

Assistive Technologies in a Workplace Environment: Barriers for the Employment of Persons with Disabilities

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ABSTRACT

Purpose: *The employment equity policies and implementation of technology-specific guidelines within the South African 'Code of Good Practice on the Employment of People with Disabilities', was created to encourage employment equity for employees with disabilities, by companies in Johannesburg.*

This study reports on the results of the investigation in assistive technologies in a workplace environment, and barriers for the employment of persons with disabilities in the South African environment.

Method: *Qualitative data, collected from two retail and service companies in the form of semi-structured individual and focus group interviews, was analysed using a constant comparative method, identifying major themes and sub-themes.*

Results: *A surprisingly small number of persons with disabilities were found to be employed by participating companies, which tended not to focus on these people when formulating their policies and plans. In addition, technological aspects of the Code were largely unacknowledged, with little effort being made to accommodate the needs of persons with disabilities. An even lower incidence of assistive technology usage was found, along with a large number of conceptual and perceived barriers that hinder the employment of persons with disabilities and the implementation of appropriate technology.*

Key words: *Assistive technologies, disability accommodation guidelines, barriers for employment, disabilities, policy*

INTRODUCTION

Inequality in the workplace has become a widely talked of phenomenon in the business world. South Africa has a unique perspective on this, due to its

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history of legalised inequality (Department of Labour, 1998). A similar trend towards employment equity is visible in other countries; promoting equal rights to employment for members of discriminated groups with disabilities (Kriegel, 2002; McClain, 2002). However, the South African legislation regarding the employment of individuals with disabilities has been criticised due to its ineffectiveness (Schall, 1998; Siegal, 2001). In particular, the legislation has had little or no impact on the employment status of people with disabilities (De Laurentiis, 1991; McGregor, 1991; Schall, 1998; IRS, 1998; Brett, 2000; Conlin, 2000; Hignite, 2000; Saskatchewan, 2000; Agocs, 2002; Robitaille, 2002; Thomas, 2002). The South African government responded to issues of disability formally, through the employment Equity Act No 55, of 1998 (“the Act”), and has been further refining the Act into various Codes of Good Practice, in particular the Code of Good Practice on Key Aspects on the employment of People with Disabilities (“the Code”) (Department of Labour, 2002).

People with disabilities are included in the Act, forming part of the ‘designated groups’ (namely, black people, women and people with disabilities) (Department of Labour, 1998). In fact, there is very little official disability-related documentation and research available, especially in comparison to the volume of race-related literature. When addressing the needs of employees with disabilities, the Act and the Code both include the term ‘reasonable accommodation’. Reasonable accommodation [disability accommodation] is any modification or adjustment to a job or to a working environment that will enable a person from a designated group to have access to or participate or advance in employment (Department of Labour, 2002). It includes acquisition and modification of equipment and devices, as well as any necessary training. These devices and equipment are collectively known as assistive technologies (AT) - for example, special keyboards, boards for the blind, signs, sound equipment. However, it needs to be mentioned that while these assistive technologies exist, this does not mean that they are actually being used in the workplace (NCT, 2003). The lack of disability-specific literature, coupled with a lack of current research in the use of assistive technologies, led to an interesting research opportunity.

This research attempted to discover firstly, if the reasonable disability accommodation guidelines of the Code (Department of Labour, 2002) had been used in the employment equity policies of designated South African employers. Secondly, it was important to discover what assistive technological solutions had been employed in implementing these policies. Thirdly, it was necessary to

identify and discuss the key aspects of barriers for the employment and reasonable disability accommodation of the workers with disabilities in the South African workplace. To do this, the following research questions were set:

1. How does a company's employment policy comply with the reasonable disability accommodation guidelines of the Code?
2. What assistive technologies have been used to put the policy into practice, and what are the reasons for a lack thereof?
3. What are the existing barriers to the employment of people with disabilities?
4. What proactive efforts are undertaken in addressing these barriers?

The present study examines issues pertaining to disability legislation in South Africa, and the criticisms thereof; employment issues; and finally, the use of assistive technologies in the workplace.

The first section of the paper presents a conceptual framework on assistive technologies and barriers for people with disabilities, so that the rationale for empirical research can be understood and properly interpreted.

General Disability Issues and Assistive Technologies (AT): Some Barriers for their Implementation

A person with a disability has a condition (for example, a physical, sensory, cognitive, intellectual or mental health issue) judged to be significantly impaired in comparison to the existing legislation standards. People who have a long term or recurring physical or mental impairment that substantially limits their prospects of entry into, or advancement in, employment are regarded as disabled (Department of Labour, 2002). Research shows that a person with disability can maintain employment, even if the disability is severe, with the proper support of assistive technology (Inge et al, 2000).

