AbilityMatch – Building a Disability Management System

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Results from preliminary studies have indicated that locating appropriate information on how to accommodate people with disabilities in the workplace can be a difficult and time consuming task. To help improve this situation research is being conducted to contribute to a comprehensive computer system for managing disabilities in the workplace. This is being done by using an integrated assessment of a person's abilities combined with the requirements of a job to then identify workplace solutions or advice on how to overcome barriers, ultimately working towards the creation of an expert system of reasonable accommodations. This paper outlines the ongoing development of a solutions database for an existing assessment system, AbilityMatch.

Introduction

Since the employment provisions section of the Disability Discrimination Act (DDA) was introduced in December of 1996, employers have a legal responsibility not to "unreasonably discriminate against existing and potential employees on the basis of their 'disability'" (AbilityNet Organisation, 2003). Additionally employers are charged with a duty to make 'reasonable adjustments' in the employment of people with disabilities (Disability, 2005). This responsibility comes regardless of the extent of an employers training or knowledge in the area of reasonable adjustments and their ignorance can equate legal action. One of the potential issues influencing compliance with this legislation is that employers may not have the education or resources necessary for determining where an individual may require a reasonable accommodation to the workplace or what that accommodation should be. This is an important consideration for any new disability management strategies that are being sought in order to counterbalance the rising proportion of unemployment among the disabled population.

AbilityMatch (formally known as Activity Matching Ability System or AMAS) is a computerised tool designed to assist persons with disabilities enter the labour market by providing information to employees and employers concerning where adaptations may be required to accommodate a person with a disability. This is accomplished by the following three step process:

1. Person Ability Assessment - A list of 78 task related questions that are directed at assessing the abilities and limitations of an individual, including: hearing and communication, vision and perception, posture, general movement, leg mobility, arm

mobility, workplace interaction/tolerance, and cognition. All questions are worded in the same style: "If a job involved X (e.g. distinguishing colours, lifting your arms overhead, working in isolation, etc.) could you do that?" For each question that is posed, the individual can answer:

- "Yes" i.e. they have no difficulty with the task.
- "Yes but…" which allows them to choose from a list of common responses i.e. they can do the task but not for very long, very fast, by themselves etc. Or they can personalize their own answer by selecting 'other' and providing an explanation in the notes field.
- "No" i.e. they are completely unable to perform that task.

2. Job Activity Assessment – The questions in this assessment directly correspond to those in the Ability Assessment but are designed to analyse the tasks required for a specific job. Questions are worded "Does the job involve X (e.g. distinguishing colours, lifting your arms overhead, working in isolation, etc.), to which the following answers can be selected:
   - "No requirement"
   - "Some requirement"
   - "Major requirement"

3. Match Report – Selecting 'Match Report' produces a document that merges, using an algorithm, the results of the two previous lists, indicating where there may be mismatches between the tasks required to perform the job and the abilities of the individual. The output lists good matches, and where simple or creative resolutions to mismatches are needed.

Evaluation

Recent field testing of the system found AbilityMatch to be an effective tool for identifying where an individual may encounter a barrier in the workplace (Haines et al, 2003; Brown, 2004). This work has suggested that the system would be enhanced by the development of a solutions database, to assist the individual, their assessor and employer in considering whether a resolution is needed and what that solution might be. This is likely to be job and context specific and have implications for training and reasonable adjustment provision.

Assessment of the feasibility of a solutions database (Geddes, 2003) looked at what the solutions database should contain for it to be most practical for users. A total of 10 participants that worked in the field of disability management (two of whom were also visually impaired) were interviewed, either in person or by telephone, to establish baseline information in three key areas:

1. What are the best resources for obtaining information on adjustments to the workplace?
2. What information should the database contain?
3. What overall improvements could be made to the system of disability management in this country?

Based on many comments from the interviews, it was apparent that even the participants of this study, who were professionals in disability management, found the following difficult:

- Where to start looking for information about a specific impairment.
- How it can affect work tasks or everyday life.
- Where to go for help.
- What can be done to alleviate the barriers.

At present there are some " solutions databases" on the market, however they are mainly based in the United States (SOAR, CAP, ABLEDATA) and therefore contain a large percentage of information (price, availability, funding, support organisations, etc.) that is not relevant to a user in the United Kingdom. The products, strategies and workarounds that are included may be universal but the information on how to go about applying it would need to be adapted specifically for each country. Additionally all the databases that are currently available expect the user to have some basic knowledge of what they are looking for. A typical employer may not have the appropriate background to identify all the potential barriers that an employee with a disability will encounter let alone the ability to make recommendations on how to overcome them.

Services such as Access to Work and AbilityNet assist in the assessment and accommodation of any person with a disability or who has shown need. However little research has been done to determine what percentage of small and medium sized business owners are aware of their existence, how to go about obtaining assistance from them or what assistance they offer. These services aim to have a turn around time of 4-6 weeks which may be too long to be financially feasible for many smaller businesses. Research has shown that 44% of adjustments cost less than £50 (Diversity That Works, 2004) this fact alone could substantiate the reasoning behind building a system that will allow users to quickly identify ways of solving problems that an employee may be experiencing without the need to involve outside organisations.

