioning, this information is repeated elsewhere in this section. Numbers 20, 21 and 22 appear ahead of number 1 and number

23 appears after number 11 in order to facilitate the reader's comprehension.

20. What is your age range?

Category	Frequency	%
(1) 25 or younger	1	5
(2) 26 to 34	5	26
(3) 35 to 44	13	68
(4) 45 to 54	0	0
(5) 55 or older	0	0
	n = 19	

21. (a) Sex:

(1) Male	14	74
(2) Female	5	26
	n = 19	

(b) Language of interview:

(1) English	13	68
(2) French	6	32
	n = 19	

22. Academic level attained:

Category	Frequency	%
(1) Elementary	1	5
(2) Secondary 5-Que., Gr.12-Ont., or equiv.	3	16
(3) CEGEP-Que., Gr.13-Ont., or equivalent	6	32
(4) B.A. or BSc	5	26
(5) M.A.	3	16
(6) PhD	1	5
	n = 19	

Types of schools/institutions attended:

Some data were collected, but they are sparse.

1. What is the level of your disability?

Category	Frequency	%
(1) registered blind	14	74
(2) partially sighted	5	26

2. (a) Please indicate whether your visual deterioration

was present prior to current employment or was identified during current employment.

Condition	Frequency
(1) present <u>prior</u> to current employment	18
(2) identified <u>during</u> current employment	1
	n = 19

Additional comments. Four respondents did point out that their visual acuity was deteriorating with the passage of time. In the one instance in which the visual impairment had occurred during employment, the cause was physical rather than accidental.

2. (b) If during current employment, describe your own reaction to the situation, and those of your employer and co-workers.

*Data concerning the condition identified during current employment were collected from the single respondent who had become blind while on the job. However, they will not be discussed here in order to preserve the confidentiality promised each respondent at the outset.

- (c) If during current employment, please give details of any retraining which you undertook on your own or which was provided by your employer.

Same as results for 2(b).

3. (a) For purposes of work car. you read typescript?

	Frequency	%
(1) Yes	13	68
(2) No	6	32
	n = 19	

3.(b) If yes, is this with the aid of a lens or a magnifier?

	Frequency	%
(1) Yes	5	38
(2) No	8	62
	n = 13	

Additional comments. The 8 respondents who answered "no" use an Optacon to a greater or lesser degree to read typescript manually.

4.(a) Identify any special aids/equipment being used.

n = 19	Frequency	%
(1) Slate and Stylus	10	53
(2) Calculator	14	74
(3) Tape Recorder	17	90
(4) Perkins Braille	12	63
(5) Closed Circuit TV	2	11
(6) Versa Braille 11 (VB11)	13	68
(7) Braille Printer	4	26
(8) Standard Printer	4	26
(9) Optacon	8	42
(10) Computer + Voice	12	63
(11) Computer without Voice (Mainframe/Mini/PC)	3	16
(12) Electric Typewriter	1	5
(13) Visualtek	2	11
(14) Viewscan	1	5

4.(b) Does the equipment which you use belong to you, is it owned by your employer, or has it been leased or borrowed by your employer?

Category - Equipment	Frequency	%
(1) Owned by employee	8	42
(2) Acquired through provincial/federal government agencies	13	68
(3) Owned by employers	8	42

Additional comments. Theoretically, the equipment acquired through the government agencies is provided on a long term loan basis; practically, it belongs to the person who received it for employment purposes.

Employment

5.(a) Do you require extra working space (for guide dog or special aids)?

	Frequency	%
(1) Yes	12	63
(2) No	7	37
	n = 19	

5.(b) If yes, is your employer able to comply with this requirement?

	Frequency	%
(1) Yes	10	83
(2) No	2	17
	n = 12	

5.(c) If yes, is your employer willing to comply with this requirement?

	Frequency	%
(1) Yes	12	100
(2) No	0	0
	n = 12	

- 6.(a) Please identify the nature of the establishment/institution/organization in which you are employed:

	Frequency	%
(1) government (federal, provincial, municipal, or crown corp.)	6	30
(2) educational	2	10
(3) financial	0	
(4) legal	0	
(5) manufacturing	1	5
(6) health-care	3	15
(7) service industry	4	20
(8) retail business	3	15
(9) research and development	1	5

n = 20 since one person was employed in 2 areas.

- 6.(b) How many co-workers are you in close contact with on a daily basis?

No. of co-workers	Frequency	%
(1) 0 -3	6	33
(2) 4 -6	5	28
(3) 7 -10	2	11
(4) 11 -15	2	11
(5) 16 -20	2	11
(6) 50+	1	6

n = 18

Additional comments. Several respondents pointed out that the number of co-workers with whom they would have dealings on a given day would vary depending on the current tasks. The employee in close contact with 50+ co-workers would rarely be in touch with all of them on a given day.

7. How long have you been employed in your current job?

	Frequency	%
(1) 0 - 5 months	4	22
(2) 6 - 11 months	0	0
(3) 1 - 2 years	6	33
(4) 3 - 4 years	2	11
(5) 5 - 6 years	2	11
(6) 7+ years	4	22
	n = 18	

8. Give a brief description of your current duties.

Tasks/duties	Frequency	%
(1) Wordprocessing	19	100
(2) Attending meetings	11	58
(3) Telephone communication	8	42
(4) Computer Programming/Software design and/or development	7	37
(5) Providing/promoting services/information	7	37
(6) Secretarial/clerical	4	21
(7) Program management/supervision	4	21
(8) Systems analysis	4	21
(9) Sales (includes Telemarketing)	3	16
(10) Helping others to use special equipment (includes teaching)	3	16
(11) Performing administrative duties	3	16
(12) Providing technical assistance with computer systems	3	16
(13) Interviewing/counselling/consulting with clients	2	11

9. (a) For you, what are the advantages of being employed in your current job?

n = 19.

Advantages	Frequency	%
(1) Enjoying the work	11	58
(2) Being independent	10	53
(3) Having opportunities available	9	47
(4) Being integrated into mainstream society	8	42
(5) Quality of work environment	8	42
(6) Competing successfully with sighted peers	7	37
(7) Self-satisfaction in working to best of one's ability	7	37
(8) Financial security	7	37
(9) Experiencing no discrimination towards the handicap	3	16
(10) Benefitting from good job experience	2	11

9. (b) Have your impressions regarding these advantages changed since you began this job? If so, please explain how and why.

Changes	Frequency	%
(1) No change	7	37
(2) Impressions regarding advantages strengthened over time	7	37
(3) Improved work situation has resulted in more positive attitude toward advantages	2	11
(4) Changes in policy and organization have resulted in more stressful, less advantageous job situations	3	16

n = 19

Additional comments. Each of the 7 respondents in category (2) had different explanations for the changes in their impressions concerning the advantages of their current jobs. Two individuals said that as a result of proving their competence, they have been given more complicated and challenging work to do. Being successful in the current job has made at least 4 of the respondents

much more self-confident. One individual emphasized that he has adapted to the job and not expected the job to be adapted to him. Two individuals pointed out that although perspectives change over time, they never stop trying to do a good job, thereby "proving those wrong who said you couldn't do the job." Based on his own experience, another said that he is more convinced than ever that there is a place for the visually impaired in the employment field. One respondent stated emphatically that the existing problems are surmountable.

Those in category (4) whose impressions have become less positive over time address three quite different problems. As a result of changes in the organization (personnel, methods, and policies), one respondent has become less confident, and is even somewhat depressed, about the ability to succeed in the current job. An open, casual, loosely structured office environment that was seen as very desirable at the outset has become a source of considerable frustration for another respondent, who now believes that a little more structure in the environment would be preferable. A third individual pointed out that the federal government is in the process of making the definition of disabled much broader. The fear is that the real (visibly) disabled will have to try much harder to prove themselves.

10. (a) What are the disadvantages of being employed in your current job?

n = 19

Disadvantages	Frequency	%
(1) Daily and frequent frustrations	10	53
(2) Inadequacy, unavailability or inaccessibility of special equipment and materials required to do job properly	5	26
(3) None	3	16
(4) Those in workplace who lack appropriate sensitization towards handicapped co-workers	3	16
(5) Financial concerns	3	16
(6) Mobility problems	3	16
(7) Job lacks sufficient opportunity for contact with others	2	11
(8) Inadequate preparation for job	2	11
(9) Underemployment	1	5
(10) Little chance for career advancement	1	5
(11) On call 24 hours a day	1	5

Additional comments. Respondents offered the following specific comments concerning category (1):

- not having machine readable access to disks and other material which is simultaneous with one's sighted counterparts;
- inability to fill out pre-generated forms;
- great difficulty with reading, or inability to read, large volumes of printed matter;
- trying to adapt to an alien environment which has been created for people who can see to do their jobs.

With regard to category (2), several respondents have found fault with government agencies for lengthy delays in making available the necessary equipment that would allow

the visually impaired employee to perform his/her job effectively. One respondent maintained that the government is not sensitized to the power of technology; it won't provide or employ people knowledgeable about the equipment. Three respondents criticized the lack of documentation of equipment/instructional material, cassettes, and the kinds of aids that are available to the sighted.

10. (b) Have your impressions regarding these disadvantages changed since you began this job? If so, please explain how and why.

Changes	Frequency	%
(1) No change	14	74
(2) Situation improved somewhat	5	26
	n = 19	

Additional comments. With regard to category (2), one individual claimed to be more in control of the work situation now than earlier. A second respondent suggested that the situation has improved because others are helping out to a greater degree. New equipment has made, and will make, the job easier according to several respondents. For two individuals the situation improved as they became more familiar with the work setting.

Training

11. How well do you believe that your technical skills

training prepared you for your current duties?

	Category	Code	Frequency	%
(1)	Very well	5	6	38
(2)	Quite well	4	1	6
(3)	Moderately well	3	2	13
(4)	Not too well	2	5	31
(5)	Very poorly	1	2	13
(6)	N/A		3	
	n = 16; mean = 3.25; median = 3			
	Virtually self-taught		12	63

Additional comments. Sixteen of the respondents did receive some kind of technical skills training. However, 12 of these indicated that although they may have received good training for a single piece of equipment such as the Optacon, they were virtually self-taught as far as their technical skills were concerned. Individuals worked alone, and/or sometimes helped one another without the benefit of adequate documentation or an instructor.

Note: The definition of technical skills training turned out to be much too broad. It needs to be very specific if its measurement is to have any meaning.

23. Technical Training: The data for question 23 concerning the type of technical training obtained have been included here for the reader's convenience because their presentation follows logically from the preceding information.

n = 19

Type	Frequency	%
(1) Computing science programs 1-4 years of formal study at university or college level	4	21
(2) Computer programming course - 1 yr	1	5
(3) Wordprocessing courses offered by agencies like CNIB, INLB, MAB Duration: 3 - 48 hours	10	53
(4) Wordprocessing courses for the sighted	2	11
(5) Self-taught - manuals, cassettes, informal discussion with others, support from equip. manufacturers	9	47
(6) On the job training	2	11
(7) Currently studying MIS at university level - full or part time	3	16

Additional comments. The 2 respondents in category (4) who took courses designed by and for sighted persons described their experiences as both frustrating and stressful. They wanted instruction in wordprocessing programs such as Wordperfect and Wordstar that were being used as standards in business and industry. Since at that time the special agencies were not yet offering instruction in either of those programs, the respondents were accepted into regular courses. Unfortunately, in spite of advance notice, no preparation had been done in either course to accommodate the visually impaired students.

The 9 respondents in category (5) who described themselves as virtually self-taught also indicated that they had had some exposure, successful or otherwise, to some type of technical skills training course.

12. Please identify the ways in which training for your current employment in an automated workplace might have been (or still might be) improved.

n = 19		
Category	Frequency	%
(a) better introduction to the equipment and its possible uses	8	42
(b) training sessions should be lengthened	2	11
(c) more practice time needed:		
-within training sessions	4	21
-between training sessions	4	21
(d) more training should be given	4	21
(e) need for simple, clear documentation and/or job aids	8	42
(f) regular evaluation of skills needed	4	21
(g) better evaluation system needed	5	26
(h) better support system needed	4	21
(i) more information about office procedures needed	6	32
(j) better feedback needed from instructor	4	21
(k) opportunities for further training should be outlined	5	26
(l) Training to be given that is required or relevant. Programs that are business/government/industry standards should be used; (Wordperfect Wordstar, DB III, Lotus 1-2-3).	4	21
(m) Problem with competency of trainers- instruction must be treated practically	6	32
(n) Equip., knowledge, and/or materials must be available at outset of training	6	32
(o) Need for materials in advance of training sessions to familiarize self (in form accessible to vis. impaired)	3	16
(p) Solid computer literacy training needed (typing skills a must!), then job counselling component	2	11
(q) Teach what students need to know in real world. Training should include practical or on the job experience.	2	11
(r) Knowledge gained in training session should be applied on job straightaway	2	11
(s) Very stressful not having French voice for computer	1	5

Additional comments. With regard to category (e), one respondent made a point of emphasizing that although documentation does exist, what is lacking are reference cards or condensed important information - for rapid access - either on cassette or in braille.

13.(a) How important do you think it is for sighted employees to be informed about the special needs of their visually impaired co-workers?

	Category	Code	Frequency	%
(1)	Very important	5	10	53
(2)	Quite important	4	3	16
(3)	Somewhat important	3	3	16
(4)	Not very important	2	3	16
(5)	Not at all important	1	0	0
n = 19; mean = 4.1; median = 5				

Additional comments. One respondent indicated that co-workers need to have information for safety and security; e.g., for evacuation in case of fire.

- Another stated that colleagues should be encouraged to ask questions in order to learn that the blind are human.

- One person pointed out that information will allow the sighted to be more comfortable with their visually impaired colleagues.

- Those who answered "somewhat" maintained that the process used to make colleagues aware of special needs should not be a lecture or formal presentation because each handicapped person's situation is different.

- One respondent for whom such information is not very important claimed that "the product which I produce is important, not the way in which I manage to achieve it".
- Finally, one person took exception to the phrase "to be informed" in the question because of its connotation of formality. "to be made aware of" was suggested as a more appropriate replacement.

13.(b) (i) What information about special needs do you think should be given to employers and to the other employees?

n = 19		
Categories	Frequency	%
(1) Information to help dispel fears and misconceptions	12	63
(2) Info to make people aware of how the vis. impaired can use the technology for the benefit of employers and co-workers	7	37
(3) Sensitizing others to the capabilities of the vis. impaired and their need to exercise those capabilities.	6	32
(4) Sensitizing others to the human-ness (ordinariness) of the vis. impaired.	4	21
(5) Whatever information is given must be imparted without formal lecturing	4	21
(6) Tell people only what they need to know	2	11
(7) Tell people only what they want to know	1	5
(8) Info that gov't assistance is available for employers to get special equipment	1	5
(9) No special information is necessary	1	5

13.(b) (ii) Who should provide that information?

n = 18

Category	Frequency	%
(1) Individual him/herself only	7	39
(2) Individual and others also	6	33
(3) Institutions like CNIB, INLB, MAB, etc.	9	50
(4) Employer/company personnel through (a) general awareness programs for all employees and (b) specific info about specific needs of a single individual	4	22
(5) Advertising using the vis. impaired via the media and school visits	4	22

13. (b) (iii) When should that information be given?

n = 18

Category	Frequency	%
(1) As soon as individual begins job	9	47
(2) When a situation arises that requires specific information	7	37
(3) Before the individual begins job	2	11
(4) As part of regular staff training and development in a company	2	11
(5) As a special campaign; e.g., visiting schools; appearing in or on the media	1	5

Additional comments. One respondent stated that the individual must not be too "chicken" (timid) to let people know what he/she needs.

14. (a) How comfortable do you feel in your current employment now?

Category	Code	Frequency	%
(1) Very comfortable	5	16	84
(2) Quite comfortable	4	1	5
(3) Moderately comfortable	3	1	5
(4) Not very comfortable	2	1	5
(5) Very uncomfortable	1	0	0

n = 19; mean = 4.7; median = 5

14. (b) Are you more comfortable or less comfortable now than you were when you first began your current duties? If less, please explain.

Category	Frequency	%
(1) More comfortable	15	79
(2) No change	2	11
(3) Less comfortable	2	11
	n = 17	

Additional comments. Two respondents who are less comfortable now than they were earlier have indicated that the change had nothing to do with their visual disability. The nature and the demands of their jobs have changed over time creating a more stressful situation than existed previously. (Note: More specific data were collected, but, in order to preserve confidentiality, will not be presented).

- Several respondents pointed out that any discomfort experienced in the job environment at the outset had little or nothing to do with their visual disability. As with most people beginning a new job, sometimes in a new geographical location, the temporary discomfort felt was the product of a new job in a new environment with new colleagues.

15. (a) How comfortable is your employer/supervisor in your presence now?

Category	Code	Frequency	%
(1) Very comfortable	5	14	74
(2) Quite comfortable	4	4	*21
(3) Moderately comfortable	3	0	0
(4) Not very comfortable	2	1	* 5
(5) Very uncomfortable	1	0	0
(6) N/A	0	1	5
n = 20; mean = 4.4; median = 5			

Additional comments. *One respondent was ambivalent concerning the employer's impressions. At times the employer appeared to be quite comfortable and at others, not very comfortable. Since both impressions were described as being equally strong, both are recorded; hence, $n = 20$.

15. (b) Is he/she more comfortable or less comfortable than he/she was when you began your current employment?
If less, please explain.

Category	Frequency	%
(1) More comfortable	11	61
(2) No change	6	33
(3) Less comfortable	1	6
(4) N/A	1	
	$n = 18$	

Additional comments. One respondent explained that although the employer appeared to be very comfortable with respect to the employee's visual disability itself, the individual believed that the limitation which the disability placed on job performance in this situation caused the employer to be not very comfortable.

16. (a) How comfortable were your co-workers in your presence when you began your current employment?

Category	Code	Frequency	%
(1) Very comfortable	5	8	44
(2) Quite comfortable	4	2	11
(3) Moderately comfortable	3	3	17
(4) Not very comfortable	2	5	28
(5) Very uncomfortable	1	0	0
$n = 18$; mean = 3.7; median = 4			

Additional comments. One respondent explained that the situation that existed at the outset persists. Some co-workers continue to be very comfortable and others, not very comfortable.

- Another remarked that some people never feel comfortable either because they "don't want to or perhaps because they don't want to make the effort".

16.(b) Are they more comfortable or less comfortable now than they were earlier? If less, please explain.

Category	Frequency	%
(1) More comfortable	10	56
(2) No change	8	44
(3) Less comfortable	0	0
(4) Not asked	1	
	n = 18	

17.(a) Considering the length of time that you have been performing your duties, how well do you believe that you are doing the job?

Category	Frequency	%
(1) Very well	15	79
(2) Quite well	2	11
(3) Moderately well	0	0
(4) Not very well	2	11
(5) Very poorly	0	0
	n = 19; mean = 4.4; median = 5	

Additional comments. One respondent was ambivalent about how successful his performance was in the current job. One concern was that there was never an opportunity to apply on the job what was learned during professional development courses. The ambivalence also resulted in such

thoughts as " Maybe I'm in the wrong job" and "Maybe I'm working in the wrong system".

- A second respondent who was not satisfied with own performance was frustrated by the lack of adequate preparation and appropriate equipment for the job.

17. (b) In what way(s), if any, do you believe that you could improve your performance?

n = 19

Category	Frequency	%
(1) With the availability of more and better technical knowledge - via training courses and documentation in an accessible form	8	42
(2) With appropriate hardware and/or software in order to be competitive	7	37
(3) By solving communications problems	2	11
(4) More personal development- organizing; prioritizing; continuing to learn; continually striving to improve	2	11
(5) Having more physical space for self and equipment.	1	5

Additional comments. With regard to category (2), one respondent pointed out that the computer with voice can only read line by line and cannot scan. As a result the process is very slow and the work takes longer to finish. A solution must be found to address this problem.

- Another respondent suggested that the current job performance would improve if the interpersonal communications problems with managers and supervisors could be solved.

18. How well do your employer/supervisor and co-workers

think that you are doing your job?

Category	Frequency	%
(1) Very well	16	84
(2) Quite well	3	16
(3) Moderately well	0	0
(4) Not very well	0	0
(5) Very poorly	0	0
n = 19;	mean = 4.8;	median = 5

Additional comments. The majority of the employees indicated that they had received formal performance evaluations from their employers.

Career Development

19. (a) In your current job, do you believe that you will be given equal opportunities for training, career development, and promotion?

Category	Frequency	%
(1) Yes	14	88
(2) No	2	12
(3) N/A	3	
n =	16	

19. (b) If not, identify the possible reasons.

Category	Frequency
(1) Relocation inconvenient	0
(2) Special aid unavailable	0
(3) Reading problems	1
(4) Inability to work with computers/icons	0
(5) Discouragement	2
(6) Misunderstanding of employee's working ability - being prejudged and categorized	1

19. (c) What would rectify the current situation?

- The only respondent who replied said that sensitization of the employers/managers/supervisors and co-workers was needed.

20. What is your age range?

Category	Frequency	%
(1) 25 or younger	1	5
(2) 26 to 34	5	26
(3) 35 to 44	13	68
(4) 45 to 54	0	0
(5) 55 or older	0	0
	n = 19	

21. (a) Sex:

(1) Male	14	74
(2) Female	5	26
	n = 19	

(b) Language of interview:

(1) English	13	68
(2) French	6	32
	n = 19	

22. Academic level attained:

Category	Frequency	%
(1) Elementary	1	5
(2) Secondary 5-Que., Gr.12-Ont., or equiv.	3	16
(3) CEGEP-Que., Gr.13-Ont., or equivalent	6	32
(4) B.A. or BSc	5	26
(5) M.A.	3	16
(6) PhD	1	5
	n = 19	

Types of schools/institutions attended:

Some data were collected, but they are sparse.

23. Technical training

n = 19

Type	Frequency	%
(1) Computing science programs 1-4 years of formal study at university or college level	4	21
(2) Computer programming course - 1 yr	1	5
(3) Wordprocessing courses offered by agencies like CNIB, INLB, MAB Duration: 3 - 48 hours	10	53
(4) Wordprocessing courses for the sighted	2	11
(5) Self-taught - manuals, cassettes, informal discussion with others, support from equip. manufacturers	9	47
(6) On the job training	2	11
(7) Currently studying MIS at university level - full or part time	3	16

Part B: Employers/Managers/Supervisors of VisuallyImpaired Employees.

To facilitate the reading of the contents of this section of the study, the population of employers/managers/supervisors will be abbreviated to read simply employers. The results appear according to the normal sequencing of questions, from #1 through #20.

Employers interviewed	Frequency	%
Male	11	61
Female	7	39
	n = 18	

Language of interview	Frequency	%
French	6	33
English	12	67
	n = 18	

- 1.(a) What do you believe to be the advantages of hiring the visually impaired in your automated workplace?

n = 17

Advantages	Frequency	%
(1) None at all	6	35
(2) None for employer	5	29
(3) For employer	3	18
-Handicapped clients can relate better to handicapped employees;		
-Highly motivated workers with greater powers of concentration;		
-Their experience and expertise are assets because they tend to stay in same jobs longer than sighted peers.		
(4) For employee	5	29
-Greater employment opportunities;		
-Integration into workplace;		
-Chance to demonstrate they can do job like anyone else;		
-Confidence builder.		
(5) Societal advantages	2	12
-Helping others learn to work with those with a different perspective;		
-Setting an example for other organizations to hire handicapped persons.		

- (b) Have your impressions regarding these advantages changed at all since the hiring of your first visually impaired employee? Please explain.

Category	Frequency	%
(1) Yes	4	50
(2) No	4	50
(3) No Answer	10	
	n = 8	

2. (a) What do you believe to be the disadvantages of hiring visually impaired persons in your automated workplace?

n = 18

Disadvantages	Frequency	%
(1) More expensive as employees - e.g., special equipment; transcription of print into braille; transportation; support staff.	7	39
(2) Lower productivity than sighted peers.	5	28
(3) Dependency on support staff and/or employer for help.	4	22
(4) None at all.	3	17
(5) Longer training time to learn job.	1	6
(6) Misunderstanding by co-workers of special needs of visually impaired employee.	1	6

Additional comments. Two respondents pointed out that rather than being described as disadvantages, there were situations which required some necessary adjustments. For example, co-workers had to make a conscious effort to keep the work area organized and tidy with drawers of filing cabinets and desks kept closed.

With regard to category 1, one employer stated that although the additional equipment which had to be purchased was expensive, he did not really consider the cost factor to be a great disadvantage because "it was more than worthwhile to have that particular employee".

(b) Have your impressions regarding these disadvantages changed at all since the hiring of your first visually impaired employee? Please explain.

	Category	Frequency	%
(1)	Yes	0	0
(2)	No	18	100
		n = 18	

3. (a) Please identify the nature of the establishment/institution/organization in which you are an employer/supervisor:

		Frequency	%
(1)	government -federal	8	44
	-provincial	2	11
	-municipal	1	6
(2)	educational	0	0
(3)	financial	1	6
(4)	legal	0	0
(5)	manufacturing	1	6
(6)	health care	0	0
(7)	retail business	3	17
(8)	research and development	1	6
(9)	community service	1	6
		n = 18	

(b) How many employees are you currently responsible for?