In March 2001, the Foundation of Assistive Technology (FAST) defined 'assistive technologies' (AT) as "a service or product that enables independence" (Stead, 2002, p 149). These include a vast array of products, most of which are customisable to some degree, and are either common sense (pagers) or cutting edge solutions, including voice recognition software, eye-movement tracking devices, screen readers which 'read' text on a screen through speakers, Braille attachments, special keyboards, speech synthesisers and many others (Wagner, 1992; Schneider, 1999; Brett, 2000; Conlin, 2000; Hignite, 2000; Ohlhorst, 2000;

Whiting, 2001; Beals, 2002; Morrison & McKenna, 2002; Agocs, 2002; Singh, 2002; Stead, 2002; Minkel, 2003). To clarify, while AT does include non-technological solutions (including wheelchairs and physical ergonomics), this study will be looking specifically at those that are technological in nature.

Some of these technologies have existed for a number of years, and yet the assistive technology field continues to develop rapidly (Roberts, 2000; Crampton & Hodge, 2003). This fact should generally make assistive technologies easier (Schneider, 1999). This is “levelling the playing field” (Ohlhorst, 2000) for persons with disabilities, allowing them to step out of the stereotype seen so often in employment (Singh, 2002).

There is a staggering amount of information on AT, regarding its technical aspects, help in procurement and research into its use (Hignite, 2000; Roberts, 2000). South Africa is starting to see its own ‘pioneers’ in AT, such as companies like Employability (Brett, 2000; Hignite, 2000; Roberts, 2000; Whiting, 2001; Beals, 2002; The Star, 2003). However, the usage of assistive technologies in South Africa is predominantly low, and the employers still have a duty to employ people with disabilities wherever appropriate. There are some barriers associated with the implementation of assistive technologies, all of which add to the frustration in efforts to increase employment of persons with disabilities.

Not least of these is the often prohibitive cost of the relatively “high tech” solutions, including computer technology and robotics (De Jonge, Rodger & Fitzgibbon, 2001). Barriers include upgrade and support concerns, and integration with existing hardware and software platforms. As AT is usually developed for a small market, it is often in isolation from other technology markets. Therefore, any problems tend to come to light only once it is actually implemented and put to the test (De Jonge et al, 2001). In order to understand the assistive technologies and key aspects of barriers for the employment of people with disabilities, it is necessary to understand various aspects of the employment policies and reasonable accommodation guidelines in greater detail.

Employment Equity Policies and the Employment of People with Disabilities

Of the estimated 12.7% persons with disabilities in South Africa (Global Diversity, 2000), they make up only 1.2% of the South African workforce, which shows that the figures of workers with disabilities remained unchanged (Black Management Forum, 2003) It would therefore seem that the people with disabilities are still a marginalised group in spite of the legislation (Global Diversity, 2000; Woodhams

& Danieli, 2000), even though designated employers are obliged to employ people out of the designated groups. A designated employer is either a person who employs 50 or more employees, or a person who employs fewer than 50 employees but has a total annual turnover that is equal to a specified amount (Department of Labour, 1998).

Employers must draw up employment equity policies for proposed recruitment and reasonable disability accommodation, where part of this policy must include some reference to the proposed employment and treatment of people belonging to the designated groups (Black Management Forum, 2003). However, the compliance of employers with these rules is also poor. Employers who are aware of disability issues contributed to a mere 0.9% measurement of employees with disabilities within their workplaces (CEE, 2002). Directly related to these policies are the reasonable disability accommodation guidelines within the employment Equity Act, which attempt to demystify compliance issues and provide a reference point for employers.

Reasonable Disability Accommodation Guidelines for Assistive Technologies in the Workplace

Assistive technologies in the workplace are necessary where the employee with disabilities is reliant on some device in order to complete assigned tasks. Reasonable disability accommodation guidelines relate to any modification or adjustment to a job or to the working environment, which will enable a person from a designated group to have access to or participate or advance in employment (Department of Labour, 1998). The Code laid down by the Department of Labour (2002: 5) reflects reasonable disability accommodation guidelines as follows:

“Employers should reasonably accommodate the needs of people with disabilities. The aim of the accommodation is to reduce the impact of the impairment of the person’s capacity to fulfil the essential functions of a job... Employers may adopt the most cost-effective means that are consistent with effectively removing the barrier to a person being able to perform the job, and to enjoy equal access to the benefits and opportunities of employment.”

A particularly appropriate example of the reasonable disability accommodation guideline is “adapting existing equipment or acquiring new equipment including computer hardware and software” (Department of Labour, 2002:5). Adherence to the guidelines is strongly recommended to those employers classified as

designated employers, who are at the same time obliged to employ people out of 'designated groups' (Department of Labour, 1998).

