



ONLINE RECRUITMENT OF PEOPLE WITH DISABILITIES: TECHNOLOGY IN FAVOR OF DIVERSITY?

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ABSTRACT

Purpose: To analyze Web Based Recruitment for people with disabilities.

Originality/gap/relevance/implications: Few studies in the world have looked at the usability and accessibility of job recruitment websites for people with disabilities: none of which reviewed Web ads. In Brazil, no e-Recruitment for people with disabilities was found.

Key methodological aspects: This is a descriptive and qualitative study. The author sought to analyze ads available on websites exclusively aimed at the recruitment of persons with disabilities. The categories of analysis were: the content of the ads, and their accessibility and usability of them. The analysis was done by means of automatic validation testing of the accessibility using a tool (Hera).

Summary of key results: All the sites have errors that hinder the accessibility and usability of the page. The large number of registered CVs and job vacancies available on the websites indicate that online recruitment is reaching the goal of attracting candidates and companies. Regarding the content, there are particular issues related to this specific audience, besides the ones regarding each and every job, such as the availability of accessibility in the company, devices allowed by the contractor, using filters for the candidate's disability and special needs required by the company.

Key considerations/conclusions: Companies which specialize in this type of recruitment need to be familiar with the Web experiences of people with various types of disabilities seeking employment. Although the ads put forth various forms of information relating to the jobs, there is clear evidence that they are not prepared to receive disabled workers. Also, they need better guidance with respect to the elimination of discriminatory practices.

KEYWORDS

Recruitment. Websites. People with disabilities. Accessibility. Usability.

1 INTRODUCTION

Since the creation of the Quota Law (Law n. 8,213, 1991), which established the obligation of companies with 100 or more employees to devote a portion of the positions within the company to persons with disabilities (PwD), many job opportunities have been created for this group of people. The *Bulletin of Labor Market Indicators*, published by the Ministry of Labor and Employment (Observatório do Mercado de Trabalho Nacional do Ministério do Trabalho e Emprego, 2011), points out that, in the second quarter of 2011, the total number of people with disabilities participating in the labor force was 55,503, compared to 48,881 in 2010.

Despite the increase in participation of this labor force in the formal market, the Annual Data of Social Information (Relação Anual de Informações Sociais [Rais], 2011) shows that there is relative stability when comparing the number of employment links of PwD in the years 2010 and 2011. There were 325,300 links declared in 2011 – which is 0.70% of total employment, the equivalent number in 2010 being 0.69% – which indicates significant under-representation of disabled workers in the labor market.

For organizations with more than 100 employees, the hiring of PwD is mandatory and a matter of compliance with the promotion of equal employment. But, unfortunately, many companies still fail to comply with the law. According to Ribeiro and Carneiro (2009), one of the factors alleged by some companies for non-compliance with the quota is the difficulty in recruiting for jobs that require specific knowledge and skills.

To facilitate the coming together of a job offer and a search for job, entities that support PwD, as well as workers act as intermediary agencies. Already widely used by companies and candidates in general in the process of hiring, these entities have now also been adapted to attract candidates with disabilities. The recruitment through the Web, according Bruyère and Erickson (2001), also known as e-recruitment, is the process through which organizations use Internet technology to get online information about job seekers. To these authors, this process takes two forms: job listings posted by companies on their own sites or lists on sites with third-party ads, where employers pay to post their ads and to search the résumés of registered candidates. In each case, candidates can search job ads freely in order to identify positions that may be of interest to them.

The use of this form of recruitment has been widely adopted, becoming a business to the organizations involved. According to Kay (2000), as well as with the e-commerce, the Web can also hit the recruitment industry. In riding the

popularization of online recruiting, a few sites have been designed with a focus on special niches of candidates, specific types of jobs, and geographical areas (Bruyère & Erickson, 2001). According to the authors, a relatively new development in the arena of online job recruitment is the idea of diversity, in which employers use the Web to perform a search more focused on minorities, including persons with disabilities.

The sites that disseminate job opportunities unique to PwD and receive résumés can be a beneficial alternative for both sides. For companies, it increases the number of potential candidates, there is less cost involved in disseminating information about a vacancy when posting an ad on the Web, there is greater convenience and speed in the contracting process, and it can increase the chances of small businesses when competing for talented employees (Bruyère & Erickson, 2001; Kay, 2000). For people with disabilities, it is an opportunity to access a broader set of available jobs.

Despite the great potential of this type of recruitment, in order for everyone to be able to navigate through job ads the websites have to provide tools of accessibility and usability for users with disabilities in order for everyone to be able to navigate through job ads. It is imperative to facilitate the experiences of using the systems in which the related job information is contained and of sending out résumés so that there are no barriers to this interaction.

This type of recruitment through the Web and directed to the PwD labor market, has some different characteristics from conventional recruitment, aimed at a general audience. Second, according to Cober, Brown, Levy, Cober and Keeping (2003), making it possible for the user to find information with ease and flexibility through the use of tools can make the navigability of the websites possible and easier. In addition, information on the accessibility of the workplace, the work holders, and accommodations, can be attractive and relevant to the decision-making process of potential job candidates.