No. of employees	Frequency	%
(1) 1 - 5	4	25
(2) 6 - 10	6	38
(3) 11 - 20	2	13
(4) 21 - 30	3	19
(5) 50+	1	6
		n = 16

(c) How many of these are visually impaired?

No. of vis. imp. employees	Frequency	Total
(1) 1	15 *	15
(2) 2	2	4
(3) 3	1	3
		22

Additional comments. * One employer who employed a large number of visually impaired persons indicated that only one employee was currently working with electronic adaptive devices on the job.

4.(a) How many of them became visually impaired while

(i) employed by your organization;

(ii) performing the same duties as being performed currently?

Only 1 employer had an employee who became visually impaired (i) while employed by the employer's organization and (ii) while performing the same duties as being performed currently.

(b) If any, was in-service retraining provided for the individual(s)?

Yes X No

(c) If any, did the individual(s) seek retraining on his/her (their) own outside of the current workplace?

Yes X No

(d) If any, please identify any of the following reactions which you observed in the co-workers of a fellow employee who had become visually disabled while on the current job. (I will give you the reaction and you can make one of three choices: Yes, No, or Somewhat).

	Yes	No	Somewhat
-pity	___	<u>X</u>	___
-impatience	___	<u>X</u>	___
-rudeness	___	<u>X</u>	___
-frustration	___	<u>X</u>	___
-resentment	___	<u>X</u>	___
-overprotectiveness	___	___	<u>X</u>
-covering up (doing other person's work)	___	<u>X</u>	___

(e) Have any of the above reactions changed over time?

Yes ___ No X

5. (a) Prior to the hiring of a visually impaired employee did you receive any kind of information specific to the needs of the visually handicapped?

Category	Frequency	%
(1) Yes	4	22
(2) No	14	78
	n = 18	

Additional comments. For half of those answering no, the visually impaired employee was already on the job before the employer (actually the manager or supervisor in these cases) became part of the same office environment.

(b) If yes, please describe.

One employer explained that he received his information directly from the employee about to be hired.

The other three pointed out that they had already had experience with other visually impaired employees.

6.(a) Prior to the hiring of a visually impaired employee did your other employees receive any kind of information specific to the needs of the visually handicapped?

Category	Frequency	%
(1) Yes	3	17
(2) No	12	67
(3) Don't know	3	17
	n = 18	

(b) If yes, please describe.

The information provided to employees of the 3 employers answering yes was both very general and very specific. One group of employees was told to treat the visually impaired just like ordinary, sighted people. The second group was urged to offer help only when it was needed. The third group was made aware of situations in the office setting that would create obstacles for a person without sight. For example, drawers of filing cabinets have to be kept closed when not in use. Also, things in the office have to be returned to their normal places after being used.

7. How important do you think it is for an employer and other employees to have such information when a visually impaired person is a member of the office setting?

Category	Code	Frequency	%
(1) Very important	5	11	61
(2) Quite important	4	4	22
(3) Somewhat	3	2	11
(4) Not very	2	0	0
(5) Not at all	1	1	6
n = 18; mean = 4.3; median = 5			

Additional comments. A respondent in category 1 pointed out that often real fear and real embarrassment exist when people are confronted by a visually impaired person because the situation is an unknown territory. When they do not have the knowledge of how to approach or talk to a blind person, people end up not having a conversation at all, so that the blind person is left isolated.

Another respondent in category 1 insisted that the visually impaired employee should provide some of that information. This employer maintained that there should be some dialogue during which the people involved can try to establish a comfort zone.

8. (a) How do you think such information can be conveyed best?

n = 18. Each person could give more than one response.

Category	Frequency	%
(1) Informal dialogue between employer/co-workers and employee	11	61
(2) Formal sensitization meetings conducted by agencies/individuals with specialized knowledge	6	33
(3) Informal seminars/group discussions as part of staff in-service training	4	22
(4) Printed material from specialized agencies as well as from workplace	4	22
(5) First hand information from resource persons experienced in dealing with same kind of problem	3	17

Additional comments. With regard to category 4, one employer stated emphatically that using no other method but distributing pamphlets was absolutely useless.

(b) When should it be conveyed?

n = 18

Category	Frequency	%
(1) Before *employee begins job	7	39
(2) When situation arises that requires specific information	5	28
(3) Promptly when employee begins job	2	11
(4) In early stages of employee's job	2	11
(5) In 2 parts: before job begins and 2 months later to work out problems	1	6
(6) During regular visits to workplace from agencies/experts	1	6
(7) Anytime -as part of the general sensitization of sighted employees	1	6
(8) No answer (see #7, category (5))	1	6

*In the context of this question and the one that follows the employee referred to is the visually impaired employee.

(c) Who do you think should convey it?

n = 18

Category	Frequency	%
(1) Employee alone	5	28
(2) Employee along with employer	5	28
(3) Institutions or agencies such as CNIB, MAB, INLB/professional resource person who has worked with the visually impaired	7	39
(4) Director of personnel or human resources staff in organization	2	11
(5) Employer	1	6

9. (a) How comfortable did you feel in the presence of the visually impaired employee when he/she began the current duties or when you first made contact with him/her?

Category	Code	Frequency	%
(1) Very comfortable	5	6	35
(2) Quite comfortable	4	4	24
(3) Moderately comfortable	3	4	24
(4) Not very comfortable	2	1	6
(5) Very uncomfortable	1	2	12

n = 17; mean = 3.6; median = 4

(b) Are you more comfortable or less comfortable now than you were earlier?

Category	Frequency	%
(1) More comfortable	9	53
(2) Less comfortable	0	0
(3) No change	8	47

n = 17

10. (a) In your opinion, how comfortable did the visually impaired employee appear to be in the office setting when he/she began the current duties?

Category	Code	Frequency	%
(1) Very comfortable	5	0	0
(2) Quite comfortable	4	6	60
(3) Moderately comfortable	3	0	0
(4) Not very comfortable	2	4	40
(5) Very uncomfortable	1	0	0
(6) *N/A		8	
n = 10;		mean = 3.2;	median = 4

*Employees were in work setting before employers.

- (b) Does he/she appear to be more comfortable or less comfortable now than at the beginning of current employment?

Category	Frequency	%
(1) More comfortable	10	100
(2) Less comfortable	0	0
(3) No change	0	0
(4) N/A	8	
n = 10		

11. (a) How comfortable did the co-workers of a visually impaired employee appear to be when that person began the current duties?

Category	Code	Frequency	%
(1) Very comfortable	5	1	6
(2) Quite comfortable	4	8	50
(3) Moderately comfortable	3	0	0
(4) Not very comfortable	2	5	31
(5) Very uncomfortable	1	2	13
(6) *N/A		2	
n = 16;		mean = 3.1;	median = 4

*Employees were in work setting before employers.

(b) Are they more comfortable with that person now or less comfortable?

Category	Frequency	%
(1) More comfortable	15	94
(2) Less comfortable	0	0
(3) No change	1	6
(4) N/A	2	
	n = 16	

12. (a) Describe the current duties of any visually impaired employee(s).

n = 18. Employees may perform several tasks.

Category	Frequency	%
(1) Wordprocessing	20	95
(2) Promoting of services/providing specialized information	13	62
(3) Attending meetings	11	52
(4) Telephone communication	9	43
(5) Interviewing, counselling, and/or consulting with clients	8	38
(6) Computer programming and/or software design and development	6	29
(7) Providing technical assistance to computer users and/or setting up computer systems	4	19
(8) Program management/supervision	4	19
(9) Administrative function	2	10
(10) Secretarial/clerical	1	5
(11) Software design	1	5
(12) Systems analyst/design	1	5
(13) Sales	1	5

(b) How long has the employee been performing those current duties?

n = 21

Category	Frequency	%
(1) 0 - 5 months	2	10
(2) 6 - 11 months	0	0
(3) 1 - 2 years	6	29
(4) 3 - 4 "	4	19
(5) 5 - 6 "	1	5
(6) 7+ "	8	38

(c) How well is that employee performing the current duties?

Category	Code	Frequency	%
(1) Very well	5	9	43
(2) Quite well	4	8	38
(3) Moderately well	3	4	19
(4) Not very well	2	0	0
(5) Very poorly	1	0	0

*n = 21; mean = 4.2; median = 4
 *21 employees were assessed by 18 employers.

Additional comments. Two respondents in category (1) emphasized that their visually impaired employees were outstanding employees who were performing exceptionally well.

13. In your opinion, how well prepared are visually impaired persons for employment in automated offices?

Category	Code	Frequency	%
(1) Very well prepared	5	4	29
(2) Quite well prepared	4	3	21
(3) Moderately well prep'd	3	1	7
(4) Not very well prep'd	2	4	29
(5) Very poorly prep'd	1	2	14

n = 14; mean = 3.2; median = 3.5

14. In your opinion, how might their preparation for such work be improved?

n = 18

Category	Frequency	%
(1) No answer	4	22
(2) Special courses needed that are relevant to job opportunities	3	17
(3) Same training & development courses/programs as for sighted - in house and other	3	17
(4) Better training needed for systems currently used in the workplace	3	17
(5) Better and/or appropriate equipment should be more readily available	3	17
(6) Better supervisory/managerial support should be provided	2	11
(7) Not sure	2	11
(8) No improvement needed	1	6

Additional comments. In the case of two respondents who did not answer and a third who stated that no improvement was necessary, it should be noted that the employee was already functioning in the workplace when the respondents arrived.

15. (a) What kind of orientation should be given to newly-hired visually impaired employees to help them adjust to the automated workplace?

n = 18

Category	Frequency	%
(1) Same orientation as for sighted employees	7	39
(2) No response	5	28
(3) Walk-around to familiarize employee with physical lay-out and to talk to co-workers	3	17
(4) Courses to teach visually impaired how to function in automated offices should be made available	1	6
(5) Orientation should be provided for the employee's specific job	1	6
(6) As in (5) using coaching techniques with hands on experience and regular feedback	1	6
(7) As in (5) using a buddy-system, matching employee with someone doing the same job	1	6
(8) Employee should be asked about special needs in advance of employment	1	6
(9) No special orientation needed for current employee	1	6

- (b) Who should provide that orientation?

Category	Frequency	%
(1) Employer/manager/supervisor	4	44
(2) A buddy (peer)	4	44
(3) Anyone but a co-worker	1	11
	n = 9	

- (c) When should it be provided?

Category	Frequency	%
(1) At beginning of job	8	89
(2) Before job really begins	1	11
	n = 9	

16. Having had experience with visually impaired employees functioning in the automated office, how well do you feel that their skills are being utilized?

Category	Code	Frequency	%
(1) Very well	5	6	35
(2) Quite well	4	6	35
(3) Moderately well	3	2	12
(4) Not very well	2	3	18
(5) Very poorly	1	0	0
(6) Not asked		1	
n = 17;	mean = 3.8;	median = 4	

Additional comments. Two respondents noted that when their visually impaired employees feel that their skills are not being utilized, they use their initiative to find additional, more challenging work to do.

17. Describe the range of tasks or duties which you feel are possible for the visually impaired.

n = 17

Category	Frequency	%
Current employment:		
(1) Can do anything required by current job	7	39
(2) Can do anything required by current job EXCEPT:		
-troubleshoot if photocopier malfunctions;	1	
-read from a book if scanner not operational;	1	
-repair an electronic component;	1	
-work without full clerk support;	1	33
-having to read forms filled out by public and make quick decisions;	1	
-guiding people through building	1	
(3) Can do any job (own and others) in current workplace	2	11
(4) Can do any job in current workplace EXCEPT:		
-monitor written (often hand-written) work as a supervisor	1	6
Employment in general:		
(5) Can do anything except driving and flying	2	11
(6) Doing anything connected with computers, verbal activities, and correspondance	3	17
(7) Those with low vision can do anything the sighted can	1	6

18. Please describe your impression of your visually impaired employee's attitude towards his/her own handicap.

*n = 21.

Category	Frequency	%
(1) Employee has a positive attitude towards own disability and is well-adjusted to the point that the disability is not perceived to be a limitation by the individual	19	91
(2) Employee has not accepted the disability -doesn't want impairment to be recognized/acknowledged	1	5
(3) Employee still adjusting to new situation. Impairment came when person was an adult	1	5

*Eighteen employers were describing 21 employees

Additional comments. In only 1 of the 21 cases described did an employer indicate that the employee was not accepting of the visual disability. The employer claimed that the individual tries not to let on that a difference exists. Consequently, problems arise, especially when that person needs help.

19. Do you think that the visually impaired can be given equal opportunities for training, career development, and promotion?

Category	Frequency	%
(1) Yes	17	94
(2) No	1	6

n = 18

Additional comments. Only 1 of the 18 employers believes that a visually impaired employee will not do as

well as a sighted one because he/she will reach his/her potential sooner. The remaining 17 were very definite when replying in the affirmative but several did qualify their answers:

- Four employers indicated that the equal opportunities described were possible only if employers had a positive attitude towards the development of their visually impaired employees. The respondents maintained that there are employers, managers, and supervisors today who are either not interested or too busy (or both) to give much thought to the career development of their disabled employees. One employer described that attitude as one of "benevolent neglect" well suited to the stereotyped blind employee who is so very grateful to have any job. This kind of patronizing attitude has been ascribed to at least three previous employers of the employees described in this study.

- Three respondents pointed out that training, career development, and promotion would really depend on the individual in question and the nature of the work. For example, one claimed that there were very definite limitations for visually impaired employees aspiring to a supervisory role that involves a great deal of paperwork. On the other hand, one very positive employer stated that normally, with the appropriate adaptive devices for the job, people should be able to cope.

- Two other respondents acknowledged the need that many visually impaired employees have for help from sighted clerks. One employer pointed out that (1) managers should be made aware that the on-going assistance of a reader is essential, and that (2) the visually impaired employee should not have to beg for that assistance. The support staff required by visually impaired employees continued to be a problem in some offices. Although conceding that there would always be a need for someone to help out, one of the respondents maintained that, with the advancing technology, the amount of help needed is steadily decreasing.

- One employer who believed that equal opportunities must be available for the handicapped claimed that there has been a tendency to put people into entry-level and on-line positions and not to create any career paths for them. This person believed that opportunities for training, career development, and promotion for the visually impaired need to happen more consistently.

20. Finally, overall as an employer, how satisfied are you with the performance of your visually impaired employee(s)?

Category	Code	Frequency	%
(1) Very satisfied	5	13	65
(2) Quite satisfied	4	5	25
(3) Moderately satisf'd	3	2	10
(4) Not very satisf'd	2	0	0
(5) Not at all satisf'd	1	0	0
(6) Not asked		1	
n = 20;		mean = 4.6;	median = 5

Additional comments. Two respondents replying in category (1) emphasized that they were not only very satisfied with the performance of their employees, they were exceptionally satisfied. One of these employers stressed that the superiority of the visually impaired employee in this setting was the result of not only ability and a positive outlook, but also long experience. The respondent noted that there was "a lot more movement by others in this particular office". The employee in question provided a depth of knowledge and degree of stability that was greatly respected by the co-workers.

One respondent in category (2) claimed that the employee's work had improved greatly since the respondent had joined the current work environment as an employer.

A respondent in category (3) had quotas to meet and was frustrated because no compensation was provided by the organization for the lower productivity of the visually impaired employee. Unfortunately, as far as the respondent was concerned, the excellent quality of work produced by that employee did not compensate for lower productivity.

Part C: Co-workers of Visually Impaired Employees

Co-workers will be the term used in Part C to refer to co-workers and/or colleagues. It must be noted here that technical difficulties occurred during the taping of one interview but went unnoticed by the interviewer. As a result, most of the data from one respondent were lost. Only when the responses of this co-worker were audible was n = 11.

Co-workers interviewed	Frequency	%
Male	4	36
Female	7	64
	n = 11	

Language of interview	Frequency	%
French	4	36
English	7	64
	n = 11	

1. Please identify the nature of the establishment/
institution/organization in which you are an employee:

n=11 Category	Frequency	%
(1) government (federal, provincial, municipal, or crown corp.)	5	46
(2) educational	0	0
(3) financial	0	0
(4) legal	0	0
(5) manufacturing	1	9
(6) health care	0	0
(7) community service	1	9
(8) retail business	2	18
(9) research and development	2	18

2. How many years have you worked in your current job?

	Frequency	%
(1) 0 - 5 months	0	0
(2) 6 - 11 months	1	9
(3) 1 - 2 years	6	55
(4) 3 - 4 years	1	9
(5) 5 - 6 years	2	18
(6) 7+ years	1	9
	n = 11	

3. (a) In that period of time how many of your co-workers have been visually impaired?

Category	Frequency	%
1 co-worker	11	100
	n = 11	

(b) How many of your current co-workers are visually impaired?

Category	Frequency	%
1 co-worker	10	91
0 co-workers	* 1	9
	n = 11	

* One individual who had worked closely with a visually impaired employee until recently volunteered to participate in the study when approached by the employer.

4. (a) How many of them became visually impaired while
 (i) employed by your organization ;
 (ii) performing the same duties as being performed currently.

Only one co-worker indicated that an employee had become visually impaired while (i) employed by the

co-worker's organization; and (ii) performing the same duties as being performed currently.

4. (b) - (f) could not be answered because the co-worker had been hired some time after the situation described in 4. (a) had occurred.

5. (a) What do you believe to be the advantages of having visually impaired persons working in your automated office?

n = 10		Frequency	%
Advantages			
(1) None at all		5	46
(2) For society:		4	36
-co-worker's increased awareness of individual's capabilities			
-sensitizes workers to problems of visually impaired			
-makes sighted people appreciate own life more			
(3) For employee:		1	9
-getting job experience			
-learning office skills			
-becoming self-supporting			

Additional comments. One respondent remarked that the advantages of having a particular visually impaired person as an employee in the current setting had nothing to do with that person's impairment, but rather with the individual's talents and abilities.

5. (b) Have your impressions regarding these advantages changed at all since the first visually impaired employee was hired? If yes, please explain.

	Category	Frequency	%
(1)	Yes	0	0
(2)	No	10	100
		n = 10	

6. (a) What do you believe to be the disadvantages of having visually impaired persons working in your automated office?

n = 9

	Disadvantages	Frequency	%
(1)	None at all	5	56
(2)	They perform tasks more slowly than sighted peers	2	22
(3)	They can sometimes be very demanding	2	22

Additional comments. In category 2, one respondent pointed out that the employee took longer to do the job than sighted peers because the individual was restricted by the equipment that was being used without any kind of adaptation to compensate for its visual nature. Two other respondents stated that, although they did not see disadvantages to having visually impaired employees working in their offices, there were some inconveniences that required minor adjustments on the part of the co-workers. For example, co-workers have to remember to make the employee aware of physical changes in the office settings. They must also be more aware of keeping things in their proper place as well as drawers of desks and filing cabinets closed.

7. (a) Prior to the hiring of a visually impaired employee did you and/or any of your colleagues receive any

kind of information specific to the needs of the visually handicapped?

n = 7			
	Category	Frequency	%
(1)	Yes	0	0
(2)	No	11	100

Additional comments. Four individuals answering "No" arrived on the job after the visually impaired employee and did not receive any kind of sensitization in the current work environment.

8. How important do you think it is for an employer and other employees to have such information when a visually impaired person is a member of the office setting?

Category	Code	Frequency	%
(1) Very important	5	2	20
(2) Quite important	4	2	20
(3) Somewhat important	3	3	30
(4) Not very important	2	3	30
(5) Not at all important	1	0	
n = 10; mean = 3.5; median = 3			

Additional comments. One respondent noted that the need for such information was surely dependent upon the workplace. In this individual's setting, such information was not deemed to be very important because the people working within it were already sensitized to some degree. -The commentary of another respondent was based on the fact that there were different degrees of visual

impairment. In each case the employer must be aware of what each individual's special requirements are. "If I were a manager I would make sure that the person had the resources needed to do the job that he/she wanted to do. My job would be to get the person those resources".

9. (a) How do you think such information can be conveyed best?

n = 11		
Category	Frequency	%
(1) No opinion	3	27
(2) One to one conversation between employer and employee after hiring	3	27
(3) Group meetings/workshops with co-workers - directed by person with good communications skills	2	18
(4) Without a big fuss	1	9
(5) Printed brochures from special agencies given to all employees	1	9
(6) In general orientation sessions for all employees	1	9

(b) When should it be conveyed?

n = 8		
Category	Frequency	%
(1) Before employee arrives	3	38
(2) Upon employee's arrival	3	38
(3) Anytime - in general training or information sessions	2	25
(4) As the need for specific information arises	1	13
(5) Don't know	3	38

Additional Comments. One respondent in category (5) wondered if conveying information to co-workers before the employee's arrival would have a negative impact by

labelling that individual as being very different from others.

(c) Who do you think should convey it?

n = 11			
Category	Frequency	%	
(1) The newly hired visually impaired employee	3	27	
(2) No opinion	3	27	
(3) Employer	3	27	
(4) Agencies/others - someone with good communications skills	2	18	

10. (a) How comfortable did you feel in the presence of the visually impaired employee when he/she began the current duties or when you first met him/her?

Category	Code	Frequency	%
(1) Very comfortable	5	5	46
(2) Quite comfortable	4	1	9
(3) Moderately comfortable	3	4	36
(4) Not very comfortable	2	1	9
(5) Very uncomfortable	1	0	0

n = 11; mean = 3.9; median = 4

Additional comments. Four respondents stated that their level of comfort in the presence of a visually impaired employee had little or nothing to do with the handicap itself; rather, it had to do with adjusting to the job situation.

-One co-worker described the situation in the following way: "The visual handicap did not bother me. The thing I was most afraid of was making reference to visual things (e.g., I have the file you want right here.). I tried to

be very careful in what I said at the first meeting. I didn't know how the visually impaired person would take it. I was concerned about saying something that I shouldn't say - something that might be offensive. The employee put me at ease very quickly - joked about my references."

- Another explained that the initial exposure to a visually impaired colleague presented an awkward and unknown situation.

(b) Are you more comfortable or less comfortable now than you were earlier?

Category	Frequency	%
(1) More comfortable	11	100
(2) Less comfortable	0	0
	n = 11	

Additional comments. Nine of the 11 respondents pointed out that they are no longer conscious of any difference between the visually impaired employee and the others. They made statements such as "I forget that he's blind" and, in the same breath, followed with "but that's obviously due to the personality of the individual."

11.(a) In your opinion, how comfortable did the visually impaired employee appear to be in the office setting when he/she began the current duties?

Category	Code	Frequency	%
(1) Very comfortable	5	3	43
(2) Quite comfortable	4	1	14
(3) Moderately comfortable	3	1	14
(4) Not very comfortable	2	2	29
(5) Very uncomfortable	1	0	0
(6) N/A - not there at the time		4	
n = 7; mean = 3.8; median = 4			

(b) Does he/she appear to be more comfortable or less comfortable now than at the beginning of current employment?

Category	Frequency	%
(1) More comfortable	6	100
(2) Less comfortable	0	0
(3) No change	0	0
n = 6		

Additional comments. When the 4 respondents had joined the current workplace after the visually impaired employees, they indicated that these employees appeared to be very or quite comfortable in the office setting.

12. (a) How comfortable did your sighted colleagues appear to be when the visually impaired employee began his/her current duties?

Category	Code	Frequency	%
(1) Very comfortable	5	3	50
(2) Quite comfortable	4	1	17
(3) Moderately comfortable	3	0	0
(4) Not very comfortable	2	2	33
(5) Very uncomfortable	1	0	0
(6) N/A - not there at the time		4	
n = 6; mean = 3.5; median = 4.5			

Additional comments. In one case, the level of comfort was not a matter of concern because the co-workers were already sensitized.

-Two respondents pointed out that any feelings of discomfort amongst co-workers was due to the personality of the employee and not his/her handicap. There were co-workers who did not have much or any contact, but that may also be a function of personality rather than disability.

(b) Do they appear to be more comfortable or less comfortable now than when the visually impaired employee began his/her current duties ?

Category	Frequency	%
(1) More comfortable	6	100
(2) Less comfortable	0	0
(3) No change	0	0
	n = 6	

(d) How do you think your sighted colleagues feel about the visually impaired as co-workers?

Category	Frequency	%
(1) Good - at ease - no problem	9	90
(2) Resentful	1	10
	n = 10	

Additional comments. The respondent in category 2 explained that the negative feelings of some (not all) of the co-workers were the result of substantially lower productivity on the part of the employee who received equal pay. According to the respondent, some of the

colleagues were not very sympathetic in spite of the fact that it would be impossible for the employee to do the same amount of work in the same time frame as the others because of the great amount of paperwork required. In addition, the employee was perceived as depending too much on others.

13.(a) Describe the current duties of your visually impaired co-worker(s).

n = 11

Category	Frequency	%
(1) Wordprocessing	10	91
(2) Attending meetings	9	82
(3) Providing technical assistance to computer users and/or setting up computer systems	7	64
(4) Promoting of services/providing specialized information	6	55
(5) Telephone communication	4	36
(6) Computer programming - design, develop, implement, maintain, or debug computer programs	4	36
(7) Interviewing, counselling, and/or consulting with clients	4	36
(8) Program management/supervision	1	9
(9) Software design	1	9
(10) Systems analysis/design	1	9

(b) How long has that co-worker been performing those duties?

Time in job	Frequency	%
(1) 0 - 5 months	1	9
(2) 6 - 11 months	1	9
(3) 1 - 2 years	4	36
(4) 3 - 4 years	0	0
(5) 5 - 6 years	1	9
(6) 7+ years	3	9
(7) Don't know	1	9

n = 11

(c) How well is that co-worker performing the current duties?