Barriers to the Employment and Subsequent Reasonable Disability Accommodation

However, various 'barriers' to the employment and subsequent disability accommodation of people with disabilities exists, including confusion about the definitions, stereotyping and misconceptions regarding work attitudes (Schall, 1998; Global Diversity, 2000; Hignite, 2000; Whiting, 2001; Services SETA, 2002). The clause allowing 'escape' from employing workers with disabilities due to 'unjustifiable hardship', where an employer can avoid reasonable disability accommodation if it involves action that requires significant or considerable difficulty or expense (Department of Labour, 2002), is another possibility.

Further support for the existence of these 'barriers' comes from the Black Management Forum (2003), which believes that it is due to an already high unemployment rate, and a combination of a lack of skills, employer and environment attitudes (typically stereotyping), and a lack of "enabling mechanisms" to encourage employment. Services SETA (2002, p. 15-16) lists a number of workplace related barriers, including unsupportive work environments, general societal ignorance in terms of disability, lack of skills due to poor education and discriminatory attitudes. All of these result in employers seeming to have a lot of excuses, and not very many incentives to actively employ persons with disabilities.

METHOD

Qualitative Research Approach

This research can be described as qualitative (Creswell, 1994; Merriam, 1998; Van Maanen, 1997) due to the exploratory nature of the research questions. It required the description and understanding of the social phenomenon (Woodhams & Danieli, 2000) of including workers with disabilities in the workplace, rather than collecting data on the *frequency* of policy compliance and technology implementation.

Profile of Respondents and Setting

According to Brett (2000), the environments most conducive to the employment of persons with disabilities are those in the back-office retail and service industry. Qualitative data was collected from a population of designated employers and

employees in the retail and service industries, who also operated in the Greater Johannesburg region (due to time and financial limitations).

The research sample consisted of 3 companies which are classified as either back-office retail or service industries. In this study only a *few* groups of workers with disabilities were identified and individually interviewed. These consisted of six males (average age 27); three males with a mild cognitive disability were controlling stock intake in a clothing retail company, one male with a physical disability (amputee) performing filing tasks in an insurance company, and two males with a mild cognitive disability performing delivery tasks in a recruitment agency for people with disabilities.

Five females with a mild cognitive disability (average age 31) were employed in the back- office of a clothing retail company, performing filing and packaging tasks. Three females (average age 35) were employed in the office of an insurance company, performing filing tasks: one female with partial sight, one female with partial hearing and another female with a physical disability (amputee).

Workers were identified as persons with disabilities during their employment period, through informal observations by employers. Thus, workers with disabilities were there by default. One female with partial sight and a female amputee were documented as persons with disability by their employer, during the recruitment process.

These people with disabilities were difficult to target, and most of them were suspicious when approached to be participants in this study. Providing a reasonably comfortable and relaxed atmosphere, the researchers succeeded in convincing them to participate in individual interviews. They agreed to participate in the study as a social trigger for recognition.

A total of fourteen employees with disabilities were interviewed individually. While black and white respondents were equally represented, it was interesting to observe during individual interviews that the black women were most willing to participate and to express their feelings about social ignorance and the prevailing stigma for people with disabilities. One female black respondent commented during the individual interview: “... *People avoid talking to us... I can see on their face... now I have a chance to express my feelings ...now people can hear our voice.*”

A focus group was organised with the following employers:

- A recruitment agency for people with disabilities, with two managers participating in the employment process. The recruitment agency had 20 employees in total (1% of employees with disabilities).
- A large clothing retail company with three participants who are dealing with either employment or creating and implementing the policies. The company had 200 workers in total (4% of employees with disabilities)
- An insurance company with two managers dealing with either employment or creating and implementing the policies. The company had 100 employees in total (4% of employees with disabilities).

In total, seven managers were brought together in a focus group (two from a recruitment agency for people with disabilities, three from a large clothing retail company and two from an insurance company). Participants presented a purposive convenient sample, because they were available and inexpensive to this study (Merriam, 1998).

Data Gathering Methods

Two interview protocols were developed to guide the researchers during the interviewing process (Merriam, 1998). Both interview protocols contained semi-structured and probing questions pointing to the major disability issues and barriers in this study.

The purpose of the individual interviews was to examine the employees' experiences and opinions regarding the barriers for employment. In the focus group interview, the researchers also examined the employers' experiences and their opinions with regard to compliance with policy and reasonable disability accommodation guidelines. In addition, the purpose of the focus group interview was to examine the employers' opinions with regard to the use of assistive technologies, the barriers for employment and the proactive efforts to address these barriers.