Based on these observations, this work set out with the objective of analyzing recruitment via the Web of people with disabilities via Web. For this, the paper will address issues related to online recruiting and the use of accessibility and usability tools on the Web. In the next section, I will describe the methodological path adopted for this analysis; this will be followed by a presentation and a discussion of results found. Finally, the paper will present the conclusions and the proposals for improvement so that recruiters and developers of these websites take more appropriate and effective decisions on the recruitment of these users.

2 THE USE OF THE WEB IN THE RECRUITMENT OF PEOPLE WITH DISABILITIES

Ever since the need for a law imposing quotas became apparent, many researchers (Almeida & Vilela, 2011; Barnes & Mercer, 2005; Carvalho-Freitas & Marques, 2010; Jarhag, Nilsson, & Werning, 2009) have brought up the obstacles faced by both organizations – who claim to have difficulty in the recruitment and management of PwD – and by the set of workers who still struggle to enjoy their right to equal opportunity and non-discrimination. Stigma and myths created about disabilities (Carvalho-Freitas & Marques, 2010; Gröschl, 2012; McLaughlin, Bell, & Stringer, 2010; Tanaka & Manzini 2005) and difficulties with respect to socialization and inclusion within companies (Carvalho-Freitas & Marques, 2010; Spataro, 2005) are still recurrent problems, although the Quota Law has been around for more than twenty years.

In order to abide by the law, companies seek the services of organizations specializing in placing workers in the labor market. This causes many companies to maintain partnerships with PwD support entities and non-governmental organizations (NGOs), which maintain a bank of resumes and forward candidates to the contractors. To Moraes, Braga, Gonçalves, Lacaz, and Louzada (2008) the question of the institutionalization of the PwD is present throughout the recruitment process, and the forwarding of this client to the job has been a missing piece that is provided by the agency, which in exchange receives a payment for this service.

The creation of this reservation of vacancies in the labor market has spawned competition between agencies and institutions that work with inserting, training and rehabilitating PwD to their placement in formal work market. With the need to move this workforce, the middlemen of employment already consider this segment of the market a source of profits, while companies also can also find them in the Brazilian National System of Employment (Sine) and in the regional centers which offer information about disability and in the national system containing information about disabilities (Nambu, 2003).

In spite of these institutions working in support of the use of PwD, many employers still claim that it is difficult to find workers with disabilities. For Ribeiro and Carneiro (2009), companies use various strategies to justify their failure, partial or complete, to meet the requirements set out in the Law with respect to quotas, or even to delay its effective application. The arguments focus on allegations of peculiarities in the activities of the enterprises, requiring specific occupational skills, reducing the possibility of finding candidates with the required credentials.

They found that the number of PwDs registered by government intermediation surpasses the number of vacancies offered by the companies, which indicates a large surplus of candidates in relation to the job offers. Only 29.7% of the jobs offered were filled with candidates forwarded by those organs, it being possible to assume that businesses do not find, in the curricula offered by branches, of the desired candidate for the job profile job. To reach a greater number of workers, new channels of communication between applicants and jobs were created to maximize employment.

Following the popularity of the internet as a method of recruitment, companies have invested in Web Recruitment also to PwD. Online recruiting, or e-recruitment, is characterized by the use of online technology to attract candidates and provide information about work (Kapse, Patil, & Patil, 2012). To these authors, the advantages of its use by the company are: the reach of a wider audience, the greater chance to find candidates faster and more efficiently, saving time and lowering costs, better matching of workers to vacancies, and more opportunities for small businesses to find qualified candidates that match the profile drawn for the position.

From the point of view of the applicant, job ads from multiple companies in one place create opportunities of choice; it is better to work on applying for the opening that best fits the candidate's profile and their professional aspirations. With thousands of jobs and resumes available online, the internet has become an effective way to provide information about the availability of jobs and people (Bruyère & Erickson, 2001; Erickson, 2002; Regan, 2003).

But what urges the development of sites that exclusively aim to reach people with disabilities? Is it that there are differences in relation to the content of the ads disclosed? Do these sites meet the criteria of accessibility set out by the World Wide Web Consortium (W3C) for PwD? Is there usability assurance in navigation for users?

It is important to note that the provision of these services uniquely to PwD has given rise to contrary opinions. For Nambu (2003), these ads cannot be treated as discriminatory, since the job ads seeking disabled professionals are supported by affirmative action policies aimed at reducing inequities caused by a disadvantage. Carreira (1997), in turn, argues that there is no need for a differentiated recruitment of PwD; the recruitment should be the same as has been adopted for people without disabilities, in order to enable the human resources professional to select the appropriate vehicles to ensure efficiency in recruitment.

As the purpose of this work is not to discuss this controversy, it is assumed that some information that is not present in ads for people without disabilities can be extremely relevant for candidates with disabilities, maximizing their attraction to the job. In the face of the controversy, our position is that affirmative

action policies are still necessary to ensure that people have the right to work, and e-recruitment is one way to increase the visibility of the vacancies at different companies, for people with disabilities to have the right to choose whether or not to apply for a job.