Category	Code	Frequency	%
(1) Very well	5	9	90
(2) Quite well	4	1	10
(3) Moderately well	3	0	0
(4) Not very well	2	0	0
(5) Very poorly	1	0	0
n = 10; mean = 4.9; median = 5			

Additional comments. Six respondents described the job performances of their visually impaired co-workers in such glowing terms as "so very capable", "an excellent worker", and "outstanding".

- Two respondents indicated that their co-workers performed their duties very well but were more dependent on assistance than perhaps they should be, or need to be.

14. In your estimation, how adequately prepared are visually impaired persons for employment in automated offices?

Category	Code	Frequency	%
(1) Very well	5	6	67
(2) Quite well	4	2	22
(3) Moderately well	3	1	11
(4) Not very well	2	0	0
(5) Very poorly	1	0	0
n = 9; mean = 4.5; median = 5			

Additional comments. One respondent indicated that the employee was more than well prepared; the individual was extremely well-prepared.

15. In your opinion, how might their preparation for such work be improved?

n=9

Category	Frequency	%
(1) Having the appropriate equipment and other resources required to do the job	3	27
(2) The preparation was adequate as it was	3	27
(3) Don't know (no idea)	1	9
(4) Should know about office procedures-office politics-interpersonal skills-have better job counselling	3	27

16. (a) What kind of orientation should be given to newly-hired visually impaired employees to help them adjust to the automated workplace?

n = 10

Category	Frequency	%
(1) Introduction to equipment and job functions	3	27
(2) Introduction to physical surroundings-floor plan and introduce people	2	18
(3) As in (2) but take <u>time</u> to do it properly; don't rush it	1	9
(4) Training to use the specific equipment to be used on job-if required	1	9
(5) Same orientation program as other newly hired employees	1	9
(6) Interpersonal office skills-employee should be given some idea of how co-workers may react	1	9
(7) Training in office automation skills if required	1	9
(8) Nothing special if the employee already knows the equipment and is well-organized	1	9
(9) Individual should be asked privately what kind of orientation is required to meet his/her specific needs	2	18

(b) Who should provide that orientation?

n = 10

Category	Frequency	%
(1) No answer	4	36
(2) Resource people and/or agencies like CNIB, INLB, etc	3	27
(3) Manager/employer	2	18
(4) Personnel department	1	9

(c) When should it be provided?

n = 10

Category	Frequency	%
(1) No answer	4	36
(2) At beginning of employment	4	36
(3) Before arriving on the job	2	18
(4) As soon as a person becomes visually impaired	1	9

17. Having had experience with visually impaired employees functioning in the automated office, how well do you feel that their skills are being utilized?

Category	Code	Frequency	%
(1) Very well	5	5	45
(2) Quite well	4	5	45
(3) Moderately well	3	0	0
(4) Not very well	2	1	9
(5) Very poorly	1	0	0

n = 11; Mean = 4.3; Median = 4

18. Describe the range of tasks or duties which you feel are possible for the visually impaired?

n=10

Category	Frequency	%
<u>Current Employment</u>		
(1) Can do anything required by current job just as well as sighted peers	3	27
<u>Employment in General</u>		
(2) Anything that can be done with a keyboard and a terminal-any computer related task for which the employee has the appropriate tools	2	18
(3) Anything as long as the person has the right equipment and resources	3	27
(4) Most jobs are possible except for jobs where sight is a necessity such as driving a car or examining test results where columns are involved	2	18

Note. Some responses refer to current employment while others refer to employment in general.

19. Please describe your impression of your visually impaired colleague's attitude towards his/her own handicap.

n=10

Category	Frequency	%
(1) The employee accepts the situation and manages very well	2	18
(2) Very positive attitude towards disability (situation) and is well-adjusted	7	64
(3) The handicap is incidental-visual impairment is not considered to be a limitation	3	27

Additional comments. Seven respondents described the employees' attitudes as being very good, excellent and exceptional. Three co-workers indicated that their particular colleague enjoyed life and lived a very fulfilling life.

20. Do you think that the visually impaired can be given equal opportunities for training, career development, and promotion?

Please explain your answer.

Category	Frequency	%
Yes	11	100
No	0	
	n = 11	

Additional comments. One respondent believed that although such opportunities should be given, they were not currently being given.

- A second respondent believed such opportunities to be essential because the employee, in this particular setting, functioned just like any other person doing the same job.

- A third respondent emphasized that those opportunities existed now in the current setting.

21. What do you think can be done to improve the situation for the visually impaired in automated offices?

n=10

Category	Frequency	%
(1) Appropriate equipment must be made available for the individual to do the job. -interfacing for the sharing of disk files (a great time saver). -inappropriate equipment that places restrictions on the employee should be adapted. -without long delays by government and/or lots of red tape.	3	30
(2) After hiring visually impaired employees, managers and co-workers must be sensitized to their special needs.	3	30
(3) Before hiring visually impaired employees, employers and co-workers must be sensitized to their capabilities and to the need to give them a fair chance. -difficult to do. -best way is to set an example and say "Look, here is proof positive."	1	10
(4) Provide appropriate and adequate training for the visually impaired who want to work in this area.	2	20
(5) In the current situation, nothing extra is needed.	1	10
(6) No answer.	1	10
(7) Do not categorize (stereotype) visually impaired people.	1	10
(8) Sensitize (enlighten) the general public whenever possible.	1	10

Additional comments. One respondent in category (1) explained that an organization should remove any restrictions which it has imposed on the visually impaired by requiring an individual to use inappropriate or inadequately adapted tools or materials.

-With regard to category (2), two respondents pointed out that the employer and co-workers must be aware of the physical mobility limitations of some visually impaired employees. Problems can arise when the configuration of office space is altered, walls moved, etc.

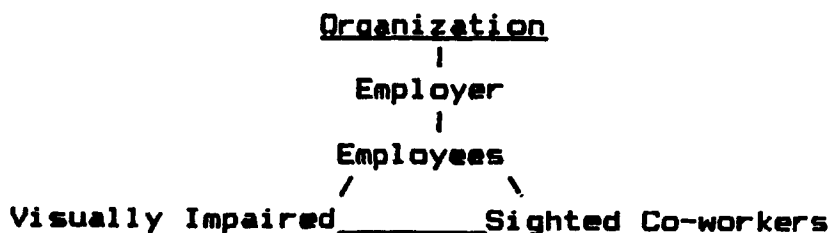
-The respondent in category (4) is aware that it is difficult to sensitize people to the capabilities of the visually impaired. However, the individual pointed out that the best way to do it is to set an example and thus be able to say "Here is proof positive." The respondent used as an example a visually impaired co-worker whose productivity is far greater than his peers, and whose influence is wide-reaching.

Section II: Comparisons

In this section, references will be made to the results presented in Section I by identifying the relevant part (A, B, or C) and the question number. For example, the results for question 12a in part B will be given as I-B-12a.

This study was designed in such a way as to gather information that, in part, compares the responses given to similar, sometimes even identical, questions from the three groups: the visually impaired employees (Group A), employers (Group B), and co-workers of the visually impaired (Group C). Of considerable interest are the nature and extent of the similarities and differences that are found among the three groups. Differences would hardly be surprising since each group would view the employment of the visually impaired from possibly very different perspectives.

How each of the three groups in the study responds to the employment of the visually impaired and their integration into the automated workplace depends on its position within the structure of a given organization.



Obviously, the concerns of the employer will be much broader in scope than those of the employee. To be successful, an employer must be concerned with organizational goals that necessarily include a certain level of productivity. Since that productivity is largely dependent upon the successful job performance of all the employees, the employer must continually be developing the employees' skills as well as assessing and evaluating each individual employee's contribution to the overall productivity of the organization.

It must be noted here that almost all the employers with whom the interviewers spoke were very emphatic about the fact that they could not generalize about the visually impaired as employees; they could only speak from their limited experience with a single employee. Only 4 of the 18 respondents in this group had had experience with more than one visually impaired employee.

Generally speaking, the concerns of all employees are much more personal than those of the employers and involve both fewer people and less responsibility. Their own job performance is a primary concern while the organization's goals, although important, are secondary. Visually impaired employees have an additional concern; that is, doing the job differently, albeit with appropriate technology, and still being able to compete successfully with their sighted colleagues.

Employment of the Visually Impaired in Automated Offices

An attempt was made to gather information about what the three groups of respondents thought about the advantages and disadvantages of having the visually impaired working in automated offices. When the 3 groups were interviewed, the visually impaired limited their considering the question to their own point of view based on current employment while the employers and co-workers dealt with the subject from several perspectives: those of the visually impaired; those of society; and their own.

The purpose of asking respondents to list these advantages and disadvantages was to begin to identify obstacles preventing the successful employment of the visually impaired and their integration into the office setting.

Advantages

In describing the advantages of their current jobs (see I-A-9a), the 19 visually impaired employees made choices that divided themselves neatly into two main categories: (a) one that related to employees in general, regardless of visual acuity; and (b) another that related specifically to their visual handicap. The four most frequently listed advantages were enjoying the job (11), being independent (10), having opportunities available (9), and enjoying the quality of the work environment (8).

All four belong to the category that relates to employees in general. Nevertheless, less frequently listed advantages belonging to the category related to the visual handicap, such as being integrated into mainstream society (8), competing successfully with sighted peers (7), and experiencing no discrimination towards the handicap (3), emphasize how important it is for respondents to be able to function as normally as possible in the sighted world.

As shown in Table 1, a composite of I-A-9a, I-B-1a, and I-C-5a, the employers and co-workers recognized limited advantages in employing the visually impaired. Five of the 17 employers (28%) saw advantages existing for the employee primarily because he/she had greater employment opportunities, was integrated into the workplace, had a chance to compete with sighted peers, and had a job that could be described as a confidence-builder. Only one co-worker described an advantage for the employee and that was the ability to gain job experience in order to become self-supporting.

Only 3 of the 17 employers (18%) and no co-workers at all saw any advantages for the employer. In one case, it was perceived that handicapped clients could relate much better to handicapped employees than to others. Two employers commented on how highly motivated visually impaired employees with their superior powers of concentration set positive examples for all the employees

Table 1

Advantages of Employing the Visually Impaired: Three Perspectives

Advantages	Frequency (%) for Group		
	A n = 19	B 17	C 10
1-None	0	6 (35)	5 (46)
2-None for employer	0	5 (29)	0
3-For employer:	0		0
-employee relates better to handicapped clients		3 (18)	
-employees highly motivated			
-tendency to stay in job longer			
-role model for other handicapped employees	1 (5)	0	0
4-For employee:			
-opportunities available	9 (47)		0
-integrat'n into mainstr'm	8 (42)		0
-competing successfully	8 (42)	5 (29)	0
-self-satisfaction in working to best ability	7 (37)		0
-being independent (self-supporting)	10 (53)	0	1 (9)
-good job experience	2 (11)	0	0
5-For society:			
-helps others work with different perspectives	0		0
-sets example for others to hire vis. impaired	0	2 (12)	0
-sensitizes workers to probs of vis. impaired	0	0	
-makes sighted appreciate life more	0	0	4 (36)
-increases awareness of vis. impaired employee's capabilities	0	0	

Note. A = Employees; B = Employers; C = Co-workers.

in those work settings. Not only could they do the work required, they competed successfully with their sighted peers. The tendency of visually impaired employees to remain in one job for a much longer period of time than their sighted peers was cited by three employers as being valuable because it ensured a continuity among all the employees that otherwise would probably not exist.

Interestingly, 4 co-workers but only 2 employers indicated that there were some societal advantages to employing the visually impaired in automated offices. It is highly likely that the organizational concerns of the employers far outweigh societal concerns. The co-workers pointed out that hiring the visually impaired not only sensitized them to the problems of the handicap, but also increased their awareness of the employees' capabilities. The 2 employers who described societal advantages had a different line of thought. They believed that it was important to hire the visually impaired, not only to set an example for other organizations to follow, but to help others to learn to work with those with a different perspective.

Disadvantages

In comparing the responses of employers and co-workers concerning the disadvantages of hiring the visually impaired shown in Table 2, one may readily see that 3

employers and 5 co-workers did not believe there to be any disadvantages at all. (Nor did the same group of respondents, with the exception of one co-worker, believe there to be any advantages). The employers, however, were much more ready to identify disadvantages than were the co-workers with 13 of the 18 (72%) listing at least one. The disadvantages listed by most employers could be expressed in terms of dollars and cents. According to 7 of them, such needs as specialized equipment, transportation, the transcription of print materials into braille, and support staff contributed to making the visually impaired more expensive to employ than ordinary sighted persons. However, the reader should note that several employers qualified their remarks by saying that their visually impaired employees more than made up for the extra cost incurred by their employment.

Five employers listed lower productivity as another disadvantage that is viewed as a financial liability. For employers who are compelled to meet quotas in order to be competitive, the lower productivity of a visually impaired employee may be difficult to accept. Two co-workers also mentioned that an employee's being slower at performing tasks than his/her sighted colleagues was a disadvantage to his/her employment. However, one of the co-workers did point out that the employee was slower than the sighted peers because of the restrictions imposed by the equipment

Table 2

Disadvantages of Employing the Visually Impaired: Three Perspectives

Disadvantages	Frequency (%) for Group		
	Employees n = 19	Employers 18	Co-workers 11
1. Daily and frequent frustrations	10 (53)		
2. Inadequacy, unavailability or inaccessibility of special equipment and materials to do the job properly (slower as a result)	5 (26)		2 (18)
3. Lower productivity		5 (28)	3 (18)
4. None	3 (16)	3 (17)	5 (46)
5. Those in the workplace who lack sensitization towards handicapped	3 (16)		
6. Misunderstanding/resentment by co-workers because of special needs of employee		1 (6)	
7. More expensive		7 (39)	
8. Dependency on support staff for help		4 (22)	
9. Employees can be demanding			2 (18)
10. Financial	3 (16)		
11. Mobility problems	3 (16)		
12. Little or no contact with others	2 (11)		
13. Inadequate preparation for job	2 (11)		
14. Underemployed	1 (5)		
15. No career advancement	1 (5)		
16. Longer training time needed to learn job (because of special equipment)		1 (6)	

that had not been adapted in any way for the employee's use. It was the lack of appropriate equipment and materials that 5 visually impaired employees identified as a definite disadvantage for them in their current employment. They acknowledged that having to make do with what they had meant that they were slower, and as a result, less productive than they might otherwise have been. They would prefer to have the means to be able to perform their tasks and duties in a competitive manner.

The employee's dependency on support staff for help was also identified by 4 employers as a disadvantage. That view was supported by 2 co-workers who explained that, in their experience, visually impaired employees could be demanding in the office setting; they expected their co-workers to do things for them that they were capable of doing themselves.

Current Duties

In order to preserve the confidentiality and anonymity of the respondents promised at the beginning of each interview, the researcher has described the duties in a general way. The kinds of tasks and duties being performed on a regular basis were deemed to be more important to the study than the actual job title. The current duties performed by visually impaired employees as described by themselves, employers and co-workers are shown in Table 3.

Table 3

Current Duties Performed by Visually Impaired Employees:
Three Perspectives

Category	Group			Total	n =
	A	B	C		
	19	21	11	51	
Category	Frequency			(%)	
1. Wordprocessing	19	20	11	49	(96)
2. Attending meetings	11	11	9	31	(61)
3. Providing and promoting services/information	6	13	6	25	(49)
4. Telephone communication	8	9	4	21	(41)
5. Computer Prog/Software Design and/or Development	7	6	4	17	(33)
6. Providing tech. assistance with computer systems	3	4	7	14	(28)
7. Interviewing/counselling/consulting with clients	2	8	4	14	(28)
8. Program management/supervision	4	4	1	9	(18)
9. Systems analysis/design	4	1	1	6	(12)
10. Secretarial/clerical	4	1	0	5	(10)
11. Administration	3	2	0	5	(10)
12. Helping with use of special equip.-includes teaching	3	0	0	3	(6)
13. Sales (incl telemarketing)	3	1	0	4	(8)

Note. A = Employees; B = Employers; C = Co-workers.

Forty-nine of the visually impaired employees (96%) being discussed in the study performed some type of word processing tasks during the course of their work. Attending meetings played a considerable role in their employment for 3. (61%) of the employees as did communicating by telephone for 21 (41%) of them and the promoting of services/information for 25 (49%). Since the n size for the co-workers was approximately half that of the other two groups, it was hardly surprising that there were no employees performing duties in categories 6, 9, 10, and 11.

The current duties that were being performed by the visually impaired using the new technologies covered a very broad range from the clerical level through to the professional, from jobs that were human resource oriented such as interviewing, counselling and consulting through to computer programming, systems analysis and software design.

Preparation for Employment in Automated Offices

Several of the employees had difficulty answering the question about the adequacy of their preparation for current duties because they were using more than one piece of equipment. In I-A-4a, 8 employees described themselves as using the Optacon, 13 were using the VBII, and 15 were using conventional computers, 12 of which included voice

synthesizers. It appeared that these employees had received good training in the use of some kinds of equipment and little or none at all in the use of other kinds. For example, respondents described the training that they had received for the Optacon as good to excellent. On the other hand, although some of it has been described by the employees as being good or adequate, much of the instruction being offered for the VBII and the conventional computers with voice synthesizers was described as inconsistent and of dubious quality. Several of the employees described the frustrations experienced when they were students in instructional courses using both the VBII and conventional computers.

In view of the general nature of the question posed, the interviewers suggested that the employees respond with an overall impression of how well prepared they believed they were for current duties. The results in Table 4 reflected both excellent preparation for current duties and very poor preparation. Interestingly, the perceptions of both the employees and the employers were very similar. Seven employees (44%) and 7 employers (50%) perceived visually impaired employees to be very well or quite well prepared. On the other hand, nearly the same number, 7 employees (44%) and 6 employers (43%) deemed the visually impaired to be either not too well or poorly prepared.

Table 4

Perception of How Well-Prepared Visually Impaired
Employees Are for Current Duties: Three Perspectives

How Well Prepared	Frequency (%) for Group		
	Employees	Employers	Co-workers
1. Very Well	6 (38)	4 (29)	6 (67)
2. Quite Well	1 (6)	3 (21)	2 (22)
3. Moderately Well	2 (13)	1 (7)	1 (11)
4. Not Too Well	5 (31)	4 (29)	0
5. Very Poorly	2 (13)	2 (14)	0
n =	16	14	9
Mean	3.25	3.2	4.6
Median	3	3.5	5

Improvements in Training/Preparation for Employment and Job Performance

The visually impaired employees supplied a great deal of information concerning (1) ways in which their training might have been (or still could be) improved (see I-A-12) and (2) ways in which their current job performance could be improved (I-A-17b). Although 1 employer and 3 co-workers did not perceive any improvements in the preparation of employees for the current job to be necessary (perhaps because they had arrived on the job after the employees had been established), most employers and co-workers did offer some suggestions for improvement. The views of all 3 groups as shown in I-A-12, I-A-17b, I-B-14, I-C-15 and I-C-21 are summarized in Table 5. When the 3 groups were compared in this way, the similarities in their views concerning the improving of the employees' job performance were readily apparent. It appeared that appropriate and adequate training was perceived by 42% (8) of the employees, 58% (7) of the employers, and 40% (4) of the co-workers as being the most important factor contributing to an improved job performance by the visually impaired. In addition, 37% (7) of the employees, 25% (3) of the employers and 33% (3) of the co-workers identified the second most important factor to be appropriate and accessible equipment (both hardware and software). A similarity also existed in the third factor;

Table 5

Factors for Improving Job Performance of the Visually Impaired: Three Perspectives

n = 19 for Group A; 12 for Group B; 10 for Group C

<u>1. Training</u>	Frequency
A. Employees- Availability of more and better technological knowledge in the form of training courses and documentation in an accessible form	8
B. Employers- (a) Special courses needed that are relevant to job opportunities	3
(b) Same training as for sighted-in house and other	3
(c) Better training for systems used in the workplace	3
(Note: 7 respondents made 9 responses)	
C. Co-workers- (a) Appropriate and adequate training	2
(b) Should know more about office procedures including the implications of office politics	3
<u>2. Equipment</u>	
A. Employees- Appropriate hardware and software needed if employees to be competitive	7
B. Employers- Better and more appropriate equipment should be more readily available	3
C. Co-workers- Appropriate equipment must be available to do the job	3
<u>3. Other</u>	
A. Employees- (a) Solving communications problems	2
(b) Better development of interpersonal skills needed	2
(c) More physical space for self and equipment	1
B. Employers- Better supervisory and managerial support should be provided	2
C. Co-workers- Knowledge about office procedures- office politics- interpersonal skills	3

Other. Although the members of each group expressed their concerns in different terms, they were all concerned with the flow of appropriate and adequate information primarily among the members of the 3 groups. All groups acknowledged that the lines of communication must be open among themselves so that needs could be identified and the required support and information provided to do the job well.

Information Concerning Special Needs

Information about the special needs of the visually impaired did not appear to be readily available when these employees were being hired. Out of a total of 18 employers and 11 co-workers (see I-B-5a; I-C-7a), only 4 employers had received any information concerning special needs prior to the employees' being hired. In fact, 3 of the 4 had had previous experience with visually impaired persons. Just how important employees, employers, and co-workers believed that it was to be informed about special needs is shown in Table 6. The co-workers' perceptions were substantially different from those of both the employees and the employers. Only 40% (4) of the co-workers deemed being informed about special needs to be very or quite important as opposed to 68% (13) of the employees and 83% (15) of the employers. Only a single respondent, an employer, indicated that, based on the

Table 6

Importance of Being Informed About Special Needs of
Visually Impaired Employees: A Comparison

Code	Importance	Frequency (%) for Group		
		Employees	Employers	Co-workers
(5)	Very	10 (53)	11 (61)	2 (20)
(4)	Quite	3 (16)	4 (22)	2 (20)
(3)	Somewhat	3 (16)	2 (11)	3 (30)
(2)	Not Very	3 (16)	0	3 (30)
(1)	Not at All	0	1 (6)	0
	n =	19	18	10
	Mean	4.1	4.3	3.5
	Median	5	5	3

current situation, being informed about the employee's special needs was not at all important.

The kind of information that should be given to employers and other employees was described by the visually impaired employees in I-A-13b. According to 62% (12) of the respondents, of prime importance was information that would help to allay the fears and dispel the misconceptions held by employers and co-workers alike. If the conveying of specialized information is as important as indicated by the respondents, careful consideration must be given to the methods used to convey it. Informal dialogue between the employee and the employer was identified most frequently by the employers (61%) and co-workers (30%) as the best way to convey specialized information. As shown in Table 7, other methods were also considered but to a lesser degree. Formal sensitization meetings conducted by agencies and/or by individuals with specialized knowledge were preferred as next best by 33% of the employers over both informal seminars/group discussions/workshops (22%) and printed materials (22%). Few of the co-workers showed much interest in this particular topic.

The responses to the question of when special information should be conveyed (see Table 8) were very interesting. According to 47% (9) of the employees, that information should be conveyed as soon as the individual

Table 7

Methods Used to Convey Special Information

Method to be Used	Frequency (%) for	
	Employer n = 18	Co-worker n = 10
1. Informal dialogue between employee and employer	11 (61)	3 (30)
2. Formal sensitization meeting conducted by agencies/ individuals with specialized knowledge - could be part of regular orientation for all employees	6 (33)	1 (10)
3. Informal seminars/group discussions/workshops as a part of staff in-service training- conducted in person with good communication skills	4 (22)	1 (10)
4. Printed material	4 (22)	1 (10)
5. First hand information from resource people experienced in dealing with same kind of disability	3 (17)	-
6. No opinion	-	3 (10)
7. Without a big fuss	-	1 (10)

Table 8
When Special Information Should be Conveyed: Three Perspectives

Time	Frequency (%) for Group		
	Employee n = 18	Employer n = 18	Co-worker n = 11
1. As soon as employee begins job	9(47)	2(11)	3(27)
2. When situation arises that requires specific information	7(37)	5(28)	1 (9)
3. Before employee begins job	2(11)	7(39)	3(27)
4. As part of regular staff training and development—when agencies/experts visit	2(11)	2(11)	2(18)
5. As part of special campaign—in schools and by media	1 (5)	-	-
6. During early stages of employment	-	2(11)	-
7. In two parts—before employment begins and two months later	-	1 (6)	-
8. Don't know	-	-	3 (7)

begins the job. Only 11% (2) of the employers were of the same opinion. On the other hand, 39% of the employers stated that the information should be available before the employee begins the job. Only 11% (2) of the employees agreed with that position. For the employer who needs to be in control of any particularly awkward situation, the sooner he/she has the requisite information the better. For the employee who is interested in becoming integrated into the work setting quickly, the task of conveying any information about special needs must begin as soon as the individual begins the job. Interestingly enough, more than one third of the employees (7) and one quarter of the employers (5) were of another mind entirely. They believed that specific information should be conveyed only when a situation arose on the job that required it.