Individual interviews lasted 30 to 45 minutes, and the data was tape recorded and later transcribed. The focus group interview lasted 45 minutes, and the data was also tape recorded and later transcribed. Where available, the equity policies of the companies were obtained and analysed for compliance with reasonable disability accommodation details.

Qualitative Data Analysis

Data from individual interviews was analysed by way of a constant comparative method within interviews and between interviews (Merriam, 1998). The researchers immersed themselves in the data, keeping lists of common themes and patterns. The major themes and sub-themes were identified, both within each transcription, as well as across the groups (Merriam, 1998). This was done using a 'map' of themes, as well as a colour coding and reference number system. The list of patterns and themes from interview transcripts were merged into a master list from which major categories and sub-categories were constructed and described (Merriam, 1998). Data were carefully organised and managed into a filing system.

The same process of analysis was performed on data obtained from the focus group interview. The researchers used a comparative method between the master list compiled from individual interviews and the list of patterns and themes created from the focus group interview transcript (Merriam, 1998). Thus, analysis of data consisted of examining, finding patterns, themes and constructing categories (Yin, 1994). Consolidation of data and interpretation followed the analysis, providing links with the conceptual framework of the study.

Trustworthiness of the Study

At all times, care was taken to ensure trustworthiness of the data (Ratcliff, 1995), by ensuring that the collection and data were both *reliable* ((where evidence and conclusions stand up to close scrutiny (Raimond,1997, p 55), and *valid* ((where the research actually measures what the researchers claims it does (Coolican, 1997, p 35)). Necessary ethical preparations were performed to improve essential competence in the field, which included the clarification of biases and assumptions (Coolican, 1997; Creswell, 1994). Specific ethical issues were considered in this study, such as preserving the anonymity of participants and maintaining confidentiality, along with considering the rights, needs, values, and desires of employers and people with disabilities (Merriam, 1998).

This study is characterised by the use of two different data resources, employees with disabilities and employers. Data was gathered through multiple data gathering methods which satisfy the criteria for triangulation (Krefting, 1991). Merriam's (1998) strategies (peer/colleague examination, the statement of the researcher's biases, submerging the researcher in the study) and Yin's (1994)

conceptions about internal validity (making inferences, analytical pattern matching) were followed in this study, thus enhancing the internal validity of the findings. In addition, a detailed description of the researched phenomenon, which was embedded in the conceptual framework, contributes to the external validity of this study (Merriam, 1998).

RESULTS

Four major categories and one sub-category were derived from the experience of the respondents, gathered through individual and focus group interviews.

- A lack of concern for disability policies
- Low level of employment of persons with disabilities
- Low level of technological availability and use of assistive technologies
- Barriers to employment of people with disabilities
- Proactive efforts in addressing barriers

Part I: Findings from Individual and Focus Group Interviews

This section presents the findings in the attempt to answer research questions one and two:

“How does a company’s employment equity policy comply with the reasonable disability accommodation guidelines of the Code?” and

“What assistive technologies have been used to put the policy into practice, and what are the reasons for a lack thereof?”

A lack of concern for disability policies

During the focus group interview, respondents supported the statement that there was a lack of concern for disability policies. The role of disability policies (the Employment Equity Act and the Code of Good Practice on Key Aspects on the employment of People with Disabilities) at the present time was unclear. One respondent commented: “We’ve only just started looking at disability policies... we are starting to look into technologies...” The response from one respondent in the focus group interview was: “*There is a lack of consistency between the existence of equity policies and the implementation of technology.*”

While policies tended to comply with the requirements of the Act, there was very little indication of particular reference to the Code guidelines. In fact, only 1 of the 3 companies had a policy resembling this. Gaining access to those policies was difficult, either due to the companies' unwillingness to disclose information or to undue expense requirements. Respondents were, however, generally willing to discuss their policies.

Companies preferred to simply include employees with disabilities as part of the 'designated group', rather than mention them separately. Also, there was a heavy focus on affirmative action, with respondents apparently assuming that it meant black empowerment only, rather than including disability equity as well.

There was a marked tendency for companies to focus on race and gender equality, rather than disability equality. The following comments in the focus group interview were recorded: *"Main recruitment is on race and gender issues – those that are employees with disabilities are there by default rather than design..."*, and, *"We tend to focus more on the racial side, so we look at previously disadvantaged people... Africans, Indians, and Coloureds, and the people with disabilities tend to fall through the cracks."* On the positive side, one of the most effective ways of policy creation seems to be where *"the employees with disabilities themselves are actually involved in the formulation of the policy"*.