3 ACCESSIBILITY AND USABILITY OF WEBSITES

The internet can make a significant difference in the lives of adults with disabilities. According to Taylor (2000), network access helps them be better informed about the world and more connected with people sharing similar interests and experiences. Web accessibility is a feature that allows access to information and/or services on equal terms to any type of user, regardless of their motor skills, vision, hearing capacity, mental state, or social and cultural background, and this in different environments and situations, through various equipment or browsers (Spelta, 2003). The Web accessibility represents, for the user, the right of access to network of information, removing barriers related to communication. It allows the use of suitable equipment and programs and access to alternative and information (Carter & Fourney, 2007; Nevile, 2005).

To create accessible pages, Web developers have a variety of useful online resources, such as technical documentation and software tools (Kane, Shulman, Shockley, & Ladner, 2007). Despite these resources, Websites with poor accessibility continue to be produced. The BBC Brasil.com (2007) points out that of the 120 million Websites that existed in 2007, 97% did not provide minimum levels of accessibility.

To make the Web more accessible, several countries launched studies aiming to figure out how to best promote greater accessibility to the network. In 1999, the World Wide Web Consortium (W3C) Committee, which regulates the issues related to the Internet, created a working group, the Web Accessibility Initiative (WAI) – responsible for drawing up a set of guidelines (WCAG 1.0) – to make the sites accessible to PwD. Sites developed according to these standards can be accessed and viewed by anyone, regardless of hardware or software used. It is a duty of every Web developer to respect and follow the W3C accessibility standards (<http://www.w3.org>), otherwise they will impose technological barriers to diverse populations of people, discouraging and even preventing access to their pages.

In Brazil, accessibility started being part of public policy in 2000, with the laws numbered 10,048 and 10,098. The Decree n. 5,296 (2004) made accessibility in portals and electronic public administration websites on the World Wide Web mandatory, so that they could be used by PwD, and so as to facilitate the use

of technical aids that allow access under equal conditions with other people. By decree, when a site has its accessibility adopted by a program evaluator, a certification seal needs to be issued.

The Brazilian Association of Technical Standards (Associação Brasileira de Normas Técnicas – ABNT) created a commission to study accessibility in communication, Accessibility of the Brazilian (ABNT/CB-40), to devote themselves to standardization in the field of accessibility, in view of the principles of universal design, establishing requirements that were to be adopted in buildings, spaces and urban equipment, means of transport, means of communication of any kind and their accessories, so that they could be used by PwD (<http://abnt.org.br/cb-40>). This standardization, the e-MAG – accessibility Model in E-Government – which consists of a set of recommendations to be considered for the accessibility of sites and portals of the Brazilian Government; i.e., a specialized Brazilian version of the international document WCAG (Web Content Accessibility Guidelines) – is conducted in a standardized way and is easy to implement.

Based on the recommendations of the WEC/WAI (<http://www.w3.org/wai>), programs have been developed to detect the HTML code and parse the content in order to verify that the product is in conformity with the set of guidelines established. In the final analysis, a report is generated that indicates all the detected problems and which should be corrected so that the site can be considered accessible (Nevile, 2005; Spelta, 2003).

The act of checking the accessibility of a website is done only by programs that evaluate, but not necessarily guarantee, whether there is access for all and whether a site is not easy to use. To interact easily with an Interface, in addition to detecting and interpreting the system information and responding appropriately to it, the user depends on the aspects of usability. Usability is the characteristic that determines if the handling of a product is easy and quickly learned, forgotten, hardly ever causes operational errors, provides a high degree of satisfaction for its users, and efficiently meets the purpose for which it was designed (Nielsen & Loranger, 2006). Accessibility and usability must walk together, because an application may be easy to use for some groups of users and still be inaccessible to others with special needs (Hanson, 2004).

Some technologies may be favorable to only certain types of disabilities. People with physical disabilities, for example, may need to use a mouse or keyboard device to operate the computer. People with cognitive impairments depend on other forms of content presentation – videos, charts and graphs – and not only the writing. People with hearing impairments may need media that use sign language to make the content more understandable. Therefore, the access to the contents of the ads can be compromised when sites do not follow the W3C accessibility guidelines.

To ensure access for all users, assistive technologies are important components in promoting universal access and the use of interactive systems for groups of users with special needs. So in order for a person's design to be done properly, it is necessary to investigate in-depth the needs and preferences of a particular group of users, having in mind diverse audiences even within a specific group (Melo, Piccolo, Ávila, & Andrade Tambascia, 2009).

For blind people, for example, sites need to be able to be interpreted by programs that read the text aloud and describe the visual images. For people who have low vision, Web pages need to make adjustable font sizes and the colors need to be sharply contrasting. For people who are deaf or hard of hearing, audio content must be accompanied by text versions, and a video with sign language can also make the content more accessible.

If the homepage is accessible, but the search page or application pages are not, the user will find barriers to registering on the site or accessing all the information. That is why, in addition to testing the accessibility of sites through an automatic evaluation, you need to know whether they are oriented for usability, which is done through a manual verification of applications supported by the homepage.