Given that employers view informal dialogue between the individual and the employer as the preferred method for conveying information about special needs, it follows logically that the visually impaired employee him/herself should be the choice of most respondents as the prime conveyor of that information. Table 9 shows that to be the case for employees and employers. The respondents stated that the individual would be much more knowledgeable about his/her own needs than any outsider and thus was in a better position to convey those needs appropriately. A convincing 72% of employees (13) and a more modest 56%

Table 9

Who Should Convey Special Information: Three Perceptions

Conveyor of Information	Frequency (%) for Group		
	Employee n = 18	Employer n = 18	Co-worker n = 11
1. Individual him/herself only	7 (39)	5 (28)	3 (27)
2. Individual and others also	6 (33)	5 (28)	-
3. Institutions or agencies such as CNIB, MAB, INLB/ professional resource person who has worked with the visually impaired	9 (50)	7 (39)	1 (9)
4. Employer/company personnel through general information, and also specific information about individual	4 (22)	2 (11)	-
5. Public relations/ advertising using visually impaired in the media; school visits	4 (22)	-	-
6. Employer alone	-	1 (6)	3 (27)
7. Someone with good communication skills	-	-	1 (9)
8. No opinion	-	-	3 (27)

(10) of employers indicated that the individual employee should be involved in relaying pertinent information to those for whom it would be relevant in the workplace. Some of these employees (39%) and employers (28%) stressed that the individual alone should convey the necessary information while the remainder agreed that, although the individual had to be involved, others with specialized knowledge could also be helpful. In fact, 50% of the employees (9) and 39% of the employers (7) indicated that institutions or agencies such as the CNIB, MAB, or INLB, or professional resource people should be used to help people in the work setting become aware of the special needs of visually impaired employees. On the other hand, the majority of the co-workers who responded preferred to get information from either the individual or the employer alone.

Comfort Levels in the Workplace: Attitudes Concerning the Visually Impaired as Employees in the Automated Office Setting

When asked about how comfortable their visually impaired employees were at the beginning of their employment, 60% (6) of the responding employers said that they perceived the employees to be very or quite comfortable. The perception of 67% (4) of the co-workers was similar (see Table 10). No reason was given as to why

Table 10

Visually Impaired Employees' Degree of Comfort in the
Automated Office Setting: Three Perspectives

Degree of Comfort	Code	Frequency (%) for Group		
		Employees n = 19 At Present	Employers n = 10 At Beginning Of Job	Co-workers n = 6 At Beginning Of Job
1. Very comfortable	5	16(84)	0	3(50)
2. Quite comfortable	4	1 (5)	6(60)	1(17)
3. Moderately comfortable	3	1 (5)	0	0
4. Not very comfortable	2	1 (5)	4(40)	2(33)
5. Very uncomfortable	1	0	0	0
6 N/A (not on the job at the time)			8	4
Mean		4.7	3.2	3.5
Median		5	4	4.5

the remainder of the employees were perceived to be less than very or quite comfortable. The employers of 91% (19) of the employees and the co-workers of 100% (10) of their visually impaired colleagues described them as being very well-adjusted individuals with positive attitudes concerning their disabilities to the point that, in many cases, the disabilities were not perceived to be limitations by the disabled individuals (see Table 11). In response to I-A-14b, several employees claimed that most of the discomfort exhibited at the beginning of employment was the result of the individual's having to adjust to the demands of a new job, probably in a new environment, perhaps in a new geographical location, with new superiors and colleagues. Consequently, it was hardly surprising to find that 90% (17) of the employees described themselves as being very or quite comfortable in the workplace at the time of the interviews when they were all familiar with their jobs, the procedures of the workplace, and the personnel (see Table 12). The remaining 2 employees stated emphatically that their current levels of discomfort had to do with problems in the job situation rather than with their visual disability.

On the other hand, at first meeting, the employees' disabilities appeared to affect the comfort levels of both employers and co-workers considerably. In designing the study, the researcher had not considered the comparatively

Table 11

Attitudes of Visually Impaired Employees Towards Own
Disabilities as Perceived by Employers and Co-workers

Category	Frequency (%) for Group	
	Employers n = 18	Co-workers n = 10
1. Employee is well-adjusted and has a positive attitude towards the disability	19 (90)	7 (70)
2. Employee does not perceive disability to be a limitation	7 (33)	3 (30)
3. Employee has not accepted the disability-tries not to let on that a disability exists	1 (5)	0
4. Employee still adjusting to a comparatively recent impairment	1 (5)	0

Note. The 18 employers were commenting on 21 employees.

large number of employers who would have joined a particular office setting after, and in some cases long after, the visually impaired employee. In this study, there were 8 such individuals who were actually managers or supervisors. According to the results shown in Table 12, these employers appeared to have been somewhat less comfortable in the presence of a visually impaired employee at first contact, than their counterparts who had been in the work setting before the employee. Only 38% (3) of those who had joined the workplace after the employees, but nearly 80% (7) of those who had been there before, indicated that they were either very or quite comfortable in the presence of those employees (see Table 12).

All the employers in the very comfortable category and 2 in the quite comfortable, indicated that their comfort levels have remained the same since meeting the visually impaired employees. All the others, without exception, stated that they were more (or much more) comfortable at the time of the interviews than at the outset (see I-B-9a).

The situation described for the employers appears to some extent to be mirrored by the co-workers. The results in Table 13 show that 86% (6) of those on the job before the visually impaired employee were very or quite comfortable in his/her presence initially. On the other hand, all of the co-workers (4) who arrived after the

Table 12

Employers' Degree of Comfort When First in Contact with
Visually Impaired Employees

How Comfortable	Code	Frequency (%) of Employers in Job	
		Before Employee	After Employee
1. Very	5	3 (33%)	3 (38%)
2. Quite	4	4 (44%)	0
3. Moderately	3	1 (11%)	3 (38%)
4. Not Very	2	0	1 (13%)
5. Not At All	1	1 (11%)	1 (13%)
n =		9	8
Mean		3.9	3.4
Median		4	3

visually impaired employee were only moderately comfortable in his/her presence at first meeting.

As indicated in Table 13, the percentage of co-workers who described themselves as being very or quite comfortable when the visually impaired employees first joined the work setting (86%), was somewhat greater than that perceived by employers and employees. Two-thirds (67%) of the employers believed the co-workers to be very or quite comfortable in the presence of the visually impaired at the outset, but only 56% of the employees did so.

Equal Opportunities

When the employees were asked about the existing possibilities for training, career development, and promotion, 14 of the 16 (see Table 14) who responded stated that they were being or would be given the same opportunities as sighted employees. The remaining two claimed that their lack of opportunities was the result of reading problems and their own discouragement as well as their employers' lack of understanding of their (the employees') capabilities, potential and special needs. Only one of the employers in the study was convinced that the visually disabled employees "reached their peak sooner", and as a result could not do the same job as

Table 13

Co-workers Degree of Comfort in the Presence of Visually Impaired Employees: Three Perspectives

Degree of Comfort	Code	Group				
		Employees	Employers		Co-workers	
		n = 18 At Beginning of Employment	n = 9 When V.I. Began Job	n = 7 After V.I. On Job	n = 7 When V.I. Began Job	n = 4 After V.I. On Job
1. Very	5	8	1	0	5	0
2. Quite	4	2	5	3	1	0
3. Moderately	3	3	0	0	0	4
4. Not Very	2	5	2	2	1	0
5. Not At All	1	0	1	2	0	0
Mean		3.7	3.3	2.6	4.4	3.0
Median		4	4	2	5	3

Table 14

Equal Opportunities for Training, Career Development and Promotion to be Available for Visually Impaired Employees

	Employees	Employers	Co-workers
Yes	14	17	11
No	2	1	0
n =	16	18	11

sighted employees. The remaining 17 employers maintained that the visually impaired should be given equal opportunities. However, several were quick to qualify that statement. The availability of equal opportunity was dependent not only on the capabilities of the employee and the nature of the work in question but also on the individual employer's attitude towards the career development of visually impaired employees (see Results I-B-19).

One employee stressed that, unless an employer were favourably predisposed to enabling visually impaired employees to work to potential, these employees could be locked into dead-end jobs with no opportunity for training or advancement. Unfortunately, there are too many employers who believe that the visually impaired should be thankful for any kind of employment regardless of its appropriateness. These employers appear to be not at all aware of the skills and capabilities of the visually impaired (see Results I-A-19a).

All 11 of the co-workers stated that equal opportunities should be made available to visually impaired employees especially if, as one respondent pointed out, the individual were doing the same job as a sighted person. Two co-workers pointed out that the visually impaired employees in their office setting at the time of the interviews did not have opportunities for

training or career development available to them. On the other hand, three others pointed out that, in their workplace, the visually impaired employees did have career development opportunities available (see Results I-C-20).

Assessment of the Visually Impaired Employees' Current Job Performance

The respondents in all three groups were asked to assess the job performance of the visually impaired employees using the job performance of their sighted colleagues as a basis for comparison. The perceptions of the respondents in all three groups appear to be somewhat similar (see Table 15). Seventeen of the 19 employees judged themselves to be performing very or quite well. The remaining two employees believed that, because of stressful circumstances currently existing, they were unable to perform their current duties very well. However, all 19 stated that those for and with whom they worked believed them to be performing their current duties very or quite well. It is important to note here that most of these employees had received formal or informal performance evaluation reports from their current employers. The 18 employers in the study described 17 of their 21 employees as performing very or quite well, even identifying 2 of these as being outstanding. All 10 of the co-workers described their visually impaired colleagues as

Table 15

How Well Visually Impaired Employees are Performing
Their Current Duties: Three Perspectives

Category	Code	Group		
		Employees n = 19	Employers n = 18	Co-workers n = 10
How Well Performing		Own Perception	Perception of Others' Perception	
1. Very	5	15	16	9
2. Quite	4	2	3	8
3. Moderately	3	0	0	4
4. Not very	2	2	0	0
5. V. poorly	1	0	0	0
Mean		4.4	4.8	4.2
Median		5	5	4

Note. The 18 employers were commenting on 21 employees

performing very or quite well with 6 of them using superlatives to emphasize their descriptions.

On the other hand, the 4 employers who described their employees as performing their jobs moderately well indicated that these employees were not able to perform the full range of tasks required by the job but generally did well those things that they could do.

Table 16 has been included to show the difference that existed between (1) the employers' assessment and (2) their satisfaction with the employees' job performance.

Section III:

Qualitative, Descriptive Data

This section consists of the qualitative, descriptive data produced by the study. For the most part the individual cases that appear deal with material that may be described as conspicuous exceptions. Another kind of description that is included is of a testimonial nature. A few individuals have commented on matters of concern to them and also offered solutions in some cases.

Training and Preparation for the Job

Most of those who were asked about their own training and preparation for the job restricted their comments to the computer-related courses that they either received or failed to receive. However, a few respondents expanded their answers to include possible changes to the current

Table 16

Employers' Assessments of and Satisfaction With Visually
Impaired Employees' Performance: A Comparison

Category	Code	Frequency (%) of Assessments	
		How Well is Employee Performing?	How Well is Employer Satisfied?
1. Very well	5	9 (43)	13 (65)
2. Quite well	4	8 (38)	5 (25)
3. Moderately well	3	4 (19)	2 (10)
4. Not very well	2	0	0
5. Very poorly	1	0	0
n =		21	20
Mean		4.2	4.6
Median		4	5

training and education provided for visually impaired individuals with a view to their integration in the automated office setting.

One respondent dealt with the question of training and preparation for work from a practical perspective.

According to him, in terms of integration, the issues of sensitization will be the biggest obstacles to overcome, but technology does offer the visually impaired a real path into the workplace. However, in order for them to become integrated successfully, it is essential that they be able to compete with their sighted peers on an even plane. The respondent firmly believed that, as a minimum, the visually impaired needed:

- (a) standard good reading, writing, and speaking skills;
- (b) good independent daily living skills to survive in the workplace; and
- (c) sound computer literacy skills.

He maintained that "placement and vocational counsellors (are needed) who can appropriately match people to careers and equipment and then go into the workplace to advocate for them and be there to assist with the integration process in the workplace". He conceded that there would be "super individuals who will be able to find their own jobs and integrate themselves well in an automated office setting, but (that) these individuals are the exceptions currently in the vanguard". Without the

kinds of skills listed and the support available from placement and vocational counsellors, the respondent did not believe that the average person who was visually impaired would be given the chance to succeed at ordinary jobs. He acknowledged that the current situation was such that "many disabled persons are so grateful to get any kind of job that they simply sit back and coast rather than thinking about pursuing normal career goals".

A second respondent pointed out that in the past very little career guidance was given to those who were visually impaired. He maintained that "if the disabled are going to be considered in the same way as able-bodied people for a position . . . you have to ensure that disabled people have had the same training opportunities, the same educational opportunities, the same growth potential and the same integration and development as children" as that received by the able-bodied. He stated categorically that you "can't put a kid into a residential school and expect the kid to function normally".

Like the previous respondent, this individual acknowledged that there were those (and he among them) who had succeeded because of a good combination of personal characteristics, a strong drive, and a powerful desire to overcome obstacles and to achieve.

The third respondent found his preparation in the formal school setting to be lacking for reasons very

different from those given by the other two respondents. This respondent made the point that real skills are not taught in school. In his experience, in the real world, people have to work together to achieve a common goal. At university, one does one's own work; in the real world one must develop projects in cooperation with others. The respondent explained the nature of the team project very clearly when he stated that "you not only have to know how to do your work but have to understand how they (other team members) do theirs. You have to tolerate what they do that's different from you and you have to get along with them on a personal level". As a solution to correct the situation that the respondent had identified, he proposed that students be involved in a team project to design something. One group of students would be required to figure out functionally how something should work without touching the design. A second group would then design it based on the first group's (functional) description. After the design had been completed, the third group would have to test it. Finally a fourth group would be required to fix the problems that the people who tested it had found. The respondent believed that by being part of this kind of realistic exercise in the school setting, students would learn that, "you spend your whole life working on somebody else's stuff. You never spend your whole life working on your own stuff".

The respondent explained that "if you had ten years and your competition was not trying to get ahead of you, you could apply the kind of theory being taught (in school). But that does not work in reality because the competition is trying to get ahead of you and you must be able to produce responsible work. Students are not taught how to do this in the school setting."

In computer training courses, one respondent indicated that the blind themselves could be and should be demonstrators.

Training Courses on the Job.

One of the respondents who had been given the opportunity to attend training courses offered to his sighted peers found these experiences to be highly frustrating and for that reason far from motivating. He was frustrated because he did not have access to course material in advance as did his sighted peers: the materials were not available in a form that he could use prior to the course's being given. Perhaps an even greater frustration was not ever being able to apply on-the-job knowledge and information gained in any training course sponsored by the employer.

At times when the respondent was particularly discouraged, he believed that the courses were extended to him in a patronizing way and not seriously as

prerequisites for advancement. When employees were vying for promotions, he had the feeling that he was removed from the competition because of his visual disability. He had the impression that others believed that he should be content with what he had.

Special Cases.

Two special cases that have been identified through the data-gathering process cannot be discussed in detail because of the need to preserve the individuals' anonymity and the confidentiality promised. However, the researcher would like to consider these cases from a general point of view. Problems that should never occur in training situations do so because one simple fact is not addressed: in any instructional process the learner must be at the centre of the process. In this context, instruction that is properly developed and delivered should result in the learner's achieving the desired goal (i.e., mastery).

Work Experience Programs and Term Positions

In the course of the interview, one respondent expressed concern about work-experience type programs or fixed term positions in government that have been set up supposedly with the idea of helping people to integrate. He has wondered whether or not these programs or term positions have been at all effective. His first concern

was with the tendency of an employer to hire a person because a third party (the government) will pay the wages for a given period of time, let that person go when the fixed term expires, and then hire another person for another fixed term.

His second concern was how a person who had been through two or three work programs might be perceived by a prospective employer. He thought that the work experience would start to count against the person when he/she applied for a job. During a job interview, when the individual would be trying to sell himself/herself, the employer might well wonder why, if the individual were so capable and should be hired, the previous employers were not able to find room for that individual in their organizations.

This respondent went to the Public Service Commission in Ottawa to find out about the program for disabled persons. He explained to a staffing officer that he was looking for full-time permanent employment. He was told that "well over 90% of their placements were term positions." The respondent concluded that rather than integrating disabled persons in the work force, they were getting them "off the street for a short period of time".

Another respondent who had been hired for a term position had had the term extended for a few months but was later laid off because the government department

concerned had run out of its allotment of "person years". According to the respondent, supervisory staff had talked about the possibility of getting the appropriate electronic equipment that would have enabled the employee to work more productively. However, the employee believed that little effort had been made in that direction because the position was term as opposed to permanent. In describing the situation, the respondent emphasized that a term contract meant that there were no fringe benefits for the employees.

Employment Equity and Quotas.

One respondent maintained that the only way to insure that employment equity would exist would be to legislate or regulate it. According to him, the voluntary approach did not work. Although he had satisfactory employment, he was aware of well-qualified people who did not. He spoke about the quota system that had been adopted in Great Britain. To ensure employment equity, 1% of the work force must be disabled. He also pointed out that to have contributing disabled people working along with contributing able-bodied people was for the good of society not just for the good of the disabled.

The second respondent disagreed wholeheartedly with using any kind of quota system for employing the disabled.

He felt that a person should be hired "because he is good, not because he is disabled".

One employer described his ambivalence very honestly when he discovered that the best applicant for a given job happened to be visually impaired. On the one hand, he was impressed with the applicant's qualifications and experience. (Had the applicant not had a visual disability, the employer claimed that he would have hired him without a second thought). On the other hand, the applicant was visually impaired and that fact caused the employer to do some soul-searching before he hired that individual. He decided that, in fact, there was no reason not to hire the applicant. On the job that employee was functioning as well as his sighted peers and was fully integrated into the automated office setting.

Reactions to an Employee's Disability

One respondent summarized the issue of employers' and co-workers' comfort levels in the presence of disabled persons by stating that "their reaction is almost entirely a function of the employees' own reaction to whatever disability they might have and, of course, their own competence on the job. If you're comfortable and you're competent then you have no problem in the workplace".

The Ability to Function

"One can do anything one wants. The trick is to stop listening to everyone telling you you can't. There's nothing really that makes blind people less capable than anyone else. . . . A strong personality helps. . . . People don't ask questions because they think it's impolite. . . . You have to convince the employer that you can function fully in their place of business. The problem is that it is set up for people who can see".

Kind of Equipment Used in Programming.

Several of the employees who were engaged in computer programming were using a computer equipped with a voice synthesizer. However, they complained that it was too slow and expressed an interest in finding some way to speed up the process.

Only one employee used different equipment to perform computer programming tasks. With an Optacon he could read what a conventional terminal had printed on a piece of paper. If he needed something large, a quick scheme had been developed that enabled him to get a braille print-out from the computer printer. The Optacon was extremely useful because it suited the kind of work he was doing. He did not use a voice synthesizer because he agreed that it was too slow. "If you are scanning for something, voice is useless. . . . An Optacon is very useful because you can

just put it where you want to read. . . . If you are writing . . . computer programmes that you want other people to read and be able to use and maintain and look after, you want to make sure that things line up nicely in columns and that they're indented nicely so that they're easy for other people to read. . . . You can't check that with a voice output either. . . . I can do things and make them be exactly what other people want to work with. Voice does not give you an impression of what it looks like and other people look at things and want them to look right".

When the respondent was asked if additional or improved equipment might help him to do his job more easily, he replied that "I've almost got what I need. I know what I want my Optacon to do better than it does. I want an extra attachment on it. . . . I want to be able to hook the Optacon up to the memory buffer of one of those terminals with a screen on it and then move a mouse-like thing to show the part of the screen I want to look at. That would be very useful".

CHAPTER 5

Discussion

The following chapter will focus on a discussion of the major problems surrounding the integration of the visually impaired into automated offices as identified in the results of the study. The attitudes of all the individuals involved as well as the visually impaired's preparation for employment are the major areas of concern. Since one of the primary objectives of the study is to provide a general picture of the existing situation in automated offices currently employing the visually impaired, information was obtained from the three parties directly affected; namely, visually impaired employees, employers of the visually impaired, and co-workers of the visually impaired. Only those who were willing and motivated to take part in the study did so. Fewer co-workers (11) than either visually impaired employees (19) or employers (18) participated because of the method chosen by the researcher to obtain their co-operation. Several employers refused to give their sighted employees an opportunity to participate: they preferred to avoid any potential problems concerning interpersonal relations that might be created by having one employee speaking confidentially about another to an outsider. Having fewer co-worker respondents did not appear to pose any problems because the data obtained from them were usually

redundant. The co-workers' observations and comments were less comprehensive than those of the other two groups undoubtedly because the process of integration of visually impaired employees affected them far less.

The picture of the visually impaired employees presented in the findings shows a select population, predominantly male, quite well-educated, most of whom were between the ages of 26 and 44. Fifteen of the 19 have completed the CEGEP or Grade 13 level of schooling or their equivalent; 5 have university degrees at the bachelor's level, and an additional 4 have postgraduate degrees (see Results I-A-22). Their similarities are basically two: they all suffer from blindness or some kind of visual impairment; and they are all using electronic office equipment, albeit with a very wide range of proficiency. Many of them referred to themselves as achievers who want to get on with living productive, self-sufficient lives integrated in mainstream society. Alone or with outside support, they are continuing to learn to use the new technologies to help them live the lives of their choice. That they may be succeeding in their jobs (and some of them are very successful) does not mean that serious problems do not exist. Most of the visually impaired employees interviewed were able to make sound suggestions to improve existing situations not only

for themselves but for their employers and co-workers as well.

The discussion of the problems concerning the integration of the visually impaired in automated offices can logically move from the general to the particular. Major societal problems are considered first because they determine to a great extent the problems that visually impaired employees, their employers and co-workers experience in the workplace. Where appropriate, conclusions are drawn. The conclusions involving technical skills training and preparation for employment lead to a recommendation that management of the many, complex, interrelated issues which surface must be carried out by a central, coordinating agency. Following the discussion of societal problems, the main problems that have been identified in the workplace are dealt with and conclusions are made. The issues that are of special concern to the visually impaired employee are addressed in the latter section. The recommendations stemming from this section are directed at changes in procedures and attitudes that are largely particular to a given workplace.

Societal Issues

Sensitization

Perhaps the most serious societal problem is the general lack of sensitization toward all disabled persons including the visually impaired. Although stereotypes can help people categorize entities with which they are unfamiliar, unfortunately they can also be a great source of misperceptions and fears. Stereotyped views of the visually impaired and the misperceptions and fears that they generate are very common in our society. For example, according to one respondent, many people in mainstream society believe that all visually impaired people are the same. As a result, they believe that, if one fails in a particular job, all will. Those in mainstream society undoubtedly view the visually impaired as very different from themselves because they have not been sensitized to the fact that the disabled are individuals with a full range of personalities, skills and abilities. As described by another respondent, the visually impaired are "people first and nothing more than people with a disability."

Interestingly, when the visually impaired employees were asked what information about special needs should be given to employers and co-workers, their top priorities (Results I-A-13b(i)) were the following issues, all of them concerned with sensitization:

- (a) helping to dispel fears and misconceptions (63%);
- (b) making people aware of how the visually impaired can use the technology for the benefit of employers and co-workers (37%);
- (c) sensitizing others to the capabilities of the visually impaired and the need to exercise those capabilities (32%); and
- (d) sensitizing others to the "ordinariness" of the visually impaired (21%).

In its 1988 annual report, the Ontario Human Rights Commission reported that in 1987 more than 40% of the 1786 complaints were related to disabilities, especially physical, and almost 90% of the 730 complaints from disabled people were related to job-discrimination and other employment related situations ("More complaints", 1988). According to Henry Enns, chairman of Disabled Peoples' International, despite rights guaranteed them in the Canadian constitution, the disabled must still overcome prejudice (Scanlan, 1989). In fact, the results of this study indicate that discrimination towards the visually impaired does exist in the automated office setting primarily in the area of equal opportunities for training, career development, and promotion. In one case, a visually impaired employee stated that he would not be given such equal opportunities because, he maintained, he had been prejudged and categorized before the employer had had a chance to understand his (the employee's) working ability (Results I-A-12b). He continued by saying that, in

situations such as his, sensitization of both employers and co-workers was needed. Four employers went a step further when they explained that equal opportunities were possible only if employers had a positive attitude towards the development of their visually impaired employees (Results I-B-19). The implication is that there are among them employers whose negative attitudes preclude equal opportunities being made available to their visually impaired employees. In one automated office, a co-worker stated categorically that equal opportunities were not being made available to the visually impaired employee at that time (Results I-C-20).

Patronizing Attitudes

Society's lack of sensitization is responsible not only for discrimination towards the disabled but also for patronizing attitudes that are, in many ways, almost more insidious. Although people may honestly believe that they are acting out of a positive desire to be helpful, their actions are often counter-productive. Instead of providing opportunities for the visually impaired to become contributing members of society, as independent and self-sufficient as possible, society in general still tends to treat all disabled persons condescendingly, humouring them rather than dealing with them honestly. In one of the special cases referred to in Results III, the

visually impaired respondent was incensed at being praised generously by the employer and co-workers for doing a good job when, under the circumstances, the individual was well aware that doing a good job was impossible. The visually impaired must constantly struggle against the patronizing attitude that would prefer to keep disabled persons in their place, that is, out of the mainstream. There are undoubtedly many others like the two visually impaired employees who indicated that they never stop trying to do a good job, thereby "proving those wrong who said you couldn't do the job" (Results I-A-9b).