Low level of employment of persons with disabilities

Overall, a disappointingly *low level of employment* of persons with disabilities was found. Thus, 3% of total employees were workers with disabilities. One respondent-employer in the focus group interview commented: *"When we need new staff we generally don't think about people with disabilities..."* Another respondent-employer remarked: *"...to employ a person with disabilities ...perhaps it would be a disadvantage for the company."*

One male respondent commented in the individual interview: *"When I searched for a job in an agency they never came back to me... I found too many adverts but it is not for me...I got this position after waiting for months... at an interview I was afraid to talk about my salary."*

Another male respondent remarked in the individual interview: *"They didn't know about my disability...I got this job because I am coming from a disadvantaged groupafter a probe period they said, you are too slow...nobody was there to talk about my*

problem...I want to talk to a TV reporter ...but they will laugh...they just ignore us...they think we are not human beings..."

One female respondent remarked: *"I got this job because I am black...my family searched for jobs for one year... they said, she needs a social help... if they discover that I am disabled it will be the end of my career...there is no office for advice ."*

Another female respondent added in the informal discussion-type interview: *"I got tired talking to many employers...they said they are still working on policy and programmes for people with disabilities ... but there are no funds for new programmes... policy is on the paper..."*

Low level of technological availability and use of assistive technologies

Few cases of assistive technologies were uncovered for blind or partially sighted employees, and for deaf employees or those with partial hearing. The comments from employers in the focus group interview were: "Technologies tended to address blindness or partial sightedness, and deaf or partial hearing". Most of the participating companies had arranged "structural " assistive technologies of some sort - "ramps, sound for blind, lifts"- although the idea of the very different technological availability was initially confusing to some respondents. These findings were somewhat contradicted by the presence of a large number of barriers to the employment of persons with disabilities, and the "lack of adequate technology" within companies. On the whole, "the most prevalent disability was a mild cognitive disability".

There was a comment during the focus group interview: *"[Employees with disabilities did] not require any additional assistance [or] none that we are aware of."* Another respondent commented: *"They [assistive technologies] still have their shortcomings. A computer is essentially largely graphics based, and it takes a lot of work to make it accessible."*

One male respondent with a mild cognitive disability, from the clothing retail company commented: *"We don't use any assistive technology, only our hands..."* A female with a physical disability, from the insurance company commented: *"Regarding screen-readers...you can use it for anything – not just a switchboard. You can use it to work on a call centre, use it as a computer programme..."* A female with partial hearing commented: *"We have speakerphones...there are others in the market... overseas you'll find a lot of different technologies available for blind people and for deaf people."*

Instances of specifically installed assistive technologies for employees with disabilities were poor, as was to be expected from the low employment numbers. While there seems to be a vast range of technologies available (NCT, 2003), from the findings it was not clear as to who actually uses it. This low usage of assistive technology was, to a large extent, explained by the many barriers to employment of people with disabilities, and the implementation of assistive devices.

Part II: Findings from Individual and Focus Group Interviews

The findings for research questions three and four are presented together, as they are closely linked.

3. "What are the existing barriers to the employment of people with disabilities?"
4. "What proactive efforts are made in addressing these barriers?"

Findings covered barriers to employment of people with disabilities and alternative proactive efforts.

Barriers

Low skill level and job applicability of persons with disabilities

One of the surprising themes running through the focus group was that, even if recruitment of a person with a disability were a priority, it would still be difficult due to a basic lack in skill levels. One manager from a recruitment agency for people with disabilities commented: *"Go and look at how employable they are... a large number of them don't have a Matric, so their entry to tertiary institutions [is] immediately [at a] different level..."* and *"There is no pool [of skill]... [and need to] approach the problem from its roots"*.

This was linked back to a general finding that persons with disabilities tend to have poor primary and secondary education.

This barrier was quite important to the respondents, who would (understandably) only employ people if their skills and abilities were appropriate for the job, much the same as other job-seekers would find. These skills are apparently not readily available: *"There is no adequate supply of employees to offer the job to."*

One male respondent with a mild cognitive disability commented on job applicability: *"The job requires a lot of independent travelling."* A manager from the clothing retail company commented: *"The mobile, technical nature of the job means*

that it is not suitable for trainees with disabilities.” Depending on the task at hand, the job applicability can be a barrier for people with disabilities.

Expense of assistive technologies

Expense was an important barrier. It was brought up to some extent, by most of the respondents in the focus group interview. It was acknowledged that *“technological solutions are often expensive, especially due to their USA origins and the fact that the exchange rate is generally not in South Africa’s favour”*. However, it was agreed that *“in the greater scheme of things a lot of the solutions are not significantly more expensive than ordinary IT costs”*.