For all these issues inherent in the access of PwD to *Websites* is that this work analyzed the online recruitment targeted towards PwD providing, accessibility, usability elements and those own information on ads and résumés of candidates. With this, we intend to contribute to the Brazilian specialized literature.

4 METHODOLOGICAL PROCEDURE

This study is characterized by a descriptive and qualitative approach. Initially, we performed bibliographical research and document study, seeking to understand accessibility and usability, as well as and the main methodologies and tools used by a person checking out a homepage.

For the selection of the sample, we typed the keywords “disabled people + jobs” in a Web search site, and from the results, we selected sites that exclusively provide Web-based recruitment for PwD: www.deficienteonline.com.br, www.selursocial.org.br, www.empregoppds.com.br, www.pessoacomdeficiencia.com and www.trabalhoespecial.com.br. To facilitate the discussion of the results, they have been identified as URL₁, URL₂, URL₃, URL₄ and URL₅, respectively. Other sites, such as employment agencies that also advertise vacancies for people without disabilities, have not been taken into account for the purposes of this analysis. NGOs and other institutions that offer other services (courses,

training, rehabilitation), in addition to acting as an employment agency, were also not considered in this sample. This was motivated by the assumption that organizations that exclusively offer a Web-based recruitment service for people with disabilities are more likely to be in compliance with respect to accessibility and usability tools, in addition to making use of information in ads to promote the attraction of this audience.

The analysis proceeded with the automatic accessibility validation test. There is a variety of assessment tools that can be used to determine if the sites are accessible, such as: Hera, Eval, DaSilva, Cynthia Says, Bobby, among others. These automatic evaluation programs are designed to generate a report that lists the type, the number and the location of any errors detected. The sites are evaluated according to three priority levels for accessibility errors. For a website to be approved in this validation procedure, it needs to have zero errors with respect to the three priorities (1, 2 and 3); which results in an accessibility label for that site. In this work, the Ivy (<http://www.sidar.org>) was chosen to test the recruitment pages, as it is a tool that does both an automatic accessibility review and manual, thus facilitating the work of the reviewer.

These tools use the W3C Web Content Accessibility Guidelines (<http://www.w3.org/TR/WCAG10/>) to determine if the site that is being evaluated is accessible, in addition to reviewing and flagging specific accessibility problems, and suggesting solutions to fix the problems found. According to the W3C recommendations, priority 1 refers to the points that the creators of Web content must satisfy fully. If they do not, one or more groups of users will be unable to access the information contained in the page or site. Priority 2 refers to the points that the creators of content on the Web should satisfy. If they don't, one or more groups of users will have difficulties in accessing the information contained in the documents. Priority 3 refers to the points that the creators of content on the Web can satisfy. If they don't, one or more groups may encounter some difficulties in accessing information contained in the page or site.

To carry out the analysis, the URL of each Web page was introduced into the text box provided for automatic checking and the "evaluate" button was pressed to show the results of the evaluation of accessibility. As no automatic checker is considered infallible, manual checks were carried out to verify accessibility aspects that cannot be tested automatically, such as the presence of alternative languages. Manual tests were performed with the use of Dosvox software (<http://intervox.nce.ufrj.br/dosvox/download.htm>), which is an operating system that lets blind people use a microcomputer (PC) to perform a series of tasks through voice synthesis.

The content of the ads was taken as a category of analysis. Also Cober, Brown, Levy, Cober and Keeping (2003) research on Recruitment suggests

that the content has a direct effect on the attraction of job seekers. The content dimension, according to them, is composed of three sub-criteria: the type of information, their range, and their presentation. Since much of the last two sub-criteria are covered by the study of accessibility and usability, we used the information to assess the information reported by employers in the ad, such as: area of vague and function, education, compensation, job description, languages, type of employment relationship, type of employment contract, workplace, weekly hours, accessibility, among others.

The collection and analysis of the data occurred in January and February of 2013.

5 ACCESSIBILITY AND USABILITY IN WEB-BASED RECRUITING

The automatic verification of accessibility against the priorities, revealed that in all five of the sites there were errors that need to be checked and corrected by their developers to receive the seal of accessibility. Three of them presented priority errors, not fulfilling the basic requirements of accessibility, which prevents user groups from accessing the information contained on the site. Although all the sites presented errors, the addresses 2 and 5 showed the best results, containing only two and ten points of errors, respectively, of the priorities 2 and 3.

Priority 1 errors relate to problems with links, scripts, images and graphical buttons. Regarding the links, the WAI recommends that Web content needs to be designed to support software and use custom settings to increase the efficiency of typing and clicks that facilitate navigation. Links and forms found in the pages of ads need to be usable via keyboard in order not to become obstacles for those who do not have computers with devices already installed and configured to particularly fit the site's needs. So, in the three sites analyzed, the accessibility is already compromised.

With respect to the use of images and graphical buttons, on one of the sites there are 32 images without alternative text, which goes against recommendation that all the information is presented in text form. This means that if you used some other media, such as images and audio, the information they contain should be repeated in an equivalent textual description. According to Selden and Orenstein (2011), it is not about avoiding the use of images and graphics, colors in the text and videos, elements that make the page more attractive, but it is about considering the limitations faced by PwD in the development of the content of the site.