Quotas

Canadian society has formally acknowledged in the Canadian Charter of Rights and Freedoms its responsibility to secure equal rights for several segments of the population including the disabled. The federal government has recognized that those with special needs must be given opportunities for training that will enable them to be integrated in the workforce and, correspondingly, has established quotas for them in some federally funded training programs. Unfortunately, what appears to be missing in practice is an understanding that the training provided must be established in a systematic way. When quotas are set, little thought appears to be given (a) to the implications of including learners whose needs may be

very different from those of the majority, (b) to the ability of the instructors to deal with the special needs of those who have been accepted as quota students, or (c) to what will happen to the quota students once the training has been completed. When quota learners have been accepted into training programs, the research has shown that the instruction provided tends to be adapted for those with special needs after the program has begun rather than before, as it should have been (see Results III-Special Cases).

Hiring quotas present quite another problem. What do they mean? They definitely do not mean the hiring of people who are unqualified for the job; rather, they refer to the hiring of competent, qualified people whom employers are reluctant to, or will not, hire because they are disabled. Although some countries, Great Britain among them, have legislated hiring quotas for business and industry, other countries along with Canada still operate on the voluntary setting of quotas. As seen in Results III, the visually impaired themselves are divided as to whether or not quotas should be imposed in order to compel employers to hire them.

Although having competent individuals competing with their sighted peers on the same level is highly desirable, as well as being the ideal, the attitudes of employers very often stand in the way of fair employment practices.

Highly competent visually impaired individuals with strong, outgoing personalities are frequently able to convince prospective employers that they can perform the required tasks as well as, or perhaps even better than, sighted applicants. Such individuals appear to be able to function well in a system that does not use quotas. Unfortunately, those who may be qualified and competent but less outgoing are not often able to do the same. Employers who have not been sensitized to the skills, abilities, or the needs of the visually impaired are understandably reluctant to take on what for them is an unknown quantity. A quota system allows the visually impaired employee to get a foot in the door in order to prove his/her worth while at the same time allowing the employer to become sensitized to the capabilities of those disabled persons who are ready and able to compete with their sighted peers.

According to the results of the study (see Results I-B-12c), 81% of the visually impaired employees have been judged by their employers to be performing very or quite well. Of these, 12% were described as being outstanding in comparison with their sighted peers. Also important, but not entirely surprising, are the results indicating that the employers' satisfaction with the job performance of their visually impaired employees is even greater than their assessment of it (see Table 16). For the majority of

employers who had little or no knowledge of the skills, potential and capabilities of the visually impaired when the employees were first hired, their experiences, almost without exception, have been very positive. Many have been astounded by the quality of the work being done. Even in cases in which the job performance is not directly comparable to that of an employee's sighted peers, it is usually much better than that anticipated by the employer. Perhaps because many of the employers did not have great expectations, they have been pleasantly surprised. Ninety per cent of them claim to be very or quite well satisfied with the job performances of their visually impaired employees (see Table 16).

According to these results, it would appear that the key to developing an understanding and appreciation of the capabilities, skills, and abilities of their visually impaired employees is the employers' personal and professional contact with them. Unfortunately, that critical contact will not be made unless employers can be encouraged to hire qualified and competent visually impaired persons. Although incentives such as government subsidies for adaptive devices and adequate training are available to them, too few employers have been convinced of the need to hire the visually impaired. Since the voluntary hiring of the disabled has not worked very well to date, the setting of formal hiring quotas must be given

serious consideration in order to facilitate the integration of the disabled in mainstream employment.

Government Policy and the Integration of the Disabled

The federal government perceives itself as a leader in the integration of the disabled. The Treasury Board has established a service called Participation of Handicapped People which provides advice on government policy and on the availability and suitability of technical aids. In June 1983, the Treasury Board announced the establishment of public service-wide affirmative action measures that included the Access Program for Disabled People (see Appendix J). This program offers to qualified, but inexperienced, disabled people on-the-job training for up to six months. Each of the Commission's regional offices has a co-ordinator of services to handicapped people to help departments interested in the program. These co-ordinators are instrumental in "recruiting qualified disabled persons for the Commission's inventories, providing support and assistance to departments in staffing actions involving handicapped candidates and seeking employment opportunities in departments on behalf of applicants with disabilities" (Personnel Management Manual, p.3). It must be noted that the federal departments and agencies are not obliged to participate in the Access Program; they do so strictly on a voluntary

basis. Those who choose to participate "may receive up to six months of salary costs and 'person-year' resources, and may borrow technical aids to assist disabled people who need them to carry out job-related tasks. In return, departments are expected to commit themselves to some form of continuing employment for trainees who successfully complete training programs" ("Technical Aids").

The phrase "some form of continuing employment" is very vague and can be misleading. What, in fact, does it mean? Does it mean permanent employment? According to a second pamphlet dealing with the Access Program ("Working with Technology"), "training opportunities lead to permanent jobs for people who succeed in their training". In reality, although such training opportunities may lead to permanent employment, they frequently lead to short-term contracts that are not renewed (See Results III-Work Experience Programs). Several participants in the study, two employees and one co-worker, have commented on how demoralizing it can be for a competent individual to try, through government programs, to find employment that can lead to permanent employment. Rather than helping to build an individual's confidence level, the Access program that leads to unrenovable short-term employment can seriously erode it. The Public Service Commission must find some way of implementing its policies fairly at all

levels if it hopes to serve the participants of the Access programs adequately.

Although the Public Service Commission is committed to employment equity for the disabled, it acknowledges that "the greatest obstacle to employment for people with handicaps appears to be a lack of awareness or of sensitivity on the part of managers and personnel administrators" (Personnel Management Manual, p.6). It encourages departments and agencies to use the resource personnel available to inform personnel administrators and line managers of the special needs and capabilities of persons with handicaps. How much sensitizing is actually being done? The results of this study indicate that fewer than 25% of the employers/supervisors/managers were sensitized to the needs of their visually impaired employees or made aware of their capabilities before those employees began their jobs (Results I-B-5a). On the other hand, 83% of the people in the same group stated that it was very/quite important to be informed about their employees' special needs and capabilities (Results I-B-7). The problem appears to be one of will. Once the Commission puts the onus on the departments and agencies by encouraging them to take action, the process of sensitizing personnel administrators, line managers, and co-workers to the needs and capabilities of the disabled seems almost doomed. Too little time and too great a work

load are undoubtedly offered as reasons by those with little inclination or interest and higher priorities.

However, when a few individual employees are committed to developing and then implementing an employment equity initiative, whole departments can be the beneficiaries. Three employees working for the Employment and Immigration Commission (EIC) submitted a proposal for an ambitious employment equity initiative (see Appendix K) that was accepted and subsequently implemented. An Awareness Week was staged successfully with active participation by the staff at all levels within the national headquarters of the EIC. The EIC's Awareness Week might well be used as a model by other departments and agencies of the federal government as well as by private business and industry.

Education and Technical Skills Training

Integration of the visually impaired in the mainstream may be society's stated goal, but it cannot happen effectively unless the visually impaired are able to compete with their sighted peers. Furthermore, if they are to compete on the same level, then their preparatory educational and skills training opportunities must also be as good as those for the sighted. Since society claims to be serious about the integration process of the disabled, it must accept the responsibility for providing

appropriate educational and training opportunities to enable the visually impaired to compete successfully.

Unfortunately, society's patronizing attitudes have caused the educational and training opportunities currently available to the visually impaired to be very different from those available to people in the mainstream. In a personal assessment of the current situation regarding training and preparation for employment (Results III), one respondent has emphasized that, because few disabled persons have had the same kind of educational and training opportunities, the same integration development as children, or the same kind of career counselling as able-bodied persons, the majority will not be as adequately prepared for integration in the workplace as the able-bodied.

Both public and private organizations are guilty of behaving in a patronizing manner towards blind and visually impaired learners. They appear to believe that the participation of the disabled in a given program, regardless of its quality, is much more important than its successful completion for the participants. There are also those who believe that visually impaired learners are somehow fragile and must be dealt with very gently. For example, the research found that in some cases ultra-simple wordprocessing programs were being taught because they would be easier to learn in spite of the fact

that programs such as Wordperfect and Wordstar, standards in business and industry, would have been infinitely more useful to learners preparing themselves for the workplace (Wheatley, 1986). In addition, instead of evaluating the learners with comprehensive testing, no systematic evaluations were done because the learners might have been discouraged by the results. It would appear that little thought has been given to the consequences of sending a poorly prepared individual who is also sensorily disabled into the competitive atmosphere of the workplace. If the blind and visually impaired are to compete with their sighted peers, then their preparation for work in automated offices must be as rigorous as that received by their sighted peers. It is essential that all instructors as well as others who work in agencies on behalf of the blind and the visually impaired be competent, well-informed and well-sensitized to their needs; they must understand how vital it is for those who choose to find employment in mainstream society to be adequately prepared to compete successfully.

The reader must bear in mind that the sample of visually impaired respondents in this study does not belong to the majority. Although a few of the respondents had completed their formal schooling before their visual disabilities developed, most of the respondents who were blind or visually impaired in early childhood received

elementary schooling in residential schools and then attended regular schools for a large part or all of their further schooling. With 18 of the 19 respondents completing high school, 9 of the 18 completing university degrees, and 4 of those, postgraduate degrees (Results I-A-22), the educational level of the sample population is higher than that of the national average. Most of the individuals have succeeded because, with extraordinary effort and determination, they have been able to overcome formidable obstacles. Surely success in the workplace should not be any more contingent on extraordinary effort and determination for the visually impaired than it is for those in the mainstream.

For most of the individuals in this sample, getting a formal, academic education appears to have been much easier than getting adequate technical skills training. As far as the technical skills of the sample group were concerned, the findings indicate that 63% of the respondents consider themselves to be virtually self-taught (Results I-A-11). They either worked alone or with another without the benefit of adequate documentation or an instructor. A large number of them (44%) indicated that the technical skills training that they did receive had prepared them for their current duties very poorly or not very well. These results coupled with the suggested improvements for the training that they did receive for

their current employment (Results I-A-12) point to gross inadequacies in the instructional process.

The Learner As Focal Point in the Instructional Process

Good instruction can be developed and delivered when the top priority in the instructional process is the learner. All too often the top priority is shifted to other factors such as cost, time, administrative convenience, or political expediency. Beer (1981) describes how an organization designed to serve a group of people can take on a life of its own with its own survival as its goal; moreover, the services or programs that the organization was designed to provide are dealt with almost as by-products of the system. The research uncovered an example of this phenomenon in a course offering computer applications training to the visually impaired (Wheatley, 1986). The majority of the learners had had no prior experience with computers. The course was to be given in four sessions on consecutive days, with each session lasting six hours. From the administrative point of view, fewer, but longer, instructional sessions would mean fewer scheduling problems involving space and instructors, fewer transportation difficulties for the learners, and a lower learner absentee rate. Unfortunately, the administrators did not comprehend the disadvantages of such a schedule for the learners whose

learning was the reason for the course's being. Anyone knowledgeable about providing effective instruction understands that people who are learning lose their concentration and get tired. The research did not find a single instructor who believed that sessions that were six hours long provided the optimal learning span for the learners. Most favored sessions approximately two hours long, with three hours being the maximum if absolutely necessary. Although learning by doing is extremely important, "learning by digesting is also very necessary in the learning of complex principles" (Anderson and Klassen, 1981, p.138). Instruction that does not allow the learner time to reinforce what has been learned before going on to the next concept is counter-productive. In the case just described, it was hardly surprising that the course had to be extended because, on average, the learners took at least twice as long as expected to master the objectives set out for the course.

The speed with which computers have been developed together with their rapid acceptance as an integral part of the modern world has created a situation in which the demand for instruction has far outstripped the number of people who are capable of applying good instructional techniques to computer instruction for the visually impaired. For example, in the two special cases referred to in Results III, visually impaired students were

accepted almost arbitrarily into learning situations designed for sighted students. As a result of the target population's not having been defined clearly, a step essential to the design of effective instruction according to Dick & Carey (1978) and Romizowski (1981), both the learners and the instructors in these two situations experienced considerable frustration during the course of instruction. The instructors were forced to spend time not only trying to adapt the instruction to fit the needs of the visually impaired learners, but also trying to answer countless questions for which they were not prepared. Very much aware that the instruction being provided was not meeting their specific needs, the visually impaired learners in the special cases mentioned expressed great frustration at not being able to keep up with the rest of the class. In one case, the learner's self-confidence was severely undermined by the nature of that training experience. Moreover, according to the instructors, the sighted learners were also frustrated by having to mark time frequently while the instructor dealt with problems specific to the visually impaired learner. The ad hoc kind of course adaptation that was made in these two cases is wasteful of both time and energy for instructors and learners alike. In addition, it makes the delivery of effective instruction extremely difficult, if not impossible. Unfortunately, good computer training

opportunities are scarce for the blind and visually impaired who would like to be competitive in mainstream society. It is the very lack of appropriate training that pushes some individuals into inappropriate training programs and hence into highly frustrating learning situations.

Types of Programs/Courses Available

The types of employment that the visually impaired choose will obviously determine the kinds of programs and courses that they should follow if they are to function successfully and competitively in automated offices. The types of programs and courses currently available to the visually impaired are as follows:

1. For those who wish to be employed as computer scientists, engineers, technicians, systems analysts, programmers, software designers and developers, or management information systems experts, university (or at least college) level courses are required. Five of the respondents in the study were (and are) able to attend regular classes at the university and college levels (see Results I-A-23) and to compete successfully with their sighted peers both in the school setting and on the job. The comprehensive technical knowledge obtained in their rigorous academic programs has undoubtedly contributed

greatly to the successful integration of these employees into their current job settings.

2. If a person were looking for a computer programming systems analysis program for the visually impaired, the one run in Winnipeg by the University of Manitoba in conjunction with the CNIB would be of interest. Students from across Canada are accepted into the program. Only 1 of the 19 respondents in the study had enrolled in (and successfully completed) this year-long course (see Results I-A-23). That individual is now dealing successfully with computer systems on the job.

3. Just like their sighted counterparts, the majority of the visually impaired who are interested in employment in automated offices are probably much more interested in specific computer applications such as word-processing than they are in programming. Such was the case for the majority of the respondents in the study. Although only 4 respondents performed secretarial or clerical duties on the job, all 19 used computers for word-processing activities such as report-writing and record-keeping (see Results I-A-8). As soon as the appropriate hardware and software became available, special agencies such as the MAB, INLB, and CNIB quickly hired instructors to teach a single word-processing course, unrelated to any comprehensive program, in order to meet clients' demands. According to Results I-A-23, 10 respondents received

between 3 and 48 hours of instruction in the use of automated equipment (including adaptive devices). Some individuals completed the courses offered while others received just enough information to get them started and then continued learning on their own. Because the demand for the word-processing courses continues to outstrip the resources available, the urgency of a person's job requirement often determines his/her position on the waiting list for instruction.

4. Some visually impaired employees are trained on the job to use automated office equipment for special applications. Such was the case for two respondents in this study who received instruction specific to their employment by cassette and/or by an instructor (see Results I-A-23).

5. Comprehensive programs offering training in automated office procedures have only recently been made available to the visually impaired. A 25-week program is currently being offered by George Brown College, in conjunction with the CNIB in Toronto. This well-designed program consists of a variety of subjects, all essential to preparing an individual for successful integration into the automated office setting (see Appendix M). The course content is described as being identical with George Brown's regular course in micro-computer applications. Although the program is a single package of instruction

that accommodates a limited number of people, it addresses the need to provide training in automated office procedures for the visually impaired. None of the respondents in the study participated in this program.

6. In his report on the impact of computer technology on employment opportunities for the physically disabled, Patillo (1986) describes in detail a selection of computer training programs for the disabled in both Canada and the U.S.A. Some of the programs are offered by non-profit societies and organizations such as the Pearson Computer Centre and the Neil Squire Foundation, both in B.C., the Ontario March of Dimes in Toronto, and the Resource Center for the Handicapped in Seattle, Washington. The best example of a private company that Patillo gives is Control Data Institute, an education service of Control Data Corporation, that offers programs in cities across Canada. Although technically the visually impaired are included in the same category as the physically disabled, some may be excluded for practical reasons. Just because a program offers training in computer applications or automated office procedures for the disabled does not necessarily mean that it can include all visually impaired individuals. An example is the Discovery Programme (1988), a joint project of the Ontario March of Dimes and Bell Northern Research (BNR) to provide computer operator training in Ottawa for persons with physical disabilities.

The first 12 weeks are spent on computer and lifeskills training in the classroom, and the following 11 weeks, in on-the-job training at BNR. Apple Mackintosh computers are being used for the program because BNR needs Mackintosh computer operators. Those visually impaired persons who are unable to see well enough, even with assistance, to cope with the graphic icons of the Mackintosh, are necessarily excluded from participating in the program. One can only hope that other establishments in the private sector will follow BNR'S good example by helping to provide training for the visually impaired.

Very few programs and courses have been designed and developed specifically for the visually impaired who are interested in employment in automated offices. Most of the single computer applications courses that have been developed are separate entities that are unrelated to any comprehensive, cohesive, instructional whole. Such courses may have been appropriate for the short-term when the new technology was suddenly made available to the visually impaired, but they are no longer appropriate. New types of programs and courses must be developed.

A Systems Approach to Training and Development

The discussion thus far has been data-based and has presented the reader with the types of situations that visually impaired employees have faced in terms of their education/training and preparation for employment. At this point it is important to consider how the current situations might be improved. Especially since the Charter of Rights and Freedoms has become law, it is essential that the visually impaired have the opportunity to receive the preparation needed (a) to function effectively and efficiently in state of the art automated offices, and (b) to compete successfully with their sighted peers in those settings. In order to meet these objectives, a long-term approach to the preparation of the visually impaired is critical.

It would be highly practical to develop a nation-wide comprehensive training and development system that could co-ordinate and consolidate the efforts of those striving to achieve the same ends. If such a system functioned like a network across the country with a single control centre, the knowledge and expertise from many different locations could be shared for the betterment of all. The control centre would be responsible for the following:

1. Course, program, and curriculum development following the principles of instructional design with course materials produced both in English and French;

2. Setting standards compatible with those demanded by government/business/industry;

3. Providing accreditation, or ensuring that appropriate accreditation is provided, for successful completion of courses/programs;

4. Training instructors (both sighted and visually impaired) to train the visually impaired;

5. Disseminating information about new developments and innovative ideas (for example, see Results III-Programming Equipment);

6. Operating a technical resources centre with state of the art standard equipment used in business and industry together with the required adaptive devices;

7. Troubleshooting on behalf of employees having equipment-related problems on the job;

8. Generating awareness in employers by (a) letting employers see how the visually impaired might function on the job either in a technical resources centre or in a real job environment, and (b) having the visually impaired demonstrate the use of equipment at office automation trade shows.

9. Performing a public relations function;

10. Encouraging all parts of the network to follow the programs and to make use of the services available;

11. Establishing and maintaining regular contact with a committed group of supporters, influential in business and

industry, who would be invaluable contacts for internship and employment purposes.

The role of the local agencies and institutions would be enhanced rather than diminished by a centralized system that could offer well-developed instructional materials, technical information and advice, and just as important, moral support. Technology is changing so rapidly that if the visually impaired are to keep up with the changes, they must have opportunities to learn. Furthermore, according to one of the respondents in Results III, they must have opportunities to learn how to produce responsible work as part of a team. With the proposed system, the visually impaired would have a much wider variety of options from which to choose than they now have. If managed skilfully, the system described would produce well-trained professionals who would be able to compete successfully with their peers in the automated office setting.

Funding of a Centralized System of Training/Development

When considering the proposed system of training and development, the obvious question is, "Who will pay?" Most of the courses and programs that are currently available have been made possible with some form of funding from either the federal or the provincial government or both. Although virtually all programs for the visually impaired

have received some type of funding from government ministries, financial support from the private sector has often been critical to the creation of a course or a program. For example, in addition to government funding, the Automated Office Procedures Course in Toronto received significant support from the Henry White Kinnear Foundation.

Unfortunately, financial support from the private sector is far from generous and appears to be decreasing. According to Allan Taylor, chairman and chief executive officer of the Royal Bank, ninety per cent of all Canadian companies give no support to charitable or cultural institutions. He maintains that "with governments increasingly less able to meet growing demands from charitable and cultural groups, the onus is on business to accept its corporate responsibility to finance deserving institutions" (Koring, (1988)).

A worthy example of business accepting its corporate responsibility may be found in Seattle, Washington, where the business community fully supports the Resource Center for the Handicapped, a private, nonprofit, comprehensive training centre. The Center trains severely handicapped individuals in marketable high-technology skills and places them in private business, industry, government, and educational institutions. According to Patillo (1986), the phenomenal success of the program is the direct result of

a very active and effective Board of Directors and a roster of 110 different companies and agencies that have pledged themselves to support the Resource Center. Alaska Airlines, Boeing Airplane Co., Boeing Computer Services, Digital Equipment Corp., Hewlett-Packard, Honeywell Inc., I.B.M. Corp., and Wang Laboratories are but a few of the sponsors that are part of the network that "provides a ready placement base for the graduates of the training program" (p.110).

The Seattle example might well serve as a model for the proposed system of training and development for the visually impaired with the business community as its main source of support. The Alternative Computer Training For The Disabled (ACT) in Toronto described by Patillo (1986) also depends on the business community for support. This program's Business Advisory Council "participates actively in curriculum and program development as well as in internship and job placement. It also ensures that the training is geared to labour market needs" (p.107). Air Canada, Bell Canada, IBM Canada, CNCP, Bank of Montreal, Ryerson Polytechnical Institute, and Xerox Canada are among the eighteen companies represented on the Advisory Council. To have strong support from the business community appears to be vital to the success of any training and development program or system preparing students for employment in the business world. If the

proposed system for preparing the visually impaired for employment in automated offices were to be developed, a concerted effort would have to be made by very committed, persuasive people to convince influential members of the business community that their active support as members of an important advisory group together with their financial support was absolutely essential.

Long-term Perspectives

The problems that society has in dealing with the disabled in general and with the visually impaired in particular need to be considered from long-term as opposed to short-term perspectives. Society readily acknowledges that differences amongst people do exist but seldom goes beyond stereotyped views when dealing with individuals who are noticeably different from the norm. Nearly two-thirds of the employees gave evidence of that phenomenon when they indicated that employers and co-workers should be provided with information to help dispel their fears and misconceptions concerning those with special needs (see Results I-A-13b). Even when those in mainstream society have developed a broader awareness of the capabilities, skills, and abilities of the visually impaired, patronizing attitudes continue to prevail because that awareness continues to be limited. As long as the visually impaired are employed in automated office settings without

having been adequately prepared (see Table 4), or are forced to use inadequate or inappropriate equipment and/or materials, the majority of them will find it very difficult, if not impossible, to function competitively with their peers.

Overall, society becomes a primary beneficiary from treating those with differences as normally as possible. When individuals have the opportunity to develop skills and abilities that will allow them to function competently and confidently in the workplace, they are able to compete and contribute successfully, as the majority of this sample do. Being employed allows individuals to function independently and to be integrated in mainstream society. According to Kaufman and Sample (March, 1986), "achieving societal good is not only humanistic, it is simultaneously good business" (p.21). As tax-paying members of society, the visually impaired contribute not only to the productivity of a specific workplace but also to the productivity of society as a whole. The development of every individual's potential must be encouraged not only for his/her own sake but also for the sake of society.

Workplace Issues

Many of the problems that concern the workplace itself are really a part of the larger and more comprehensive societal problems that have already been discussed. The discussion that follows deals with problems that are specific to the workplace. Issues of particular concern to the visually impaired employee are included here.

Productivity

At the heart of the problems in the workplace are those connected with productivity. Employers/managers/supervisors are first and foremost interested in the productivity of their respective organizations because they must be competitive in order to succeed and survive. It is hardly surprising, therefore, to find that 28% of those in the employer group in the study have pointed out that hiring visually impaired employees is a disadvantage because of their lower productivity (see Table 2). Managers, for example, are understandably dissatisfied with a situation in which quotas have to be met and yet no allowances are made for the lower productivity of a visually impaired employee (see Results II-Disadvantages).

How do employers cope with the employee whose productivity is lower than the norm? The study indicates that two different approaches are used.

In the first, the employer simply accepts the situation that exists and with it the lower productivity of the employee. In some cases (as with government employees), the employer may have had the visually impaired employee imposed on him/her by superiors reacting to equal opportunities initiatives; in others, the employee may have preceded the employer into a particular office setting. If the employer has neither the time nor the inclination to deal with the problem of the employee's lower productivity, then the individual will virtually be left to his/her own devices. In this type of situation, which one respondent described as "benevolent neglect" (see Results I-B-19), there is no question of training for the individual or career development. Although other employers recognize that the employee would benefit from being given some help, the pressures of time together with the lack of both information and resources preclude them from becoming involved.

In the second situation, the employer is not satisfied with the status quo and, (a) makes an effort to understand why the employee's productivity is lower than the norm, and (b) finds ways of helping the employee to be more productive. In the interviews for the study, the researcher spoke with several employers who felt that it was essential to understand what special needs the employees had. They stated that if they were to do their

jobs as managers properly then they had to make certain that their employees had the resources required to complete the tasks that were assigned.

The respondents in the each of the three groups have indicated that, with proper attention to the needs of the employees, their lower productivity cannot help but increase. The discussion that follows will take a look at some of the areas that create problems for the visually impaired in the automated office setting.