Stigma

Stigma was a reasonably important barrier, as one manager from the insurance company commented that *“the happiness and satisfaction of the employee were concerned”*. This finding was in keeping with the feelings of one male respondent with a physical disability: *“You’ll find a lot of people still very hesitant to approach you, to be open to you, to talk to you. They still treat you like different to them [sic]... There’s a wariness of employment from a managerial level, because of lack of exposure...”*

Employers exhibit feelings of discomfort around workers with disabilities, and are reluctant to employ or work with them. On the other hand, others overcompensate for these reactions by *“placing employees too hastily, only to regret it later”*. The respondents who were more informed (especially the persons with disabilities themselves) provided the most substantial data, while respondents not affected by disability were uncomfortable with the subject. It was suggested by one manager in the clothing retail company that *“the obvious solution to this barrier is awareness and desensitisation training and education”*.

Government role with disability issues and non-compliance with the Act

Quite a bit of emphasis was placed on the responsibility of the Act, and the role of the government, in terms of how these contribute to the employment and technology problems related to disability. During the focus group interview respondents commented: *“It is important to know... that we wouldn’t have introduced [the solution] if it wasn’t for the intervention of the employment Equity Act... not an overnight process...will take even more time to get to grips with the Act and employment equity.”* It was suggested that *“the government would do well to introduce some disciplinary measures or punishments for non-compliance with the Act, specifically in*

terms of employees with disabilities". Furthermore, it was commented during the interviews: "If you lump them together, people will choose what is convenient for them to do, and the Government, in order to get racial needs correct, will have punitive measures in place."

It also became apparent that the inclusion of race, gender and disability under the same grouping was not helpful, because *"employers will then focus on that portion they deem to be most important"*. A minor issue that was raised during the focus group interview was *"... the wisdom of structuring the government disability grant in such a way that it does not encourage people with disabilities to actively seek work, for fear of losing the monthly allowance"*.

Lastly, there was a comment on the *"time needed to get used to the rules"*. The Act covers a wide range of topics, which require time to discuss and remedy. That being said, there is a worry that if solutions are not sought sooner rather than later, the issue of low employment rates will not be resolved.

Confusion with disability definitions and reasonable disability accommodation

The arguments revolved around 'disability' definitions and reasonable disability accommodation. During the focus group interview, the 'disability' definition tended to confuse employers as to what should or should not be included. There was *"a call for more specific guidelines, especially in term of the 'major' disabilities"*. Along these lines was *"the issue of HIV/ AIDS, and whether to include it or not as a disability"*.

The 'reasonable disability accommodation' definition was also mentioned. It was suggested that *"clearer guidelines for acceptable reasonable disability accommodation should be given according to the disability definitions"*. In other words, what assistive technologies are expected for amputees, and how do they differ from those for the blind? The end result would ideally be *"a more user-friendly reference for those who do not necessarily have the specific knowledge to make disability decisions"*.

Fear of disclosure, misconceptions and mindsets

Fear of disclosure was also a somewhat important barrier. These ideas were largely raised by the employees with disabilities themselves: *"What we have found is that, even inside here, people are afraid of declaring their status...They fear discrimination."* This fear is partly due to the perceived prejudice in South African cultures towards anything 'different', and partly due to negative mindsets and misconceptions among employers and co-workers.

A very large barrier, along with fear of disclosure, was that of misconceptions and mindsets. Respondents commented during individual interviews: *“He’s a force to be reckoned with... never take his disability as a factor ...it is important changing their [people] perceptions of what a person with disabilities can and can’t do.”* The non-disabled also need to be aware that persons with disabilities are not necessarily “token placements”, but that they have value and skill to add to an organisation.

Also, the idea that “all persons with disabilities are in wheelchairs” needs to be cleared up, in order to understand that there are more aspects to assistive technologies than ramps and lifts. A manager from the recruitment agency for people with disabilities commented: *“In fact only 2% of people with disabilities need wheelchairs.”* Disability comes in many forms, each one with specific needs and difficulties. A different misconception is ironically that “technology is not a cure-all”. Should a person with disability be employed and supplied with assistive devices, he may still not necessarily be able to work at the same speed as his co-workers. This is not to say, however, that he would necessarily produce a different standard of work.

Moderate South African progress regarding assistive technologies

A relatively minor barrier, raised by the focus groups, was that of “moderate South African progress”. South Africa seems to lag behind in terms of global technology trends. Perhaps this is because the Act is so new, and the technology has never been ‘important’ beyond the sphere of the persons with disabilities. Another possibility could be the lack of suppliers and demand for the equipment. Nevertheless, there were comments that *“there is confidence in a changing marketplace, making the devices more accessible”*.