Although the job ads are in the form of text and not images, so there is no prejudice to access published content, one must consider that for some hearing impaired PwD, sign language is their first language and they cannot read the written language fluently. The W3C recommends that information is also to be offered in sign language, and not just in the form of plain text, making the content more understandable for many.

All ads are reviewed in text form, and any additional information brings in another format. The conversion of text into other formats may be more attractive, because it makes the content more accessible and even improves understanding, ease of use, and satisfaction with the sites, making it more user-friendly. According to W3C, images, graphics, and illustrations help make the text more understandable, while the audio can be heard without looking at the screen, which can be more enjoyable for some people. Therefore, although the recruitment sites geared for PwD make use of images that do not compromise the content of notices concerning employment, different formats could be added to improve usability for part of this audience.

With respect to priority 2, errors were found in the four header URL addresses. The headers are important to convey the structure of the documents. The presentation of the content contained on the Web must have a structure that is properly encoded, so as to be able to be processed and presented by software in different ways. Some people who do not see the content need lists, headers, tables, and others page to be properly encoded to identify the software. People who are able to visually examine a table visually perceive the sense of the structure of the information when comparing the row and the column headers with the content of the table cells. However, users with screen readers rely on headers to be able to understand the structure of the table or text. If the relationship between the headers and the data cells is not properly identified in the underlying HTML, the contextual information required to give meaning to the structure of the table will be lost when read by a screen reader, rendering useless the information contained in the table.

Errors found on the sites referred to also include the absence of the main title of the page, and although it doesn't compromise accessibility, it hinders access to major news or features of the sites. A blind person will need to scroll through the keyboard, using the arrow keys or tab to find the information they seek, taking more time to get through the search compared to someone else without that type of disability.

With the exception of URL2, all the sites contained errors related to style sheets, presentational properties, absolute units, and obsolete attributes. The mistakes in the style sheets relate to the visual design of pages that cannot be upgraded through the use of Web browser controls, allowing controls of type and

font size, colors, borders and positioning of elements on the pages. The candidate with disabilities may require larger text size or greater contrast between the text and the background colors, in order to better show the content.

The errors pointed out will limit, but not prevent, the accessibility to the ads. Users who need to adjust the presentation to different browsers may encounter difficulties regarding the use of magnifying glass, for example, which may not be effective on pages where there is no separation of style sheets with page content. In addition, the PwD can find it physically difficult to click on small areas and are more prone to make mistakes. Hence the importance of also providing the user with clickable areas.

Following WAI recommendations, documents need to be organized so that they are read without style sheets, since they are not treated the same way by different browsers. Some do not accept them at all. The consequence is that if the visual layout that describes the structure of the information is controlled by style sheets, and the page is being viewed in a browser that does not accept them, the logical structure and the information will be meaningless. To Nielsen and Loranger (2006), such operational errors affect the usability of the site.

Errors were detected related to absolute oneness in CSS on four sites. Tables and cells of the tables with attributes of typed text, which is the case of job advertisements, must be expressed in percentages rather than in absolute measures, so as to make it possible for users to scale the object of research using the Magnifier feature to read or to view them on small screens, such as mobile devices.

Only the URL3 statement did not provide the type of document (DTD). Pages that do not have this formal documentation cannot be accessed with assistive technologies such as screen readers, a Braille device, automatic translation of texts, etc. A test performed with a screen reader has shown that when accessing this URL, only the name of the portal is accessible, hiding the rest of the content. In this case, people with visual disabilities would find this barrier of access to information contained in the notice.

The URL3 and the URL4 presented errors related to event handlers. Both use device-dependent events (mouse, keyboard, or other). With respect to URL3 for example, there are important interaction options that depend on the use of the mouse. The use of scripts to access and to perform formatting changes in the area of forms that appear in the center of the homepage, and that are only accessible with mouse use – offering flexibility in the use of devices to users – reduces the usability of the page.

The URL4 allows the use of script in the menu. When a person moves the mouse over the menu, the background color of the links change, which does not prevent access to them by other devices. There commendations of the e-MAG guide, which state that when using multiple event handlers for an action, which

run both the mouse and the keyboard, it is important to test the final result in different browsers, in addition to using different assistive technology resources to ensure accessibility.

Errors were detected related to the use of tags. A PwD look that depends on a tech support can easily be lost in a form that is not associated with a label that must be correctly positioned; no tag was found. In the URL, for example, there are five fields to be filled without labels and/or tag out. When testing with a screen reader, inconsistency was detected in forms that ask for typing in fields that are for selection. The use of filters for specific searches of slots based on education, state, position, industry and disability, has compromised the ability to view the content due to this problem.

With respect to priority 3, keyboard shortcut errors and adjacent links were detected in four of the five websites evaluated. Two errors were encountered related to primary language. Only in URL₁, there were errors in the submitted tables summary error because there were tables of data and header cells, missing summary attributes. On URL₁ page, for example, the two tables present important data, one with the number of vacancies for categories (business, health, administrative, operational) and the other a showcase with the amount of resumes registered by category of employment (Contract, Temporary, Internship). The screen reader testing showed this information to be confused and loose.