In the UK there appears to be several excellent resources for people with disabilities however these sources of information or assistance have very little tying them all together. Over the last 10 months several attempts have been made to find various services that can provide advice or equipment for people with disabilities. In most cases the information has not been found, and in some instances it has been found, by accident, long after it was needed. Therefore even though there are several sources available for this type of information it is very difficult to sort through it in order to find what is relevant to the situation. Additionally there are databases that list assistive technology equipment but the user must already have an idea of what they looking for in order to locate the correct information. It is also common to find the information that you want but product information or resource is based on another country.

These interviews identified that there is a strong need to develop a tool to be used in disability management, which will offer alternative assessment and support services for persons with impairments in the workforce. Although the interviewees involved in this study varied greatly in their backgrounds and professions, many of them stated that one of the main problems with keeping or getting persons with disabilities into work is the amount of time that it takes to identify where a reasonable adjustment is needed to accommodate a person with a disability, and once it is identified, how long it takes to institute the adjustment. Some of the participants pointed out that if the integration of persons with disabilities is to extend more fully into the work places of small and medium businesses, who cannot afford to have staff off work or on long training periods, the actual process needs refinement. The process of determining where a person with a disability needs adjustment to their current or potential workplace, along with what the potential adjustment could be, and where or how to go about finding information about that adjustment (including funding, training, access to demonstration equipment, and suppliers) needs to be significantly accelerated. By consolidating all of this information into the proposed solutions database for AbilityMatch, users which could be employers, health professionals, employment counselors, ergonomists, etc. would be able to convey all of this information to most clients within one interview.

One of the major aspects to the construction of the proposed system is the content should be effective for users. Specifically attention should be given to the following details;
- general information about a specific health condition

- how it may affect certain work related tasks
- general advice on the work environment
- specific advice on workplace solutions, where to get them, cost, etc.
- organisations or resources that offer assistance
- accurate and up to date information

Present research

In order to develop this database further, a number of studies are taking place. These include identifying users of the system (employers, human resource personnel, employment advisors, employees etc), establishing their specific needs (what information they require and how they would use it), identifying the appropriate format for the database (e.g. computer, paper-based, personal service provision), identifying priorities for populating the database (where information is needed most), and ensuring the database is usable (through good interface design, accessibility etc).

The findings from a series of case studies are contributing to this collection of information. To date, a total of 55 assessments using AbilityMatch have been conducted with people who have been unemployed for 6 months or more. Many of these have a disability or health condition and all present some barrier to returning to work. The following table shows the main areas where AbilityMatch has identified a potential barrier to returning to work. Obviously if a job did not involve one of these aspects, the barrier would disappear; however, this highlights the overall scale of limitations that were identified and gives some indication of areas that will warrant attention for workplace solutions.

Table 1. Common barriers

AbilityMatch Question: If a job involved….. could you do that?	Percentage of individuals that indicated a limitation with task
driving	73
working at heights	56
using a ladder or stepladder	46
managing other people	44
seeing objects at a distance	40
lifting	40
carrying	40
working in very hot conditions	40
working in very cold conditions	40
using a computer	40
standing	36
working around airborne contaminants	35
using numbers	34
traveling	33
leaning over	31
working in an enclosed space	31
getting under something low	29
being exposed to vibration	29
working with your hands above your head	27

walking	27
reaching up high	25
using a keypad/keyboard	25
remembering things	25
doing more than one thing at once	25
working to deadlines	25

Future work

The next stage of this research is to develop the user needs assessment and continue to collect data to populate the eventual system. This includes addressing the following issues:

- What are the difficulties encountered by people with a range of disabilities.
- How this can affect their ability to maintain employment.
- Strategies that they currently use to overcome barriers in their day-to-day life, which can be transferred to work situations.
- Various types of assistive technology available to help people with disabilities.
- Organisations that can offer assistance to individuals with disabilities.

The development of this system could eventually be linked to other systems to create a full service disability management system. This would greatly enhance the quality of service provision to employers and people with disabilities, as well as allowing policy makers to be able to track trends in the population. A system such as this could enable front line health care professionals to relay information that is pertinent to an impairment, but that frequently does not reach the person who will be handling the rehabilitation or job adjustments. This system may also include an automatic electronic referral system to reduce the time and effort it takes to book individuals with impairments in for appropriate appointments, as the system could correctly channel it to the best service for the persons needs. This could also decrease the chances that individuals who need assistance will not get access to the services that can help them, because of a lack of knowledge on how to find those services. This should all contribute towards enabling employers to meet their obligations under the DDA as well as ensuring the employment and retention of people with health conditions and disabilities is successful.

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