There was a complaint that stemmed mainly from the respondents with disabilities: *“I am completely shocked how behind we are compared to other countries... If one person would start the ball rolling, more would follow.”*

Negative organisational attitudes towards the disability issue

Negative organisational attitudes were also a barrier, although to a large extent these were picked up from the mannerisms and asides of the respondents during the focus group interview. Companies have a reputation that they are in business for business, and many of the respondents were not happy during the discussions, finding it embarrassing and uncomfortable to discuss the low

numbers of employees with disabilities. During the focus group interview respondents commented: *“They’ve proven that a least 15% [of the population] will go the AIDS route over the next 5 years... If I’m going to be measured 3 years down the line, at least 7% of those will be people with AIDS... if I have to employ 2% people with disabilities, I’m already exceeding that.”*

This attitude of employers is further compounded by the subconscious tendency for the non-disabled to treat the group with disabilities as ‘others’, referring to the group as ‘them’. This was widely observed during the focus group interview. In addition, it was recorded during the focus group interview: *“Firstly, the person may not want the job. Just as any other person, he may be quite comfortable not working. And secondly, should he begin to work, he risks forfeiting the grants and alternative incomes he may have been receiving from the government or previous employers...”* These findings indicate that sometimes people with disabilities are not inclined to work, as they receive grants and additional income from the government. These unfortunate reactions could be based on poor past experiences, and again *“the solution seems to be education and awareness”*.

Negative attitudes of persons with disabilities

The last barrier was somewhat ironic, as it turned out that the negative attitudes of people with disabilities themselves could hamper the employment endeavours of others. The assumption that a person with disability will always look at a work opportunity with gratitude is a fallacy. It was recorded during the individual interview: *“[You get] 70% of your income if you become disabled. It costs you at least more than that 30% which you now don’t have to have a car, get to work, et cetera...”*

This barrier is the last of those identified. The point to note is that the majority of them can be solved to some extent through *“awareness training and education, especially of the management and co-workers”*, as a manager from the insurance company commented. This evidence of awareness training as well as education has proven that there are a lot of positive sides to this barrier.

Proactive Efforts in Addressing Barriers

In the face of the many barriers and difficulties surrounding the employment of persons with disabilities, there were also some positive ideas and practices in evidence. It was recorded during an individual interview: *“Performance has improved because of the system... People suddenly realise that as humans we have a lot more in common that we’ve got different [sic]. It’s a privilege to get to work.”*

One respondent from the focus group commented: *"[The lack of attention] isn't a solution and it isn't the ideal stance from [our] perspective. To say that we're the same as the rest of the companies isn't good enough."*

A manager from the clothing retail company commented: *"Proactive efforts include workspace fitness audits [which judge how 'disabled-friendly' the environment is] and employee surveys to encourage disability disclosure."* A manager from the recruitment agency for people with disabilities commented on *"the essential need for training, education and desensitisation programmes"*, and that *"various toolkits" to enable "proper handling" of "employees with disabilities have been sourced, and were in use, in only a few instances"*.

The male and female respondents with disabilities also accepted that *"... we need to be proactive in our own lives to improve our employment prospects"*. Innovative ideas along these lines that were evident in the companies included *"repayment or cost-sharing schemes for technology"*. *"Solutions were apparently education, awareness and tolerance"*, so that *"employers and co-workers can understand the reality of the people with disabilities and their placement rather than jump to conclusions"*.

According to findings, female and male employees with mild cognitive disabilities had little or no benefit from assistive technologies. Technologies that were mentioned were predominantly for blind or partially sighted employees, and included screen-readers, special keyboards and voice-synthesis equipment. Other technologies that were also evident were vibrating cellular phones and speakerphones, for deaf employees or those with partial hearing.

DISCUSSION

From the results and as an answer to research question one, in terms of the policies themselves there was almost no focus on employees with disabilities whatsoever. In terms of criticisms of the Act itself (Department of Labour, 2003), as already mentioned in terms of this legislation, the most important criticism would seem to be that of the definitions and reasonable accommodation guidelines. It would seem that even though the Act has been in place for more than five years, no major changes have actually occurred in terms of employment of people with disabilities.

Professional organisations and officers who should offer employment advice to persons with disabilities are missing, as well as media sources that could reach these people. This is a major challenge to those who develop policy and programmes in the field of disability and employment.

The conclusions for research question one were disappointing, and somewhat overshadowed by those of question two. There was also very little indication that the existence of a good policy (as opposed to merely positive employer attitude) led to more instances of installation of assistive technology for employees with mild cognitive disabilities.

There was also a general lack of knowledge amongst most of the respondents regarding employees with disabilities and surrounding issues. From the evidence presented, it would seem that in a country with a growing population of people with disabilities there needs to be a much larger focus on this issue (Woodhams & Danieli, 2000).