Readers. One of the most serious problems bedeviling employees and employers alike has been the need for visually impaired employees to cope with masses of information on paper that needs to be read. Seven of the employees in the study described their frustrations with processing written material as one of the disadvantages of their current jobs (see Results (I-A-10a)). Employers who accept that some visually impaired employees need sighted people to help them process large volumes of printed material are able to build that requirement into the system. Others, however, who refuse to acknowledge that such a need exists create a situation in which the employee must regularly beg for help. No one benefits when a regular requirement for a reader is ignored by the organization: the employer complains about the employee's dependency on others for help; the employee is put into

the position of having to beg co-workers for help; and the co-workers are unhappy about being coerced into helping without that help's being acknowledged as part of their job. Perhaps because some visually impaired employees have had to rely heavily on co-workers for help in reading job-related materials, they have abused their colleagues' good will and become excessively demanding (see Results I-C-10b; 12b).

A breakthrough has recently occurred that should greatly ease the burden of reading for the visually impaired. The new Xerox-Kurzweil Personal Reader is now on the market. It is an optical scanner that reads typeset and typewritten material and turns it into synthetic speech. It will make books, magazines, newspapers, and documents much more accessible than they have been to date. In the employment situation, it should increase an employee's productivity at the same time as reducing his/her need for readers.

Equipment and Materials. It is hardly fair for the employer to fault the visually impaired employee for lower productivity if the appropriate equipment is neither accessible nor available to do the job properly. Five of the employees in the study acknowledged that they have had to make do with the inappropriate and/or inadequate equipment and materials that were available to them (see Table 2). For example, one employee had to use a system

that had not been adapted in any way to compensate for the disability. That individual was compelled to work more slowly, and, as a result, less productively because the software imposed limits on the person's capability. With modifications to the software, one assumes that the employee would be able to be as productive as sighted counter-parts. Can the existing situation be altered? More importantly, if it can, would the employer want to alter it? Firstly, even if the employer were agreeable, he might not know how to go about improving the situation. Secondly, he might be afraid that any changes would prove to be costly (see Cost of Employment). Fortunately, as the technology expands to accommodate special needs, the ability of the visually impaired to use mass produced products decreases costs.

The research found that certain materials created problems for the employees (see Results I-A-10a). In some cases, even if documentation for the hardware and software was available, it was often considered to be inadequate or incomplete. French speaking employees sometimes had to use English software and documentation because no French version was available. Too often cassettes of printed documentation were not available. Instructional materials were either lacking completely or difficult to obtain. One employee expressed the need for reference cards, on cassette or in braille, that would condense important

information for rapid access. Certainly such cards are available in print for sighted people. Most employers would agree that having to fight one's way through a manual each time that a person wanted a specific piece of information is a colossal waste of time, energy, and for the employer, money. Interestingly, the research shows that 25% of the employers and 33% of the co-workers, together with 37% of the employees believe that the job performance of the employees would improve if they were able to use the appropriate equipment and materials to perform the required tasks (Table 5).

The whole question about equipment is problematic for both the employee and the employer. Some government agencies in Quebec and in Ontario work to provide the special equipment required by the visually impaired on the job, often with the help of special agencies such as the MAB, INLB, and CNIB. The federal government has its own pool of technical equipment to be used by its disabled employees. Vendors of equipment are helpful to some extent but, after all, they are in business to make money selling products that may or may not be appropriate for a given job. Providing some equipment for a visually impaired employee to do a job is not the same as providing that individual with the appropriate equipment needed to work competitively in the same environment with sighted peers. In one case, a respondent described the (provincial)

government as not sensitized to the power of technology because it will not provide or employ people knowledgeable about the equipment. The example given to illustrate the point was the government employee who told the respondent to be grateful for a typewriter even though the person's job required the use of a computer. The technology is so new and is advancing so rapidly that there simply are not enough knowledgeable people available to provide the answers for all the questions being asked. To date, there is not a centralized source of information that could (a) help an employee and/or employer to make an informed decision about the best system to purchase for a specific use, or (b) enlighten them about any innovative uses of the equipment available. The type of centralized training and development system proposed earlier in the discussion, with a technical resources centre as an essential component, would be able to address the different kinds of problems mentioned here.

Preparedness and Performance. In terms of preparedness for the current duties, Table 4 indicates that approximately half of the employees and exactly half of the employers considered that the employees were from only moderately to very poorly prepared. Regardless of the poor quality of the preparation, over 80% of the employees were perceived to be performing their duties very or quite well according to all three groups. The reader should note that

62% of the employees had been performing the current duties for more than 3 years, and 38% for more than 7 years (see Results I-B-12b). The co-workers perceived that 100% of the employees were performing their duties very or quite well. Six co-workers used superlatives when describing the job performance of their visually impaired colleagues. Were their colleagues really performing so well, or were the co-workers impressed because the capabilities of their colleagues were so novel and unexpected?

To respond to this, one must ask, in terms of productivity, how well did the job performance of the visually impaired employees compare with that of their sighted peers. In order for the employees to be truly competitive and productive, that comparison is essential. A few respondents did compare the job performances of the employees with their sighted peers. For example, 2 employers described their outstanding employees who were superior to their sighted peers in job performance (see Results I-B-12c; I-B-20). Two employees assessed their own job performances as being not very good (see Results I-A-17a). Four employers perceived their employees as performing their duties only moderately well. Perhaps the employer in Results I-B-20 spoke for the others when he pointed out that "the excellent quality of the work

produced by that employee does not compensate for the lower productivity."

Nearly half of the employees (42%) and more than half of the employers (58%) perceived training to be a major way of improving job performance (see Table 5). The employees identified a general need for more and better technological knowledge in the form of training courses and documentation in accessible form. On the other hand, the employers made suggestions relating to productivity. They suggested that the employees should (a) have special courses that are related to job opportunities; (b) receive the same training as the sighted; and (c) receive better training for systems used in the workplace. For the employers, improved job performance equates with increased productivity. For the employees, improved job performance also means an opportunity to be more competitive.

In addition to the technical expertise required, the job performance of the employee depends to some extent on his/her interpersonal and office skills. A third of the co-workers pointed out that the employees' job performance would improve if they knew more about office procedures including the implications of office politics (see Table 5). Solving communications problems that exist in the workplace would definitely help to increase productivity.

Cost of Employment

There is no doubt that the specialized equipment and training required by many visually impaired individuals is costly. Employers are easily deterred from hiring the visually impaired because of the up-front costs required in the short term. Even if government agencies will subsidize some part of the cost for equipment and/or training, the employers' argument is understandable. Fortunately, enlightened employers are willing to absorb the necessary costs in the short-term because they can foresee the value in hiring a visually impaired individual in the long-term. According to the research, the three most explicit benefits in hiring the visually impaired concern the length of time spent in a given job, their level of performance, and their level of concentration. These benefits are explained as follows:

1. It appears that visually impaired employees tend to change their employment less frequently than their sighted peers (see Results I-B-1a). Three employers in the study described their visually impaired employees as valuable members of the organization, in part, because they remained in the same job for a long period of time (each had held the current job for more than ten years). In these cases, as a result of their long experience in work settings that had a large turnover of employees, the visually impaired employees provided a strong sense of

continuity. They were able to provide their sighted colleagues with information about what had been done in the past, what had been tried and rejected, and why. As a result, mistakes that might have been in danger of being made a second time were avoided. The three employers pointed out that their visually impaired employees were regarded with esteem by the others for the invaluable information that they were able to provide as a result of the wealth of experience acquired in that setting.

2. Many employers in the study indicated that the quality of the work produced by their visually impaired employees was excellent. When these employees had received adequate training and were using the appropriate equipment and materials for the job, their productivity was judged to be as good as, or better than, that of their sighted peers.

3. Blindness or visual impairment can result in levels of concentration that are higher than those of sighted individuals. Several employers in the study noted (see Results I-B-1) that the visually impaired displayed higher than normal levels of concentration because they were not affected by the visual stimuli that distracted their sighted peers. The employers indicated that, as a result of heightened levels of concentration, the productivity levels of the visually impaired employees compared very favorably with that of their peers.

Interpersonal Relationships

Technical skills training and appropriate equipment and materials notwithstanding, the largest obstacle in the way of a visually impaired employee's successful integration into the automated office is the lack of communication. Good communication is essential because it is the key to positive interpersonal relationships. Unfortunately, the lack of awareness of an employee's special needs and capabilities can be counter-productive in an organization geared to productivity. As one employer pointed out, "often a real fear and embarrassment exist when people are confronted by a visually impaired person because the situation is an unknown territory. When they do not have the knowledge of how to approach or talk to a blind person, people end up not having a conversation at all, so that the blind person is left isolated" (Results I-B-7). In spite of the platitudes that one hears about the need for the sighted to develop awareness concerning the special needs and capabilities of the visually disabled, very little is being done in the automated office setting. The results of this study show that fewer than one quarter of the employers and no co-workers had received any information about or been made aware of the special needs of the visually impaired employees (see Results I-B-5a; I-C-7a).

According to the respondents in the study, their perception of the situation that should exist is quite different from that which currently exists. For the majority of the employers (83%), it was very or quite important to be made aware of the special needs and capabilities of the employees (Results I-B-7) since employers are ultimately responsible for making certain that tasks and duties are performed effectively and efficiently. According to 60% of the employers and 30% of the co-workers, the best way for that awareness to be developed was through informal dialogue between the employer and the employee (see Table 7). The informal, one-on-one approach is far more conducive to the employer's developing an awareness of the employee's capabilities than simply presenting him/her with a list of cold, hard facts about the visually impaired. This approach allows the employer to place the employee's impairment in context in a particular work setting, and at the same time, to find out what resources the employee will need in order to do the work required. It also allows a rapport between the employer and the employee to begin to be established. As a result, the employer is in a much better position to help sensitize the co-workers to their colleague's special needs and capabilities that are relevant to the job, especially when teamwork is involved. The majority of the co-workers said that they would prefer

to receive any information about special needs from either the employee or the employer (see Table 9). Obviously, the employer is a key player in opening, and keeping open, the lines of communication between the visually impaired employee and the others in the office setting.

There is no doubt that special agencies like the MAB, INLB, and CNIB have an important role to play in sensitizing the sighted to the special needs and capabilities of the visually impaired who choose to be employed in automated offices. That role has been acknowledged by both the employees and the employers (see Table 9). However, if employees want the lines of communication to be open in the workplace, then they must accept personal responsibility for helping to develop the awareness of their employers and co-workers. Since "people don't ask questions because they think it's impolite" (see Results III-Ability), one of the employees has suggested that co-workers and colleagues should be encouraged to ask questions regarding their disability to learn that the blind are human (Results I-A-13a). It is vital for each employee to make his/her needs known to the employer because that individual is much more knowledgeable about those needs than any outsider, and thus, is in a better position to convey those needs appropriately. One respondent cautioned that the employee must not be "too chicken" to let people know what he/she needs (Results

I-A-13biii). Employees must not delude themselves; if they expect to be competitive in the workplace, then they must have the tools required to do the job.

The visually impaired employee must accept responsibility for putting his/her employer and co-workers at ease. According to one employee, the blind individual has control of the situation and others will be as comfortable as he/she allows them to be. It is in the best interests of everyone in the workplace to communicate openly and honestly. One co-worker explained in Results (I-C-10b) that the employee's visual handicap was not the cause of any discomfort. The individual's fear of making reference to visual things, and thereby offending the employee, was the real problem. The employee put the co-worker at ease quickly by joking about the references. Sighted people would appreciate knowing that visual references are part of the standard vocabulary for visually impaired people. The reader will find a very good example in Results III-Equipment.

Attitudes

The visually impaired employee, like all employees, should be able to function fully in the office environment as an individual with a distinct personality. Is that their perception of themselves in their current employment situations? Is that the way they are perceived by others

in the office setting? How well do the others in the job environment accept the visually impaired employee? Are the employees treated any differently? The answers to these types of questions all have to do with attitudes. In considering the integration of the visually impaired into automated offices the answers are very important. Most of the employees (85%) described themselves as being very comfortable in their current jobs. Several pointed out that any discomfort that they may have felt at the beginning of their jobs had nothing to do with their disability; but rather, it was similar to that of any other employee getting used to a new job, in a new environment, with new people (see Results II-Comfort Levels). Because the whole subject of blindness continues to be such a mystery to the sighted, the others in the workplace would probably wrongly ascribe an employee's initial discomfort on the job to visual impairment.

How have the others in the workplace reacted to the presence of a visually impaired employee? The majority of the employers (78%) and co-workers (86%) who were already on the job when the visually impaired employee arrived described themselves as very or quite comfortable (see Tables 12, 13). They were all "old hands" already established and working comfortably when the new employee arrived. In such a situation the employer would have assumed the leadership role confidently even without much

awareness of the employee's special needs. The situation was very different for those who joined the job environment after the employee. More than half of the employers (57%) described themselves as being not very or not at all comfortable at first contact with the employee. They were obviously at somewhat of a disadvantage; in addition to having to establish their own positions in an already well-established environment, they were expected to cope with an employee for whom they were inadequately prepared. The co-workers' perception that they were moderately comfortable at first contact, rather than not very or not at all as the employers were, is understandable. Their responsibilities are far fewer.

Currently, almost all of the employers (94%) and all the co-workers described themselves as more comfortable than they were at first contact (see Results I-B-9b; I-C-10b). The majority of the co-workers (82%) made comments to the effect that they were no longer conscious of any difference between the visually impaired and the others in the job environment. It appears that most of the co-workers began with stereotyped views of the capabilities of the visually impaired and, without exception, have had those views changed drastically as a result of very positive experiences. They spoke about being astounded, amazed, and even awed by what the employees could do and by how great their potential was.

Their original stereotyped view of the visually impaired demanded an excessively condescending, patronizing attitude from the sighted. Through personal contact, that view changed to one that considered the employee as a unique individual with strengths and weaknesses. That change in perception has allowed the co-workers to gain new insights into the capabilities and special needs of the visually impaired employee. Each has experienced the phenomenon of having the visual disability fade into the background as a non-issue as the stereotype gave way to the individual personality. The situation experienced by the co-workers in the study is a wonderful example of how the power of personal contact can help the sighted both to allay their misperceptions and fears, and also to appreciate the skills and capabilities of the visually impaired. Sometimes situations arise in the workplace that are less than satisfactory for those involved. Most of the co-workers (90%) perceived their own co-workers as having positive attitudes towards the visually impaired employees in their offices (see Results I-C-12a). However, one respondent identified a situation in which some of the co-workers were resentful of a visually impaired employee who received equal pay for productivity much lower than the norm (see Results I-C-12c). The unfairness in the situation is patently obvious, and there are no winners, certainly not the employee who cannot compete and who is

being patronized in this situation. The danger lies in having co-workers make generalizations about all visually impaired employees on the basis of one negative example, thereby reinforcing the stereotype.

The great majority of the visually impaired employees (90%) are perceived by their employers and co-workers to be well-adjusted individuals with very positive attitudes towards their visual disability. For many of them it is simply not perceived as a limitation (see Table 11). Only one employee was identified as not having come to terms with the disability, and as a result of the denial, put a strain on others in the workplace.

An employee has summarized the question of attitudes in the workplace as follows:

The reaction of employers and co-workers is almost a function of employees' own reaction to whatever disability they might have, and of course, their own competence on the job. If you are comfortable and you are competent, then you have no problem in the workplace. (see Results III-Reactions)

Summary

Computer-based technology has given the visually impaired the technical means to function competently, productively, and competitively in the automated office.

Through the use of needs assessment techniques, this qualitative study has gathered information about the integration of the visually impaired into the automated office in order to identify existing problems and then make recommendations to facilitate/improve the process of integration. The researcher interviewed 19 visually impaired employees, 18 employers of the visually impaired, and 11 co-workers in either Montreal or Ottawa using taped, telephone interviews based on 3 separate questionnaires developed for the study.

The researcher began the study by making assumptions about the problems the visually impaired experience as employees in automated offices. It was assumed that the problems may have been the result of (a) the employee's inadequate job preparation, and (b) negative attitudes on the part of the employers, co-workers, and even the employees themselves.

The first assumption was shown to have some justification. The findings indicate that half of the visually impaired employees were not well prepared for their current duties. Most of the employees in the study are well-adjusted, exceptional individuals who are well-integrated into their office settings and performing those duties well. Most employers are very satisfied with their employees' job performance. In order to improve their job performance, employees need more job-related

training courses/programs, and more accessible/appropriate equipment and materials. The findings showed that the second assumption was not accurate. Although all 3 groups perceived that the sighted in the workplace need to be sensitized to the special needs and capabilities of visually impaired employees, negative attitudes were not an issue in the study. Personal contact with the employee has changed the attitudes of many employers and co-workers in a positive way from apprehension to complete acceptance.

This study has gathered information about the integration of the visually impaired in automated offices from employees, employers, and co-workers and generalizes to its own population. The visually impaired respondents, all willing volunteers, were part of an exceptional sample. Most of these individuals were successfully integrated into their workplaces, and successful in their jobs. The study began with questions about the integration of the visually impaired which were answered for a select group of people. The employees in the study might almost be described as pioneers in the use of computer technology as it relates to the visually impaired. However, not all the visually impaired are candidates for being in the vanguard. The study concludes with questions about other populations of the visually impaired who may not be very interested in the new technology. How will their

integration into automated offices compare with that of the employees in this study? Although one may not use this study to generalize to a more usual population, one can nevertheless hypothesize to it. The availability of good training will allow new opportunities for others who are not so keen about the new technology. Undoubtedly, it must be recognized that new problems will arise with training programs with this new population, and those problems must also be addressed if the visually impaired are to be successfully integrated into automated offices. This new perspective is very important because it takes the current study and builds on it.

The study began with the educational technologist's interest in identifying the problems preventing the visually impaired from working to potential in the automated office setting. The problems have been identified, conclusions have been drawn, and recommendations made. The same kinds of problems must now be addressed for a different visually impaired population interested in being integrated into automated offices. Further research must address the concerns about how a more usual visually impaired population can work to potential.

Recommendations

The problems concerning the integration of the visually impaired into automated offices have been identified in the main body of the discussion, and conclusions drawn. The recommendations stemming from those conclusions follow.

1. Further research on this subject should be undertaken by the Canadian Workplace Automation Research Centre.
2. In order for the visually impaired to receive the preparation needed (a) to function effectively and efficiently in state of the art automated offices and (b) to compete successfully with their peers in those settings, a nation-wide comprehensive training and development system should be developed. The proposed system should function like a network across the country with a single control centre established to coordinate the training and development activities for the visually impaired. Among other things, it should include the establishing of a technical resource centre with state of the art standard equipment used in business and industry together with the required adaptive devices (see Discussion - A Systems Approach).
3. Educational technologists should be directly involved with the development of any training and development

system for the visually impaired. As agents of change they can work to eliminate the kind of fragmented instruction currently being offered by using a holistic systems approach.

4. In view of the fact that 90% of all Canadian companies give no support to charitable or cultural institutions, a concerted effort must be made to urge, coerce, cajole or entice such companies to accept their corporate responsibility by helping to finance a training and development system for the visually impaired. With governments increasingly cutting back on financial support for social and educational programs, significant funding must come from the private sector.

5. Equal opportunities for training, career development and promotion must be made available to visually impaired employees. Career planning should be part of their employment. Employers need to know the kind of training opportunities available and help to work out career paths for individuals. Employees should be actively involved in all phases of the planning.

6. Until some kind of comprehensive training system can be developed, appropriate training in office automation skills must be provided for the visually impaired so that

they can compete with their sighted peers in the mainstream. Far too little is currently available.

7. Since one of the big problems for the visually impaired seeking work in automated offices is to break down barriers of discrimination, training programs/courses in office automation skills should, wherever possible, include a work experience component that is carried out in a functioning automated office in the community.

8. If the visually impaired are to compete in the workplace with the sighted, then their preparation for work in automated offices must be as rigorous as that received by the sighted. Since their work will have to measure up to the same standards as the sighted, their coursework needs to be subjected to the same kind of evaluation process.

9. There is no doubt that it is very difficult to sensitize employers to the capabilities of the visually impaired and to the need to give them a fair chance. A valuable approach to use to convince them is to set an example of an employee who is working competently and competitively in the automated office setting, and then say, "Here is proof positive!" (see Results I-C-21). That individual would also be an excellent role model for others aspiring to work in the same field.

10. Especially in situations where there is considerable mobility of personnel, employers must help managers/supervisors and co-workers to achieve the comfort zone more quickly by making them aware of the special needs and capabilities of the visually impaired employee; otherwise, their productivity is lessened.

11. The national headquarters of the Canadian Employment and Immigration Commission successfully staged an Awareness Week during which staff at all levels within the national headquarters participated actively. This week of activity should be used as a model of the type of sensitizing of employees that can be done effectively on a large scale with a small budget. See Appendix K for particulars.

12. Achieving the desired goal in the workplace should be more important than the means used to achieve the goal. It is important that employers/managers/supervisors make certain that the employees have the necessary resources to work competently, competitively and productively to complete the tasks assigned. Those resources would include appropriate equipment, materials, complete and up to date documentation and job aids, as well as instructional materials in cassette or braille form, and support staff to act as readers.

13. Employers must make certain that visually impaired employees can use any specialized equipment and materials that are essential for a given job.

14. If an employer is concerned about a visually impaired employee's low productivity, it makes very good business sense to (a) determine the cause of the low productivity and (b) find ways to increase it.

15. In order to raise their productivity levels and to be more competitive, employees should (a) have special courses related to job opportunities, (b) receive the same training in the workplace (with adequate advance preparation) as the sighted, and (c) receive better training for systems used in the workplace.

16. Employers must be given an opportunity to see visually impaired employees using the equipment required to do specific kinds of work in real office environments.

17. A centralized source of information should be available to help an employee and/or employer to make an informed decision about the best system to purchase for a specific use, or to enlighten an individual about innovative uses of equipment that is already available. Those providing the information should not be vendors but rather professionals with no vested interest in selling a particular product.

18. High tech trade shows should be encouraged to demonstrate equipment and adaptive devices used by the visually impaired. Visually impaired employees should be used as demonstrators along with the sighted.

19. The individual employee must accept some responsibility for (a) helping to make those in the office setting aware of any special needs or capabilities, and (b) for putting people at ease with regard to his/her visual impairment.

20. Special agencies such as MAB, INLB, and CNIB should move some of their exhibitions and demonstrations of automated equipment into the community. Exposure in the community is essential to sensitizing the general public to the special needs, capabilities and abilities of the visually impaired.

21. The employers and co-workers must make an effort to rid themselves of patronizing attitudes towards their visually impaired colleagues. It is essential to communicate openly and honestly in the workplace.

22. Unless the visually impaired have been properly prepared and can be assured of competing equally with the sighted in technical skills training courses/programs, they should not attend programs that have been developed exclusively for the sighted. Ad hoc adaptation of course

material is not only frustrating but wasteful of time and energy for both instructor and students.

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Questionnaire for Visually Impaired EmployeesVisual Disability

1. What is the level of your disability?

- registered legally blind _____
 -partially sighted _____

2. (a) Please indicate whether your visual impairment

- was present prior to current employment _____
 or
 -was identified during current employment _____

(b) If during current employment, describe your own reaction to the situation, and those of your employer and co-workers.

(c) If during current employment, please give details of any retraining which you either undertook on your own or which was provided by your employer.

3. (a) For purposes of work can you read typescript?

- Yes _____ No _____

(b) If yes, is this with the aid of a lens or a magnifier or CCTV?

- Yes _____ No _____

4. (a) Identify any special aids/equipment being used:

- 1 - Slate and Stylus _____
 2 - Calculator _____
 3 - Tape Recorder _____
 4 - Perkins Braille _____
 5 - Closed Circuit TV _____
 6 - Talking Typewriter _____
 7 - Versa Braille P2D _____ or VB11 _____
 8 - Braille Printer _____
 9 - Optacon _____
 10 - Computer with Voice Synthesizer _____
 11 - Other _____. Please specify _____

- (b) Does the equipment which you use belong to you? _____
 or
 Is it owned by your employer? _____
 or
 Has it been leased or borrowed by your employer? _____
- (c) Please comment on the nature and quality of technical aids being used by the visually impaired. _____

Employment

5. (a) Do you require extra working space (for guide dog or special aids)?
 Yes _____ No _____
- (b) If yes, is your employer able to comply with this requirement?
 Yes _____ No _____
- (c) If yes, is your employer willing to comply with this requirement?
 Yes _____ No _____
6. (a) Please identify the nature of the establishment/institution/organization in which you are employed:
- government _____
 - educational _____
 - financial _____
 - legal _____
 - manufacturing _____
 - health-care _____
 - Other _____. Please specify _____
- (b) How many co-workers are you in close contact with on a daily basis? _____
7. How long have you been employed in your current job?
8. Give a brief description of your current duties.
9. (a) For you, what are the advantages of being employed in your current job?

- (b) Have your impressions regarding these advantages changed since you began this job? If so, please explain how and why.
10. (a) What are the disadvantages of being employed in your current job?
- (b) Have your impressions regarding these disadvantages changed since you began this job? If so, please explain how and why.

Training

11. How well do you believe that your technical skills training prepared you for your current duties?

-Very well _____
 -Quite well _____
 -Moderately well _____
 -Not too well _____
 -Very poorly _____

12. Please identify the ways in which training for your current employment in an automated workplace might have been (or still might be) improved.

N.B. USE THE FOLLOWING AS A CHECK LIST FIRST, THEN ASK ABOUT THOSE ITEMS NOT MENTIONED.