With the exception of URL₂, all the other pages presented errors related to keyboard shortcuts. It is necessary to set hotkeys for important links and form controls because many users do not use the mouse and need an alternative by using the keyboard. The lack of this resource does not cause the page to stop being accessible, but the use of combinations of keys on the keyboard that can activate a function, or a link to the main sections, increases the usability of the pages for people who use a screen reader, saving them time and effort.

Only the URL₃ did not present any error related to adjacent links. This type of error does not prevent the user from having access to the information or the links on the pages, but older browsers or some screen readers cannot differentiate the links that appear next to each other, for example, and read these links without separation, as if they were just one. e-MAG's recommendations suggest that the adjacent links should be separated by more than simple spaces, in order to avoid confusion on the part of users who use a screen reader. For that, we recommend the use of lists, where each element in the list is a link. These lists can be visually styled with Cascading Style Sheets (CSS), a language used to define the presentation style of documents written in a markup language such as HTML. Its main benefit, according to Silva (2011), is to provide separation between the format and the content of a document to prevent failures in the presentation.

Only in URL3 and URL4 there is no indication of the primary language. Some speech synthesizers, screen readers, page translators, and Braille devices need to recognize the primary language so that they can pronounce the words. Otherwise, the language identification fails, causing errors in the pronunciation of words and providing information understanding difficulties. In manual tests with the URL addresses listed, the screen reader was able to read the information, although the language had not been identified correctly.

URL3 and URL5 showed empty controls related errors. The edit box controls and text areas, like keywords and user (present in the recruitment pages), allow you to enter information. On the test performed with a screen reader, typing some text in the field “keyword” generated an error. If a jobseeker were interested in filtering their search, this feature would not be accessible. These blank fields should contain helper text to help users understand the purpose of that field. Not all browser’s graphics, text and voice, mobile phones, multimedia players, plug-ins and some assistive technologies used in conjunction with readers, screen magnifiers, and voice command programs, can handle blank form fields, often ignoring their existence. This confuses users and prevents the completion of forms.

From the errors found in this analysis, it was found that there is an urgent need to review all the sites that currently offer online recruiting for PwD. In so far as none of them include all recommendations suggested by the W3C, the developers of the pages, along with companies specializing in this type of recruitment, should make the adjustments which guarantees everyone the right to access information pertaining to employment opportunities. Efforts to bring the information to PwD needs to be translated into practice by building affordable systems from the perspective of the candidate.

6 JOB LISTINGS FOR PEOPLE WITH DISABILITIES

The analysis of the websites indicated that many PwDs have accessed the recruitment websites. In only one of the sites surveyed, the amount of registered curricula is nearly twelve times greater than the number of places offered, which shows that this means of communication with job seekers has fulfilled the goal of reaching its target audience. Of the five sites surveyed, only one did not offer the option of registering candidate résumés, being restricted to the announcement of vacancies. Most of them (four) offer ads in which contain the employer’s identification and summary information regarding the position, with the provision of an email address for résumé submission. On just one website, which

hosts the largest number of vacancies and resumes, the sponsoring company is not visible for the candidate.

On all the sites, we observed information regarding the area of the vacancy and the address of the workplace. As for the location, this can be of great relevance to a PwD applying for a job based on the region where they will be able to work, especially for those with mobility difficulties.

Information such as education, qualification, and other information, job description, benefits, salary/remuneration range, type of employment, contract, and hours per week, were contained in the ads provided by three of the websites searched. It is worth mentioning that the sites that provided all this information were those that contained higher amounts of *résumés* and vacancy ads.

In general, it is desirable in job ads that there is information regarding qualifications, abilities, skills, responsibilities, technical knowledge, working conditions, and other factors required for the effective performance of the job. The candidate needs to be informed about the activities related to the work in order to be able to evaluate whether they can or cannot do it. To promote employment opportunities, advertisers inform the profile of desirable candidate for hiring. Declaring this profile is beneficial to the organization, which saves time in the screening of candidates, and to candidates who identify themselves with the requirements presented, saving time in the screening of candidates.

With respect to the composition of the remuneration, the companies' advertisers already report salaries and benefits, and the contract type and the amount of weekly hours of work. Cober *et al.* (2003) and Selden and Orestein (2011) point out that when it comes to online recruitment, job candidates devote a considerable amount of time looking at the salary and the benefits offered by an organization, because it raises expectations in those seeking employment. The salary and benefits announced on websites are differential factors for the employee when choosing between the different companies, being crucial to shaping the potential applicant's attraction or rejection of the proposal in the notice. Although it is not only for the salary boost that people want to work, knowing in advance how much the salary is for a particular position it is essential for the applicant to be able to compare it with other job offers in the same occupation.

Decree n. 3,298 (Brasil, 1999) points out special procedures for the hiring of PwD such as journey variable, flexible hours, proportionality of salary, working environment tailored to your specific needs. This is done to meet the needs of the PwD who need to leave to participate in rehabilitation activities. When the information is declared in the ad, the candidate is able to organize their needs on the basis of the working hours.