Conclusions for the second research question were that assistive technologies (Schneider, 1999) are present in few instances. However, the disappointing results from the first research question make it unclear whether reasonable accommodation guidelines are due to policy outlines or company generosity. In terms of assistive technologies, it is clear that there is a vast range of available solutions (Brett, 2000; Beals, 2002; Minkel, 2003) and this knowledge needs to be passed on to companies.

The findings indicate that there are various barriers mentioned (as an answer to research question three) which explain lack of AT availability. The barriers of expense or unjustifiable hardship are valid, and yet would seem to be less overwhelming than is currently understood. The fact that so little improvement in the disability employment facts was seen, indicates that various barriers need addressing. However, it is clear from these many barriers and from many varied opinions, that it may be a difficult task to deal with all of them. The suggestion to overcome 'required skill level' barrier was to address it from the roots up, by beginning to change attitudes and perceptions at a school level, and not trying to 'fix' it once that person reached the workplace.

One of the most significantly worrying attitudes was towards the predictions of disability in South Africans. Firstly, there is a high general disability rate, and secondly, South Africa has extremely high HIV/ AIDS infection rates. It is assumed that the latter will eventually contribute to the population with disabilities due to its debilitating nature. Thus, there is the risk of an unwillingness to recruit employees with disabilities now, because of the expected disability among staff a few years down the line.

Fear of disclosure was also a somewhat important barrier. According to evidence, fear of disclosure has often been present among people with disabilities due to existing misconceptions and suspicious mindsets about them, which often prevail among employers. People apparently fear what they are not comfortable with or do not understand, and this instinct will hamper the successful placement of a person with disability (Hignite, 2000; Whiting, 2001). Unfortunately, where the person with disability does not view himself as such, and fails to disclose it, he obviously cannot be accommodated. This led to some speculation regarding the accuracy of the disability employment figures.

Though expense was an important barrier, it was one that the companies were comfortable with. Money for these investments seems to be available – the problem was a matter of allocating that funding.

The evidence suggests that companies and people in general, need to stop viewing the population with disabilities as ‘work’, and start seeing them as potentially valuable colleagues, deserving exactly the same opportunities as any other people. From comments on lack of skills and employable candidates with disabilities, it seems that addressing these problems at the employment stage is too late.

The need to invest time and money in education and awareness programmes is also evident from the number of times that the lack of education and awareness were raised as proactive efforts. Education and awareness programmes should provide the following:

- Detailed explanations of disability issues and different types of disabilities.
- The activities necessary to educate other employees in order to increase their awareness that people with disabilities can contribute to the outcomes of their company.
- The assessment criteria and performance indicators for employees with disabilities.
- Strategic plans with regard to the employment of different categories of employees with disabilities and the installation of a variety of assistive technologies.

Employers need training in terms of disability issues and assistive technologies (as an answer to research question four). Several proactive issues (for example,

workspace fitness audits, employee surveys, desensitisation programmes) could lower the severity of the barriers, though only to a slight degree. From evidence that has been revealed by this research, it would seem that anyone who is born with disability or becomes affected by disability faces an extremely difficult task in finding employment, more so than anyone from the other designated groups.

CONCLUSIONS AND IMPLICATIONS

This research was conducted to add value to the body of accumulated knowledge regarding assistive technologies and barriers for the employment of people with disabilities. Some specific conclusions were derived, in the attempt to create an appropriate workplace environment for managing employment of people with disabilities:

- The most obvious course of action is that companies need to invest time and money into education and awareness programmes. There is a huge need for education and awareness, and not only at a corporate level.
- The stigma and negative mindsets need to be addressed at a basic social level, as early as possible, so that they are not so prevalent in the minds of managers and co-workers. Perhaps companies, in a bid to ensure a good 'pool' of skilled applicants with disabilities in the future, could be proactive in their education.
- The employment of this designated group should not be so much a legal requirement as a moral obligation. Yet it has somehow been turned into an issue of policy, cost-benefit and business priority.
- There is a need to investigate policies, available solutions and assistive technologies, with the intention of implementing them. This should ideally be in conjunction with one of the disability solutions or recruitment agencies for input, or alternatively with the assistance of employees with disabilities.

Further research needs to be done into the application of assistive technology, extending the study population to the rest of South Africa. This would include different employers in the creation and testing of software and devices, as well as investigations into the successes and problems of their actual use in a variety of industry sectors (not only in the retail and service industries). It may also be useful to investigate the general area of disability employment, the policies, and appropriate solutions including any technological issues. There are many

social and legal aspects, especially the barriers mentioned, that would benefit from further investigation especially in a South African context. The research revealed worrying results regarding disability barriers, not only in terms of the low employment and implementation figures, but also from a social and humanitarian point of view.

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