- (a) a better introduction to the equipment and its possible uses _____
- (b) length of training sessions should be changed _____
- (c) more practice time needed:
 -within training sessions _____
 -between training sessions _____
- (d) amount of training given _____
- (e) need for simple, clear documentation and/or job aids _____
- (f) regular evaluation of skills needed _____
- (g) better evaluation system needed _____
- (h) better support system needed _____

- (i) more information about office procedures needed _____
- (j) better feedback needed from instructor _____
- (k) opportunities for further training should be outlined _____
- (l) Other _____. Please specify _____

13. (a) How important do you think it is for sighted employees to be informed about the special needs of their visually impaired co-workers?

- Very important _____
- Quite important _____
- Somewhat important _____
- Not very important _____
- Not at all important _____

(b) (i) What information about special needs do you think should be given to employers and to the other employees?

(ii) Who do you think should provide that information?

(iii) When should that information be given?

N.B. QUESTIONS # 14, 15, AND 16 MAY HAVE BEEN ANSWERED 0 IN #9 OR #10. IF SO, GO ON TO #17.

14. (a) How comfortable do you feel in your current employment now?

- Very comfortable _____
- Quite comfortable _____
- Moderately comfortable _____
- Not very comfortable _____
- Very uncomfortable _____

(b) Are you more comfortable or less comfortable now than you were when you first began your current duties? If less, please explain.

15. (a) How comfortable is your employer/supervisor in your presence now?

- Very comfortable _____
- Quite comfortable _____
- Don't know _____
- Not very comfortable _____
- Very uncomfortable _____

(b) Is he/she more comfortable or less comfortable than he/she was when you began your current employment? If less, please explain.

16. (a) How comfortable were your co-workers in your presence when you began your current employment?

- Very comfortable _____
- Quite comfortable _____
- Don't know _____
- Not very comfortable _____
- Very uncomfortable _____

(b) Are they more comfortable or less comfortable now than they were earlier? If less, please explain.

17. (a) Considering the length of time that you have been performing your duties, how well do you believe that you are doing the job?

- Very well _____
- Quite well _____
- Moderately well _____
- Not very well _____
- Very poorly _____

(b) In what way(s), if any, do you believe that you could improve your performance?

18. How well do your employer/supervisor and co-workers think that you are doing your job?

- Very well _____
- Quite well _____
- Moderately well _____
- Not very well _____
- Very poorly _____

Career Development

19. (a) In your current job, do you believe that you will be given equal opportunities for training, career development, and promotion?

Yes _____ No _____

(b) If not, please identify the possible reasons.

N.B. USE THE FOLLOWING AS A CHECK LIST FIRST. THEN ASK ABOUT THOSE ITEMS NOT MENTIONED.

Physical limitations such as

- relocation inconvenient _____
- special aid unavailable _____
- reading problems _____
- inability to work with computers/icons _____
- discouragement _____

Misperceptions such as

- misunderstanding by employers of working ability and potential _____
- belief that visually impaired are accident prone _____

(c) What do you believe would rectify the current situation?

Personal Data

20. (a) What is your age range?

- 25 or younger _____
- 26 to 34 _____
- 35 to 44 _____
- 45 to 54 _____
- 55 or older _____

21. Sex: Male _____ Female _____

22. Academic qualifications:

Level attained (Secondary,
Cegep, B.A., etc.) _____

Types of schools/institutions attended

23. Technical training:

Where given or by whom? _____

Duration of training _____

On-the-job training _____ or Course(s) _____

Type of training/course(s) _____

24. Finally, do you have any other comments or questions regarding the questions which have been asked?

APPENDIX B

Questionnaire for Employers/Supervisors
of the Visually Impaired

1. (a) What do you believe to be the advantages of hiring visually impaired persons in your automated workplace?
- (b) Have your impressions regarding these advantages changed at all since the hiring of your first visually impaired employee? Please explain.

2. (a) What do you believe to be the disadvantages of hiring visually impaired persons in your automated workplace?
- (b) Have your impressions regarding these disadvantages changed at all since the hiring of your first visually impaired employee? Please explain.

3. (a) Please identify the nature of the establishment/institution/organization in which you are an employer/supervisor:
 - government _____
 - educational _____
 - financial _____
 - legal _____
 - manufacturing _____
 - health care _____
 - Other _____. Please specify _____
- (b) How many employees are you currently responsible for? _____
- (c) How many of these are visually impaired? _____

4. (a) How many of them became visually impaired while
 - (i) employed by your organization _____
 - (ii) performing the same duties as being performed currently _____

IF ANSWER TO 4(a) IS 'NONE', GO ON TO QUESTION #5.

(b) If any, was in-service retraining provided for the individual(s)?

Yes _____ No _____

(c) If any, did the individual(s) seek retraining on his/her (their) own outside of the current workplace?

Yes _____ No _____

(d) If any, please identify any of the following reactions which you observed in the co-workers of a fellow employee who had become visually disabled while on the current job. (I will give you the reaction and you can make one of three choices: Yes, No, or Somewhat).

	Yes	No	Somewhat
-pity	_____	_____	_____
-impatience	_____	_____	_____
-rudeness	_____	_____	_____
-frustration	_____	_____	_____
-resentment	_____	_____	_____
-overprotectiveness	_____	_____	_____
-covering up (doing other person's work)	_____	_____	_____

(e) Have any of the above reactions changed over time?

Yes _____ No _____

(f) If yes, please explain how and why.

5. (a) Prior to the hiring of a visually impaired employee did you receive any kind of information specific to the needs of the visually handicapped?

Yes _____ No _____

(b) If yes, please describe.

6. (a) Prior to the hiring of a visually impaired employee did your other employees receive any kind of information specific to the needs of the visually handicapped?

Yes _____ No _____

(b) If yes, please describe.

7. How important do you think it is for an employer and co-workers to have such information when a visually impaired person is a member of the office setting?

- Very important _____
- Quite important _____
- Somewhat important _____
- Not very important _____
- Not at all important _____

8. (a) How do you think such information can be conveyed best?

(b) When should it be conveyed?

(c) Who do you think should convey it?

9. (a) How comfortable did you feel in the presence of the visually impaired employee when he/she began the current duties?

- Very comfortable _____
- Quite comfortable _____
- Moderately comfortable _____
- Not very comfortable _____
- Very uncomfortable _____

(b) Are you more comfortable or less comfortable now than you were earlier?

(c) If less, please explain.

10. (a) In your opinion, how comfortable did the visually impaired employee appear to be in the office setting when he/she began the current duties?

- Very comfortable _____
- Quite comfortable _____
- No opinion _____
- Not very comfortable _____
- Very uncomfortable _____

(b) Does the employee appear to be more comfortable or less comfortable now than at the beginning of current employment?

11. (a) How comfortable did the co-workers of that employee appear to be when that person began current duties?

- Very comfortable _____
- Quite comfortable _____
- No opinion _____
- Not very comfortable _____
- Very uncomfortable _____

(b) Are they more comfortable with that person now or less comfortable?

(c) If less, please explain.

N.B. BE SENSITIVE THAT THE FOLLOWING QUESTION MAY HAVE BEEN DISCUSSED EARLIER! PROCEED WITH CARE.

12. (a) Describe the current duties of any visually impaired employee(s) (but only if they have not yet been discussed). What equipment is used?

(b) How long has/have the employee(s) been performing those current duties?

(c) How well is/are that/those employee(s) performing the current duties?

- Very well _____
- Quite well _____
- Moderately well _____
- Not very well _____
- Very poorly _____

13. In your opinion, how well prepared are visually impaired persons for employment in automated offices?

- Very well _____
- Quite well _____
- Moderately well _____
- Not very well _____
- Very poorly _____

14. In your opinion, how might their preparation for such work be improved?

15. (a) What kind of orientation should be given to newly-hired visually impaired employees to help them adjust to the automated workplace?

(b) Who should provide that orientation?

(c) When should it be provided?

16. Having had experience with visually impaired employees functioning in the automated office, how well do you feel that their skills are being utilized?
17. Describe the range of tasks or duties which you feel are possible for the visually impaired.
18. Please describe your impression of your visually impaired employee's attitude towards his/her own handicap.
19. Do you think that the visually impaired can be given equal opportunities for training, career development, and promotion?

Yes _____

No _____

Please explain your answer.

20. Finally, overall as an employer, how satisfied are you with the performance of your visually impaired employee(s)?

-Very satisfied _____

-Quite satisfied _____

-Moderately satisfied _____

-Not very satisfied _____

-Very unsatisfied _____

I would appreciate knowing if you feel that there are any important questions which I have omitted but which should be addressed.

Do you have any comments or questions about the questionnaire itself?

APPENDIX C

Questionnaire for Co-workers of the Visually Impaired

1. Please identify the nature of the establishment/
institution/organization in which you are an
employee:
- government _____
 - educational _____
 - financial _____
 - legal _____
 - manufacturing _____
 - health care _____
 - Other _____. Please specify _____
2. How many years have you worked in your current job?
3. (a) In that period of time how many of your co-workers
have been visually impaired?
- (b) How many of your current co-workers are visually
impaired?
4. (a) How many of them became visually impaired while
- (i) employed by your organization?
 - (ii) performing the same duties as
being performed currently?

IF ANSWER TO 4(a) IS 'NONE', GO ON TO QUESTION #5.

- (b) If any, was in-service retraining provided for
the individual(s)?
- Yes _____ No _____
- (c) If any, did the individual(s) seek retraining on
his/her (their) own outside of the current
workplace?
- Yes _____ No _____

- (d) If any, please identify any of the following reactions which you observed in your colleagues toward the fellow employee who had become visually disabled while on the current job. (I will give you the reaction and you can make one of three choices: Yes, No, or Somewhat).

	Yes	No	Somewhat
-pity	_____	_____	_____
-impatience	_____	_____	_____
-rudeness	_____	_____	_____
-frustration	_____	_____	_____
-resentment	_____	_____	_____
-overprotectiveness	_____	_____	_____
-covering up (doing other person's work)	_____	_____	_____

- (e) Have any of the above reactions changed over time?

Yes _____ No _____

- (f) If yes, please explain how and why.

5. (a) What do you believe to be the advantages of having visually impaired persons working in your automated office?
- (b) Have your impressions regarding these advantages changed at all since the first visually impaired employee was hired? If yes, please explain.
6. (a) What do you believe to be the disadvantages of having visually impaired persons working in your automated office?
- (b) Have your impressions regarding these disadvantages changed at all since the first visually impaired employee was hired? Please explain.
7. (a) Prior to the hiring of a visually impaired employee did you and/or any of your colleagues receive any kind of information specific to the needs of the visually handicapped?

Yes _____ No _____

(b) If yes, please describe.

8. How important do you think it is for an employer and other employees to have such information when a visually impaired person is a member of the office setting?
- Very important _____
 - Quite important _____
 - Somewhat important _____
 - Not very important _____
 - Not at all important _____
9. (a) How do you think such information can be conveyed best?
- (b) When should it be conveyed?
- (c) Who do you think should convey it?
10. (a) How comfortable did you feel in the presence of the visually impaired employee when he/she began the current duties or when you first met him/her?
- Very comfortable _____
 - Quite comfortable _____
 - Moderately comfortable _____
 - Not very comfortable _____
 - Very uncomfortable _____
- (b) Are you more comfortable or less comfortable now than you were earlier?
- (c) If less, please explain.
11. (a) In your opinion, how comfortable did the visually impaired employee appear to be in the office setting when he/she began the current duties?
- Very comfortable _____
 - Quite comfortable _____
 - No opinion _____
 - Not very comfortable _____
 - Very uncomfortable _____

(b) Does he/she appear to be more comfortable or less comfortable now than at the beginning of current employment?

12. (a) How comfortable did your sighted colleagues appear to be when the visually impaired employee began his/her current duties?

-Very comfortable _____
 -Quite comfortable _____
 -No opinion _____
 -Not very comfortable _____
 -Very uncomfortable _____

(b) Do they appear to be more comfortable or less comfortable now than when the visually impaired employee began his/her current duties ?

(c) If less comfortable, please explain.

(d) How do you think your sighted colleagues feel about the visually impaired as co-workers?

13. (a) Describe the current duties of your visually impaired co-worker(s).

(b) How long has that co-worker been performing those duties?

(c) How well is that co-worker performing the current duties?

-Very well _____
 -Quite well _____
 -Moderately well _____
 -Not very well _____
 -Very poorly _____

14. In your estimation, how well prepared are visually impaired persons for employment in automated offices?

-Very well _____
 -Quite well _____
 -Moderately well _____
 -Not very well _____
 -Very poorly _____

15. In your opinion, how might their preparation for such work be improved?

16. (a) What kind of orientation should be given to newly-hired visually impaired employees to help them adjust to the automated workplace?
- (b) Who should provide that orientation?
- (c) When should it be provided?
17. Having had experience with visually impaired employees functioning in the automated office, how well do you feel that their skills are being utilized?
18. Describe the range of tasks or duties which you feel are possible for the visually impaired?
19. Please describe your impression of your visually impaired colleague's attitude towards his/her own handicap.
20. Do you think that the visually impaired can be given equal opportunities for training, career development, and promotion?
- Yes _____ No _____
- Please explain your answer.
21. What do you think can be done to improve the situation for the visually impaired in automated offices?

APPENDIX D

QUESTIONNAIRE POUR LES EMPLOYÉS
QUI SONT DES HANDICAPÉS VISUELS

INCAPACITÉ VISUELLE

1. Quel est le degré de votre incapacité?
 - . Complète (totalement aveugle, légalement aveugle) _____
 - . Partielle (partiellement aveugle même si enregistré) _____

2. a) Veuillez indiquer si la détérioration de votre vue a commencé avant votre emploi actuel _____ ou au cours de votre emploi actuel _____.

- b) Si c'est au cours de votre emploi actuel, décrivez quelle a été votre propre réaction à la situation, celle de votre employeur, celle de vos collègues de travail.

- c) Si c'est au cours de votre emploi actuel, veuillez décrire en détail le recyclage (ou la nouvelle formation) que vous avez vous-même entrepris ou que votre employeur vous a fourni.

3. a) Pour les besoins du travail, pouvez-vous lire les textes imprimés ou dactylographiés?
Oui _____ Non _____

- b) Si oui, utilisez-vous des verres correcteurs ou une loupe?
Oui _____ Non _____

4. a) Veuillez identifier les appareils spéciaux que vous vous servez:

- rectangle braille < poinçon
 - calculatrice sonore ou calculatrice braille ou calculatrice à grand affichage
 - dactylo braille
 - ordinateur Versa-Braille (modèle D ou VB II)
 - télévisionneuse
 - optacon
 - ordinateur avec synthèse vocale
 - lecteur optique
 - Autres (veuillez les identifier) _____
-

b) L'équipement que vous utilisez vous appartient-il? _____

ou appartient-il à votre employeur? _____

ou a-t-il été loué ou emprunté par votre employeur? _____

EMPLOI

5. a) Avez-vous besoin d'espace additionnel pour votre chien-guide ou pour votre matériel adapté à votre disposition?

Oui _____ Non _____

b) Si oui, votre employeur est-il en mesure de se conformer à vos besoins?

Oui _____ Non _____

c) Si oui, votre employeur est-il disposé à se conformer à vos besoins?

Oui _____ Non _____

6. a) Veuillez identifier le genre d'établissement ou d'institution où vous êtes employé:

- gouvernement _____
 - éducation _____
 - finance _____
 - secteur judiciaire _____
 - secteur manufacturier _____
 - soins de santé _____
 - autres (veuillez préciser) _____
-

b) Avec combien de collègues de travail êtes-vous en contact chaque jour? _____

7. Depuis combien de temps occupez-vous votre poste actuel? _____

8. Décrivez brièvement les tâches ou fonctions que comporte votre poste actuel.

9. a) À votre avis quels sont les avantages dont vous bénéficiez dans votre poste actuel?

b) Vos impressions concernant ces avantages ont-elles évoluées depuis le début de votre emploi? Si oui, veuillez expliquer (comment et pourquoi ?)

10. a) Quels sont les inconvénients de votre poste actuel?

b) Vos impressions concernant ces inconvénients ont-elles évoluées depuis le début de votre emploi (comment et pourquoi ?)

FORMATION

11. La formation que vous avez reçue correspond-elle à vos fonctions actuelles?

Très bien ___ Assez bien ___ Bien ___

Pas très bien ___ Mal ___

12. Quels moyens auraient pu ou pourraient encore contribuer à améliorer la formation préparatoire à votre emploi dans un lieu de travail automatisé?

* Cochez d'abord les articles pertinents dans la liste qui suit et ensuite renseignez-vous sur ceux qui n'ont pas été mentionnés:

a) Une meilleure présentation de l'équipement et de ses usages possible. _____

b) Modifier la durée des sessions de formation. _____

c) Consacrer plus de temps à la pratique:

- durant les sessions de formation _____

- entre les sessions de formation _____

d) Consacrer un temps suffisant à la formation. _____

e) Besoin d'une documentation simple et claire et/ou aide-mémoire faciles à employer. _____

f) Besoin d'une évaluation périodique de l'acquisition des nouvelles connaissances. _____

- g) Besoin d'une meilleure façon être évalué en cours d'entraînement? _____
- h) Besoin d'un meilleur soutien. _____
- i) Besoin de plus d'information sur les méthodes de travail de bureau. _____
- j) Besoin d'un meilleur "feedback" de la part de l'instructeur. _____
- k) Nécessité de mieux connaître les possibilités de formation ultérieure.
- l) Autres _____
 Veuillez préciser _____

13.a) À votre avis, est-il important que les employés voyants soient renseignés sur les besoins particuliers de leurs collègues handicapés visuels?

Très important ___ Assez important ___ Important ___

Pas très important ___ Pas important du tout ___

b)(i)

Quels renseignements au sujet de ces besoins particuliers devrait-on donner aux employeurs et aux autres employés?

(ii)

À votre avis qui devrait fournir ces renseignements et quand devraient-ils être donnés?

* On a pu répondre aux questions 14-15 et 16 au cours des réponses aux questions 9 et 10. En ce cas, passez au numéro 17.

14.a) Vous sentez-vous à l'aise dans l'emploi que vous occupez en ce moment?

Très à l'aise ___ Assez à l'aise ___ Modérément à l'aise ___

Pas très à l'aise ___ Pas à l'aise du tout ___

- b) Êtes-vous plus ou moins à l'aise maintenant que lorsque vous avez commencé à exercer vos fonctions dans le poste que vous occupez en ce moment?
15. a) Votre employeur se sent-il à l'aise en votre présence maintenant?
- Très à l'aise ___ Assez à l'aise ___ Ne sais pas ___
- Pas très à l'aise ___ Pas à l'aise du tout ___
- b) Est-il plus ou moins à l'aise que lorsque vous avez commencé à exercer vos fonctions dans le poste que vous occupez en ce moment?
16. a) Vos collègues étaient-ils à l'aise en votre présence quand vous avez commencé votre emploi actuel?
- Très à l'aise ___ Assez à l'aise ___ Ne sais pas ___
- Pas très à l'aise ___ Pas à l'aise du tout ___
- b) Sont-ils plus ou moins à l'aise maintenant qu'ils ne l'étaient auparavant?
17. a) En tenant compte de l'expérience que vous avez dans votre emploi actuel, croyez-vous que vous faites bien votre travail?
- Très bien ___ Assez bien ___ Modérément bien ___
- Pas très bien ___ Mal ___
- b) S'il y a lieu, de quelle façon pourriez-vous améliorer votre rendement?
18. Que pensent votre employeur et vos collègues de votre rendement?

DÉVELOPPEMENT DE VOTRE CARRIÈRE

19.a) Dans votre poste actuel, croyez-vous qu'on vous donnera des occasions égales de formation, de développement d'une carrière et d'avancement autant qu'une personne non handicapée en aura?

Oui ___ Non ___

** N.B.: Cochez d'abord les articles pertinents dans la liste qui suit et ensuite posez des questions sur les points non mentionnés.

Limites physiques telles que:

- désavantage d'une relocalisation de votre poste de travail. _____
- absence de matériel adapté _____
- incapacité d'utiliser certains ordinateurs fonctionnant avec symboles visuels. _____
- problèmes par^{rapport} à la lecture de documents. _____
- découragement _____

Fausses perceptions telles que:

- incompréhension de la part des employeurs quant à votre capacité de travail et à votre potentiel.
- les handicapés visuels sont prédisposés aux accidents.

c) À votre avis, comment pourrait-on corriger la situation actuelle?

Particularités

20. a) Quel est votre groupe d'âge?

- 25 ans ou moins _____
de 26 ans à 34 ans _____
de 35 ans à 44 ans _____
de 45 ans à 54 ans _____
de 55 ans et plus _____

21. Sexe: Homme _____ Femme _____

22. Formation académique:
Niveau atteint: Secondaire, CEGEP, B.A., M.A., etc.

23. Formation technique:
Où et par qui a-t-elle été donnée _____

Durée de la formation _____

Formation en cours d'emploi _____

Formation en cours régulier _____

Genre de formation ou de cours _____

24. Enfin, aimeriez-vous faire des commentaires ou poser des questions sur un point ou l'autre de ce questionnaire?

APPENDIX E

QUESTIONNAIRE POUR LES EMPLOYEURS/SURVEILLANTS
DE PERSONNES HANDICAPÉES VISUELLES

1. a) À votre avis, quels avantages y a-t-il à embaucher des personnes handicapées visuelles dans un lieu de travail automatisé?

b) Vos impressions concernant ces avantages ont-elles évolué depuis que vous avez embauché le premier employé handicapé visuel? Veuillez expliquer.

2. a) À votre avis, quels sont les inconvénients d'embaucher des personnes handicapées visuelles dans votre lieu de travail automatisé?

b) Vos impressions concernant ces inconvénients ont-elles évolué depuis que vous avez embauché le premier employé handicapé visuel?

3. a) Combien d'employés avez-vous sous votre direction? _____

b) Combien d'entre eux sont des handicapés visuels? _____

c) Veuillez identifier le genre d'établissement ou d'institution où vous êtes employeur/surveillant:

Gouvernement ___
Éducation ___
Finance ___
Secteur judiciaire ___
Secteur manufacturier ___
Soins de santé

Autre _____ Veuillez préciser _____

4. a) Combien de vos employés sont devenus handicapés visuels (1) alors qu'ils étaient à l'emploi de votre institution?

(2) alors qu'ils exerçaient les mêmes fonctions qu'en ce moment? _____

Si la réponse à la question 4 (a) est négative, passez à la question numéro 5.

b) Le cas échéant, a-t-on procuré à cette (ces) personne(s) une nouvelle formation?

Oui ___ Non ___

c) Les cas échéants, la(les) personne(s) a-t-elle(ont-elles) chercher à se recycler en dehors du milieu de travail?

Oui ___ Non ___

- d) S'il y a lieu, lesquelles des réactions suivantes avez-vous remarquées chez les collègues de l'employé qui était devenu handicapé visuel alors qu'il occupait le poste actuel. (Je vous donnerai la réaction et vous pourrez faire un des trois choix).

	OUI	NON	UN PEU
Pitié	—	—	—
Impatience	—	—	—
Impolitesse, grossièreté	—	—	—
Frustration	—	—	—
Ressentiment, rancune	—	—	—
Surprotection	—	—	—
Dissimuler la vérité (en en faisant le travail de l'autre personne)	—	—	—

4. e) L'une ou l'autre de ces réactions a-t-elle évolué avec le temps?

Oui — Non —

- f) Si oui, veuillez expliquer comment et pourquoi.

5. a) Avant l'embauche d'un employé handicapé visuel, avez-vous reçu des renseignements particuliers concernant les besoins des handicapés visuels?

Oui — Non —

- b) Si oui, veuillez décrire.

6. a) Avant l'embauche d'un employé handicapé visuel, vos autres employés ont-ils reçu des renseignements particuliers sur les besoins des handicapés visuels?

Oui — Non —

- b) Si oui, veuillez décrire.

7. À votre avis, est-il important qu'un employeur et ses autres employés reçoivent de tels renseignements quand un handicapé visuel fait partie du personnel d'un bureau?

Très important ___ Assez important ___ Important ___

Pas très important ___ Pas important du tout ___

8. a) À votre avis, quelle serait la meilleure manière de donner ces renseignements?

b) Quand devrait-on les donner?

c) Qui devrait les donner?

9. a) Étiez-vous à l'aise en présence de l'employé(e) handicapé(e) visuel(le) quand il (elle) a commencé à exercer ses fonctions actuelles?

Très à l'aise ___ Assez à l'aise ___ Modérément à l'aise ___

Pas très à l'aise ___ Pas à l'aise du tout ___

b) Êtes-vous plus ou moins à l'aise maintenant qu'auparavant?

c) Si vous êtes moins à l'aise, veuillez expliquer.

10. a) À votre avis, l'employé(e) handicapé(e) visuel(le) paraissait-il(elle) à l'aise dans un bureau quand il(elle) a commencé les fonctions qu'il(elle) exerce en ce moment?

Très à l'aise ___ Assez à l'aise ___ Sans opinion ___

Pas très à l'aise ___ Très mal à l'aise ___

b) Paraît-il(elle) plus ou moins à l'aise maintenant qu'au début de l'emploi actuel?

11.a) Les collègues d'un employé handicapé paraissaient-ils à l'aise quand cette personne a commencé l'exercice de ses fonctions?