The need for prior experience to perform the job is a question considered in only one of the sites. This may be due to the recommendations made by the International Labor Organization (ILO) in the document “repertoire of Practical Recommendations of ILO: management of disability issues in the workplace”, which guides companies when the experience is actually necessary for the performance of the function, it must enhance the acquisition of skills, work posture, and knowledge required for the exercise of certain positions. This caveat is made because before the Quotas Act few companies employed PcDs, making it impossible to accumulate professional experience.

The name of the contractor was released on four of the sites examined, where the contact information was also listed (email, phone, name of the employee responsible for hiring). The candidate can also be redirected to the company’s website by providing a link that does the registration. Another possibility is to be redirected to just a website hosting the user application space, since the company name is omitted, and the other, the role of the recruiting firm seems to be only to mediate the meeting between supply and demand of employment, transferring to the contractor all the remainder of the process. Both practices reinforce the idea of Mathur *et al.* (2010) of the disability becoming a commodity supplied by the agency.

On four of the sites, candidates may use keywords to filter out ads that fit in the area of their interest. The state, city, education, industry/function, type of contract, experience, and type of disability are some of the available filters to use when searching, which offers the candidate the option to be directed to the offerings that cater specifically to their aspirations.

On the home of one of the sites, there is a poll that asks “what’s your handicap?”, where the user can click on one of the alternatives presented to answer the question. The answer generates a result that indicates the percentage of slots offered for that type of disability. It was observed that job opportunities for physical and auditory PwD are much greater than for people with mental disabilities. This finding in favor of physical disability, especially of a light type, has been portrayed in other studies (Cançado, 2006; Raja Ram, 2009) and in data put forth by Rais (2011).

This type of search, which uses as a key factor the type of disability, can be considered discriminatory, since it results in ads of companies that concentrate their search on a type of disability without focusing on the person, their knowledge and skills. According to Secretaria Internacional do Trabalho [SIT] (2006, p. 5) “discrimination is any distinction, exclusion or preference based on certain assumptions that undermine or impair equality of opportunity or treatment in employment or occupation”. The affirmative action policies related to inclusion in the labor market favors the principle of non-discrimination, in

order to ensure equal opportunities for all people. This type of “filter” is a way to facilitate the segregation of persons by type of disability, and acts a barrier that prevents equal opportunities even among this group of people.

The ads contained in two sites bring the question “to accessibility in the workplace”, highlighting the items “availability of accessibility for persons with disabilities” (PPNEs) and “permitted devices allowed by the contractor”. As to the first, the response of the contractor is of the type: “we are able to receive PPD with physical disabilities or hearing”, “access for wheelchair users in the areas of performance”. This can be an indication of a preference that the company makes by type of disability, declaring to be prepared to receive only people with these limitations. According to Ribeiro and Carneiro (2009), employers prefer to select the PwD that are more convenient to them, that is, people with less severe disability. On the website which has the largest number of vacancies and resumes, the question “does the company have accessibility for PPNEs?”, receives as the only response to the word “no”. As for the question “Devices allowed by the Contracting Party”, in 100% of the replies the phrase was: “not informed by the contractor”.

Strong evidence of discrimination in the ads was found on a site where, in the “special needs”, the contractor declares “Yes” or “no” to the type of deficiency acceptable. Hearing, physically, and visually impaired are marked “Yes”, while mentally challenged is marked as “no”, which shows a preference for not having among its employees people with intellectual disabilities. Maybe these employers still have loaded conceptions regarding this disability, seeing it as being totally crippling to the ability to work, or believe that a person with this disability would not perform well at the activities to be developed at work. In fact, Carvalho-Freitas, Almeida and Vilela (2011) point out that people with intellectual disabilities have the lowest levels of education and training focused on the job and stay for a short time at the job. The exclusion of educational and social processes that are so important for the formation and preparation for productive life, also affects the performance of PwD in the sphere of labor.

Remember that at two other sites, questions about accessibility are mentioned in the ads. Specialist recruitment agencies with respect to this segment of workers could provide advice and offer guidance to companies regarding the admission of these employees, which begins with the advanced preparation of the physical and functional structure of the workspace for easy access, and for facilitating the PwD’s performance at work.

Following SIT’s recommendations (2006) on hiring PwD, employers must be willing to make adjustments and adaptations on the spot, if necessary, with respect to the space and the working conditions for the workers, in order to maximize the skills of the candidate in the performance of their work. Facilities

to enter the building and move in, signs for those who have visual disabilities, access to toilets, access to information transmitted through sound for PwD with auditory impairments, adaptations of instruments and equipment to enable the full performance of tasks, among other things, are some of the modifications that need to be effective with respect to the policy of inclusion of PwD at work.

The concern of the organization to publicly offer to take actions to improve accessibility can influence the perception of the candidates regarding the inclusion and diversity-oriented culture of a workplace. Accessibility technologies and modifications made available proactively by enterprises, in order to receive disabled employees, can be more attractive to those seeking employment.