Très à l'aise ___ Assez à l'aise ___ Sans opinion ___

Pas très à l'aise ___ Très mal à l'aise ___

b) Sont-ils plus ou moins à l'aise maintenant avec cette personne?

c) S'ils sont moins à l'aise, veuillez expliquer.

*N.B. Tenez compte du fait que la question suivante a pu être discutée ailleurs dans le questionnaire. Éviter de répéter.

12.a) Décrivez les fonctions exercées maintenant par un employé handicapé visuel (mais seulement si elles n'ont pas déjà été mentionnées).

b) Depuis combien de temps l'employé exerce-t-il ces fonctions?

c) Quelle est la qualité du rendement de cet employé?

13. À votre avis, les personnes handicapées visuelles sont-elles adéquatement préparées pour travailler dans des bureaux automatisés?

Très bien ___ Assez bien ___ Bien ___

Pas très bien ___ Mal ___

14. Selon vous, comment pourrait-on améliorer leur formation à ce travail?

15.a) Comment devraient être orientés les nouveaux employés handicapés visuels pour les aider à s'adapter à un milieu de travail automatisé?

b) Qui devrait donner cette orientation?

c) Quand devrait-elle être donnée?

16. Puisque vous avez eu de l'expérience avec des employés handicapés visuels travaillant dans un bureau automatisé, jusqu'à quel point croyez-vous que leurs capacités sont utilisées?

Très bien ___ Assez bien ___ Modérément bien ___

Pas très bien ___ Mal ___

17. Décrivez l'éventail des tâches ou des fonctions que vous croyez possibles pour un handicapé visuel.

18. Veuillez donner votre impression au sujet de l'attitude de votre employé handicapé visuel face à son handicap.

19. Pensez-vous qu'on peut donner à l'handicapé visuel des chances égales de formation, de développement de carrière et d'avancement?

Oui ___ Non ___

20. Enfin, en général, comme employeur, jusqu'à quel point êtes-vous satisfait du rendement de votre employé handicapé visuel?

Très satisfait ___ Assez satisfait ___ Modérément satisfait ___

Pas très satisfait ___ Pas du tout satisfait ___

APPENDIX F

QUESTIONNAIRE POUR LES
COLLÈGUES DES HANDICAPÉS VISUELS

1. Veuillez identifier le genre d'établissement ou d'institution où vous êtes employé(e):

Gouvernement _____
 Éducation _____
 Finance _____
 Secteur judiciaire _____
 Secteur manufacturier _____
 Soins de santé _____
 Autre _____, Veuillez préciser _____

2. Depuis combien d'années occupez-vous votre emploi actuel?
3. a) Durant cette période combien de vos collègues ont été des handicapés visuels? _____
- b) Combien de vos collègues actuels sont des handicapés visuels?

4. a) Combien de vos collègues sont devenus handicapés visuels:
1. Alors qu'ils étaient à l'emploi de votre institution _____
11. Alors qu'ils exerçaient les mêmes fonctions qu'en ce moment _____
- * Si la réponse à la question 4(a) est négative, passez à la question numéro 5.

b) Le cas échéant, a-t-on procuré à cette(ces) personne(s) une nouvelle fonction?

Oui _____ Non _____

c) Le cas échéant, la (les) personne(s) a-t-elle (ont-elles) chercher à se recycler en dehors du milieu de travail?

Oui _____ Non _____

d) S'il y a lieu, lesquelles des réactions suivantes avez-vous remarqué chez vos collègues envers l'employé qui était devenu handicapé visuel alors qu'il occupait le poste actuel. (Je vous donnerai la réaction et vous pourrez faire un des trois choix).

	OUI	NON	UN PEU
- Pitié			
- Impatience	—	—	—
- Impolitesse, grossièreté	—	—	—
- Frustration	—	—	—
- Ressentiment, rancune	—	—	—
- Surprotection	—	—	—
- Dissimuler la vérité (en faisant le travail de l'autre personne)	—	—	—

e) L'une ou l'autre de ces réactions a-t-elle évolué avec le temps?

Oui — Non —

f) Si oui, veuillez expliquer comment et pourquoi.

5. a) À votre avis, quels avantages y a-t-il à avoir des personnes handicapées visuelles pour travailler dans votre bureau automatisé?

b) Vos impressions concernant ces avantages ont-elles évolué depuis que le premier employé handicapé visuel a été embauché? Veuillez expliquer.

6. a) À votre avis, quels sont les inconvénients d'avoir des personnes handicapées visuelles pour travailler dans votre bureau automatisé?

b) Vos impressions concernant ces inconvénients ont évolué depuis que le premier employé handicapé visuel a été embauché? Veuillez expliquer.

7. a) Avant l'embauche d'un employé handicapé visuel, avez-vous et vos collègues ont-ils reçu des renseignements particuliers sur les besoins des handicapés visuels?

Oui ___ Non ___

b) Si oui, veuillez décrire.

8. À votre avis, est-il important qu'un employeur et ses autres employés reçoivent de tels renseignements quand un handicapé visuel fait partie du personnel d'un bureau?

Très important ___ Assez important ___ Important ___

Pas très important ___ Pas important du tout ___

9. a) À votre avis, quelle serait la meilleure manière de donner ces renseignements?

b) Quand devrait-on les donner?

c) Qui devrait les donner?

10. a) Étiez-vous à l'aise en présence de l'employé handicapé visuel quand il a commencé à exercer ses fonctions actuelles?

Très à l'aise ___ Assez à l'aise ___ Modérément à l'aise ___

Pas très à l'aise ___ Pas à l'aise du tout ___

b) Êtes-vous plus ou moins à l'aise maintenant qu'auparavant?

c) Si vous êtes moins à l'aise, veuillez expliquer.

11. a) À votre avis, l'employé handicapé visuel paraissait-il à l'aise dans un bureau quand il a commencé les fonctions qu'il exerce en ce moment?

Très à l'aise ___ Assez à l'aise ___ Sans opinion ___

Pas très à l'aise ___ Très mal à l'aise ___

b) Paraît-il plus ou moins à l'aise maintenant qu'au début de l'emploi actuel?

12. a) Jusqu'à quel point vos collègues voyants paraissaient-ils à l'aise quand l'employé handicapé visuel est entré en fonction?

Très à l'aise ___ Assez à l'aise ___ Sans opinion ___

Pas très à l'aise ___ Très mal à l'aise ___

b) Paraissent-ils plus ou moins à l'aise maintenant que quand l'employé est entré en fonction?

c) S'ils sont moins à l'aise, veuillez expliquer.

d) À votre avis, comment vos collègues voyants se sentent-ils en présence de collègues handicapés visuels?

13. a) Décrivez les fonctions actuelles de vos collègues handicapés visuels.

b) Depuis combien de temps ce collègue exerce-t-il ses fonctions?

c) Comment ce collègue remplit-il ses fonctions?

14. À votre avis, les personnes handicapées visuelles sont-elles adéquatement préparées pour travailler dans des bureaux automatisés?

Très bien ___ Assez bien ___ Bien ___

Pas très bien ___ Mal ___

15. Selon vous, comment pourrait-on améliorer leur formation à ce travail?

16. a) Comment devraient être orientés les nouveaux employés handicapés visuels pour les aider à s'adapter à un milieu de travail automatisé?

b) Qui devrait donner cette orientation?

c) Quand devrait-elle être donnée?

17. Puisque vous avez eu de l'expérience avec des employés handicapés visuels travaillant dans un bureau automatisé, jusqu'à quel point croyez-vous que leurs capacités sont utilisées?

Très bien ___ Assez bien ___ Bien ___

Pas très bien ___ Mal ___

18. Décrivez l'éventail des tâches ou des fonctions que vous croyez possibles pour un handicapé visuel.

19. Veuillez donner votre impression au sujet de l'attitude de votre employé handicapé visuel face à son handicap.

20.a) Pensez-vous qu'on peut donner à l'handicapé visuel des chances égales de formation, de développement de carrière et d'avancement?

Oui — Non —

b) Veuillez expliquer votre réponse.

21. Selon vous, que peut-on faire pour améliorer la situation des handicapés visuels dans les bureaux automatisés?

APPENDIX G

**The Integration of the Visually Impaired
into the Automated Office**

A research study dealing with the integration of the visually impaired into the automated office is being conducted by Mary Wheatley, a student in the master's program in educational technology at Concordia University. Dr. Richard Schmid, Director of the Graduate Program in Educational Technology, is the supervisor of the study.

The new technologies have produced astounding changes for all of society and most certainly for the visually impaired. The adaptive devices now available to be used with electronic equipment have provided them with the technical means to become independent and self-sufficient. As a result of these technologies, the expanding field of information processing looks particularly bright for those visually impaired individuals who are interested. With the technology advancing as rapidly as it is, and with an increasing number of visually impaired people employed in automated offices, it is important to determine how successfully they have been and are being integrated.

If the work in automated offices is motivated by productivity as the Economic Council of Canada has just reported, and if the visually impaired hope to perform information processing tasks adequately, then they must be able to compete as equals with their sighted co-workers. Whether they can do so will depend on the way in which questions such as the following will be answered:

1. How adequate is their preparation for employment in information processing?
2. How challenging are the duties being assigned to the visually impaired?
3. What opportunities exist for training/promotion?
4. What kinds of attitudes toward the visually impaired employee exist in the automated office?

In order to obtain the information needed for the study, visually impaired employees, their employers, and their co-workers, all of whom are involved in the automated office setting, will be interviewed by telephone. After the data have been gathered and analysed, the researcher will be able to draw conclusions and make recommendations which can be used to help make changes and/or improvements that will permit the visually impaired to function in the automated office as creative, competitive, and productive employees working to potential.

Your help in locating participants for this research study will be very much appreciated. If you have any questions, I can be reached at () - . Thank you!

APPENDIX J

Access Program for Disabled People

Public Service Commission - June 1987

In 1983, the Access Program for Disabled People was created as a complement to the Public Service Commission's recruitment and referral services to disabled applicants. This external recruitment program is designed to offer on-the-job training in federal departments to persons with physical, mental, psychiatric or learning disabilities who, although qualified, lack required job experience. The Program's aim is to offer departments up to six months resources to train individuals for placement in indeterminate positions. The Public Service Commission (PSC) reimburses the department for the salary dollars used during training and the trainee does not expend departmental person-year resources during the training period.

The Program is operated through PSC's Regional and District Offices, and the Commission's Regional Directors are responsible for approving departmental proposals. Under the Program, departments must make a commitment to provide employment to successful trainees through a Letter of Agreement signed by the department, the trainee, and the PSC. All parties must also agree to a training plan put forward by the department.

PSC Coordinators of Services to Disabled People are available to assist departmental managers in selecting appropriate trainees, designing the training plan, completing staffing actions and providing general advice and assistance. The Coordinators follow-up on the progress of trainees while the trainee's supervisor is responsible for completing a bi-monthly performance evaluation.

The Public Service Commission maintains a Technical Aid Loan Bank of approximately 70 adaptive devices which are available for loan to Access trainees. This equipment is designed to assist disabled persons who require such devices to perform their work in an efficient and effective manner. If a device required by a trainee is not available, Loan Bank staff will assist the department in locating an alternative source for the equipment.

Further information about the Access Program for Disabled People or the Technical Aids Loan Bank is available from the Public Service Commission coordinator of services to disabled people in your area. Your departmental Affirmative Action Officer may also be of assistance.

APPENDIX K

Awareness Week

An Employment Equity Initiative
at the Employment and Immigration Commission
National Headquarters

A Proposal Prepared By:

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EIC National Headquarters

Disability Sensitization/Awareness Week

Objective

Through encouragement and active participation of staff at all levels within EIC NHQ: to enhance the knowledge of program/policy developers and decision makers to the employment capabilities of disabled individuals; to promote knowledge on the availability and use of technical aids and assistive devices that facilitate productive employment by disabled workers; to sensitize staff to the concerns and needs of disabled individuals in a work environment; and to foster a greater understanding between disabled and non-disabled individuals in the workplace.

Rationale

It has been six years since the 1981 International Year for Disabled Persons, and we are half way through Canada's proclaimed Decade of Disabled Persons, yet barriers to the integration of disabled individuals still exist.

It is recognized that the greatest barrier is that of a lack of understanding and awareness of the concerns and needs of disabled individuals.

Disabled individuals, and others working on behalf of disabled individuals, perceive employment to be most vital in breaking down the barriers to integration, as well as providing self-reliance and independence.

Rick Hanson, through his "man in motion" campaign, challenged the whole of Canadian society to work toward total integration and the removal of barriers. Patrick Boyer, MP, Chairman of the Parliamentary Sub-committee for the Disabled and the Handicapped, in his "Challenge- Putting Our Own House in Order" report to Parliament in April 1987, put forth a challenge to federal government agencies to do more for the disabled sector in terms of employment and integration.

EIC, one of the largest and most nationally dispersed federal departments/commissions, should be a role model for employment equity and integration in view of its employment-related mandate.

Notwithstanding the many internal benefits to be gained, implementing this proposal would indicate EIC's acceptance of these challenges, and portray EIC as a proactive leader in attempting to remove barriers affecting the employment of disabled individuals.

Content

- It is proposed that the scope of events during this Disability Awareness Week would include the following:
- a notice to all NHQ staff announcing the Disability Awareness Week and encouraging participation.
 - displays of posters, promotional brochures, fact sheets.
 - video presentations promoting the capabilities of disabled individuals.
 - displays and demonstrations of technical aids and assistive devices.
 - participation by NHQ personnel in various activities (see Annex 1) that produce a "hands-on" approach to the concerns, needs and capabilities of disabled individuals.
 - an award system that would recognize group participation levels of staff taking part in the activities.
 - internal media coverage (Panorama) for further encouragement to the regions or field offices; for positive reinforcement of the staff activities; and for future use as a public relations vehicle to other federal agencies.

Methodology

Events and activities have been designed so as to minimize disruption to participant's normal work activities, yet provide maximum awareness benefits.

The following represents a generalized proposed plan of implementation:

- determination of scheduled week—it is suggested that the last week of October would be appropriate as it would utilize the festive competitive atmosphere of the United Way activities which immediately precede this date.
- issuance of an NHQ desk drop, proclaiming the Disability Awareness Week and encouraging participation by all levels of staff in its activities. Attached would be a list of activities (Annex 1) and a request that prospective participants contact one of three designated volunteers with their choice of events and time options to participate.
- static displays would be organized in appropriate areas of Phase IV.
- video presentations would be set up in appropriate high-traffic, open areas, and would operate for three days during the coffee and lunch break periods of each day.
- equipment display and demonstration rooms would be set up and staffed by volunteers for a three day period, according to need.

- appropriate personnel would provide instruction and monitor the participants utilizing the emergency evac-u-chair equipment.
- volunteers, acting as instructors and receiving stations, will assist participants in communication exercises using the TDDs.
- volunteers, acting as facilitators, will assist and coordinate activities such as assigning equipment and tasks.

Benefits

- With even a moderately successful week of activities, the following benefits can be realized:
- an enhanced knowledge and understanding by program/policy developers and decision makers of the concerns, needs and employment capabilities of disabled individuals.
 - an increased awareness of the availability and use of technical aids/devices for the employment of disabled individuals.
 - a greater awareness and acceptance by NHQ personnel to employing disabled individuals within their respective areas.
 - an increased resource of knowledgeable staff to assist, when needed, in the emergency evacuation of disabled individuals.
 - a greater number of NHQ personnel knowledgeable in the use and need of TDDs, and their ability to respond to inquiries from speech or hearing impaired individuals calling on a TDD.
 - a positive indication, through enforcement and participation, of management's commitment to the employment concerns and needs of EIC disabled employees.
 - a public relations vehicle through which EIC can be portrayed as a proactive leader in fostering the employment integration of disabled individuals.

EIC Resource Requirements

A commitment of participation by senior management personnel (an ideal illustration of our philosophy of management by action), and authorization for staff to participate or act as volunteers.

Use of NHQ technical aids (TDDs, visual-teks, infra-red equip, etc) during these Awareness Week activities.

Appropriate facilities management or emergency organization personnel to provide instruction and monitoring of evacuation equipment activities.

Appropriate posters and personnel from public affairs to provide media coverage of events,

Other Requirements

During preliminary discussions on this initiative, proponents found a willingness by outside groups and organizations to back this event through the loan of additional equipment (ie: wheelchairs, vision-impairment glasses, etc.) and promotional material.

Summary

This innovative, proactive approach to a most beneficial employment-related matter is both timely and much needed. Therefore, it is recommended that senior management;

- adopt and authorize implementation of this initiative,
- set a week to be proclaimed NHQ Disability Awareness Week,
- contact the proponents of this initiative in order that implementation plans may be finalized.

Proposed Activities

(Annex 1)

Executives: (Group Heads and Above)

Participate in all of the following;

- a) a short business conversation with a regional official using a telephone device for the deaf (TDD).
- b) visit another area within Phase IV using a wheelchair or simulating a vision impairment.
- c) a demonstration of equipment designed to assist vision or hearing impaired employees.

Senior Management: (Branch Heads)

Participate in all of the following;

- a) a conversation with another NHQ employee using a telephone device for the deaf (TDD), or have a short conversation with a deaf individual using the services of a sign-language interpreter.
- b) visit another area within Phase IV using a wheelchair or simulating a vision impairment.
- c) a demonstration of equipment designed to assist vision or hearing impaired employees.

Management: (Directors/Chiefs)

Participate in activity a) plus two other activities.

- a) under instruction transport a fellow employee down two flights of stairs using the evac-u-chair.
- b) a conversation with another NHQ division using a telephone device for the deaf (TDD).
- c) visit another area of Phase IV using a wheelchair or simulating a vision impairment.
- d) use infra-red communication equipment (designed to assist the hard of hearing) in a staff meeting.
- e) "read" an EIC publication by means of the audio-cassette format.
- f) a demonstration of equipment designed to assist vision or hearing impaired employee.

Staff

Participate in activity a) plus two other activities.

- a) under instruction transport a fellow employee down two flights of stairs using the evac-u-chair.
- b) a conversation with another NHQ employee using a telephone device for the deaf (TDD).
- c) visit another area of Phase IV using a wheelchair or simulating a vision impairment.
- d) a demonstration of equipment designed to assist vision or hearing impaired employees.
- e) do your normal work for one hour simulating a vision, hearing or physical impairment.

Evaluation Questionnaire
Disability Awareness Week
 (Annex 2)

As a participant in the NHO disability awareness activities, we ask your assistance in evaluating this initiative by completing this questionnaire.

1. a) Classification of participant:

Executive _____
 Senior Management _____
 Management _____
 Staff _____

b) Group allocation of participants:

Office of the DM and ADM _____
 Executive Secretariat _____
 Finance and Administration _____
 Strategic Policy and Planning _____
 Systems and Procedures _____
 Employment Services _____
 Personnel Services _____
 Insurance Services _____
 Immigration Services _____
 CJS Group _____
 Public Affairs _____

2. I feel this exercise was:

1. Very Worthwhile _____
 2. _____
 3. _____
 4. _____
 5. Useless _____

3. I participated in the following activities:

use of the emergency evac-u-chair _____
 communicated through the use of a TDD _____
 communicated with a deaf individual _____
 through a sign language interpreter _____
 attended a demonstration of equipment for _____
 use by hearing impaired individuals _____
 'read' an EIC publication using an _____
 audio-cassette tape method _____
 attended a demonstration on equipment for _____
 use by vision impaired individuals _____
 a task while simulating a vision impairment _____
 a task while simulating a mobility impairment _____
 conducted my usual work activities for an _____
 hour while simulating an impairment _____

4. I gained the following knowledge and understanding by participating in these activities: (use back of questionnaire if additional space required)

5. I rate my knowledge and understanding gained as:
Fair Good Excellent

-understanding of barriers faced by disabled individuals.	___	___	___
-understanding of the accommodation needs of disabled employees.	___	___	___
-knowledge on availability and use of aids/devices to offset impairment limitations of disabled employees.	___	___	___
-a greater range of employment opportunities that disabled individuals could possibly do.	___	___	___

6. Participation in this disability awareness exercise will be of assistance to me in my daily life activities by: _____

7. I would like to offer these suggestions for future considerations: _____

The organizers of this disability awareness exercise greatly appreciate your participating in the activities held, and thank you for providing us with this feedback.

Please return promptly to:

_____ or _____

APPENDIX M

Canadian
National
Institute
for the Blind

**AUTOMATED OFFICE PROCEDURES
TRAINING PROGRAM**
Career Development Centre

George
Brown
College

Objective:

AOP is a twenty-five week training program designed to develop the marketable skills of blind and visually impaired persons in automated office procedures and computerized systems.

Program:

The course consists of:

- Hardware training on Personal Computers, through the use of an interface appropriate to level of functional vision (Speech, Large Print or Braille)
- Word-Processing, setting up letters, manuscripts, data files.
- Micro-computer business applications, including accounting, file management, inventory control, and spreadsheet.
- Business communications, mathematics, and accounting theory.

Career Opportunities:

Graduates can expect to find employment in a number of occupations: word processor operator, micro-computer operator, data-processing clerk, secretary, junior book-keeper, dicta-typist.

Program Start Date:

The twenty-five week program runs twice each year. For Specific dates contact the CD Centre

Entry Requirements:

1. 20 w.p.m. typing
2. Grade 10 English and Math
3. Aptitude test.
4. Approval by CDC Selection Committee.
5. Eligible for funding by VRS

Fee: \$6,250 This fee covers tuition, books, and the extensive equipment usage requirements of the program. Prospective students unable to locate funding assistance should consult the CD Centre Intake Counsellor.

Accommodation:

Clients resident outside Toronto may be accommodated in the CNIB Clarkwood residence. Reasonable rates can usually be arranged. For more information contact the Residence Supervisor:
(416) 480 7570

Sponsor:

The CNIB gratefully acknowledges the significant support to this program provided by the Henry White Kinnear Foundation.

FOR FURTHER INFORMATION on this or any other programs offered by the CNIB Career Development Centre, call 486-1623.

CNIB, Career Development Centre, 1929 Bayview Ave., Toronto M4G 3E8

Automated Office Procedures Program Details

Performance Objectives:

1. HARDWARE TRAINING

- Operate the IBM PC through the use of an interface appropriate to level of functional vision.
- Demonstrate understanding of key terms, concepts, and activities involved in the operation of an IBM PC.
- Create, update, use, and erase disk files.

2. WORD-PROCESSING

- Set up applications such as letters, manuscripts, data files, perform basic text manipulation, and printing functions on an IBM PC.
- Perform the following functions on an IBM PC: centering, templating, boilerplating, formatting, creating headings and footings, conditional hyphenating, underlining, boldfacing, and printing documents with variables

3. KEYBOARDING SKILLS

- Type 40-45 wpm on a 5-minute speed test with not more than 5 errors

4. DOCUMENT PREP AND MACHINE TRANSCRIPTION

- Produce the following basic typing applications from copy, at an office mailability standard: tabulation, letters, envelopes, memoranda, financial statements, invoices, and simple manuscripts.
- Transcribe a variety of material w/ 95% accuracy

5. MICROCOMPUTER AND BUSINESS APPLICATIONS

- Access software in the following categories:
 - * Accounting: perform general accounting, accounts payable & receivable functions
 - * File Management: maintain vendor and cost data, pricing & reorder levels, sales, and quantities
 - * Spreadsheet: set up charts, tables, and records. Create worksheets to solve specific problems.

6. BUSINESS COMMUNICATIONS

- Respond to oral directions
- Communicate orally using appropriate sentence structure, vocabulary, and pronunciation
- Edit prepared business correspondence with 90% accuracy in grammar, spelling, word division, sentence structure, word usage and punctuation
- Write mailable basic business letters such as inquiry and reply, order and acknowledgement, request, acceptance, refusal, collection and claim, and inter-office memoranda

7. MATHEMATICS

- Perform such basic arithmetic functions as addition, subtraction, division, and multiplication using both manual and electronic aids
- Perform functions using fractions, decimals, and percents
- Apply the above to such common business functions as calculating simple and compound interest, bank loans, sales tax, and property tax

8. ACCOUNTING THEORY

- Demonstrate an understanding of specialized journals and subsidiary ledgers.
- Demonstrate an understanding of the bank reconciliation statement and making adjusting entries resulting from the bank reconciliation
- Compute, prepare, record, and disburse a payroll

Other Program Details:

STAFFING

- Program Co-ordinator
- Two Community College teachers
- Two Community College Certified Teaching Assistants

EQUIPMENT

Each student workstation typically consists of:

- Computer: 1 IBM PC compatible computer with 640K, 2 floppy disk drives, 1 20MB hard disk
- Adaptive Device: Either or both: Large Print program (with or without an extra large screen), a Synthesized Speech program
- Talking Calculator.
- Dicto-transcription machine
- Value of 1 student workstation is up to \$7,000

RESOURCES: include all necessary texts in print, braille and tape. Tape dictionaries, 2 and 4 track tape players. Evening and weekend access to computer room for self-study.

FEES: \$6,250 for the complete 25 week course

Tuition	4,450	(Travel and
Equipment	100	accommodation costs
Materials	700	not included)

BENEFITS

- Small class size and individual coaching
- 1:1 student/computer ratio for all computer classes
- Student learn specialized access device and marketable skills for business
- Course content identical with George Brown regular course in micro-computer applications
- For comparison, individual training on a blind access device alone, can run to \$250/day.