7 CONCLUSION

Data analysis showed that job ads to attract PwD contain differential information in relation to others intended for the general public. Pertinent information to the job description, training, remuneration, place of employment, type of employment contract, required professional qualifications, previous experience and remuneration, are added to others that concern the accessibility of the workplace for PwD. The ads on each site are standardized and those who had the highest number of information regarding employment and accessibility were those that contained more announcements of vacancies and more resumes.

Despite this differentiation in the ads, it is reflected only in the dissemination of information regarding the existence of accessibility accommodations. What could be the difference in this type of recruitment turns out to reveal that, while companies reserve jobs for this specific audience, they are not prepared to receive it nor possess the physical structure and appropriate working tools, as in most analyzed ads is declared nonexistent accessibility and adaptations for disabled worker's inclusion. What is worse than disregarding the necessary elimination of barriers for these workers is the breakdown of the type of disability for which the company declares that it is able to receive. People with physical disabilities or hearing impairments are those who lead the ranking of hiring in the labor market, which updates the results of Cançado (2006), since these "minor deficiencies" do not require adaptations in the environment, which would generate additional costs for companies. People with intellectual disabilities, in turn, are refused, as it is declared in the job ad, which prevents them from applying to the position and from competing with other candidates for the job and to demonstrate whether their particular skills are or are not compatible with the requirements of the company.

Although the experts responsible for this type of recruitment have, in this regard, been thinking about the need to provide further information to the candidates, the ads take as a basis the profile and the skills required for the position, as demanded by the job, without giving due attention to the dissemination of existing adjustments and adaptations in the company to include this employee. The need for integration, imposed by law, does not translate into a planning policy and adequacy of the company for the inclusion of this new worker of planning and preparation for the inclusion for this new disabled worker to provide his or her good performance.

Regarding the accessibility and usability of websites, it was observed that their developers have devoted necessary efforts to meeting the requirements that ensure accessibility for all. Accessibility is not only more compromised, as a result of the ad being basically in text form, there is no need for reading graphics, images, and other elements that really would be a barrier for many users. Experiments with different groups of users, with different types of disabilities and limitations, would need to be made before making these sites. However, the mere use of texts can make the site less attractive to this audience, since differentiated colors, images, graphics, various languages, among other things, could make browsing much easier and more attractive

Experiments performed directly with job seekers could assist the improvement of content information for this audience. Accessibility and usability tests, carried out directly with people with different types and levels of limitations also would assist in the construction of these sites to improve the user experience. In addition, other sites that provide job advertisements directed towards any person would need to go through the same tests, since ideally all sites ought to comply with the accessibility recommendations, ensuring equal opportunities to access job ads available on the Web. Understanding what really is more relevant and decisive for the choice of the vacancy in the perspective of the candidate himself or herself can help companies prepare better for this hiring process.

RECRUTAMENTO ON-LINE DE PESSOAS COM DEFICIÊNCIA: A TECNOLOGIA EM FAVOR DA DIVERSIDADE?

RESUMO

Objetivo: Analisar o recrutamento via *web* para pessoas com deficiência.

Originalidade/lacuna/relevância/implicações: Há poucos estudos sobre usabilidade e acessibilidade em *websites* de recrutamento para pessoas com deficiência

no mundo. Nenhum utilizou anúncios da *web* para análise. No Brasil, nenhum sobre e-Recrutamento para pessoas com deficiência foi encontrado.

Principais aspectos metodológicos: Trata-se de estudo descritivo e de natureza qualitativa. Procurou-se analisar anúncios disponibilizados em *websites* direcionados exclusivamente para o recrutamento de pessoas com deficiência. Categorias de análise: o conteúdo dos anúncios, a acessibilidade e a usabilidade deles. Análise por meio do teste de validação automática de acessibilidade a partir da utilização de uma ferramenta (Hera).

Síntese dos principais resultados: Todos os *sites* apresentam erros que dificultam a acessibilidade e usabilidade das páginas. O grande número de currículos cadastrados e ofertas de emprego disponíveis nos *sites* denotam que o recrutamento *on-line* está alcançando o objetivo de atrair candidatos e empresas. Em relação ao conteúdo, além daquelas pertinentes a todo e qualquer emprego, há questões ligadas a esse público específico, tais como disponibilidade de acessibilidade na empresa, aparelhos permitidos pelo contratante, utilização de filtros por tipo de deficiência do candidato e necessidade especial requerida pela empresa.

Principais considerações/conclusões: Empresas especializadas nesse tipo de recrutamento precisam conhecer as experiências de uso na *web* de pessoas com os mais diversos tipos de deficiência que buscam emprego. Embora os anúncios contemplem diversas informações relativas à oferta de emprego, há clara demonstração de que não estão preparadas para receber trabalhadores com deficiência. Além disso, precisam de melhor orientação quanto à eliminação de práticas de discriminação.

PALAVRAS-CHAVE

Recrutamento. *Websites*. Pessoas com deficiência. Acessibilidade. Usabilidade.

RECLUTAMIENTO EN LÍNEA DE PERSONAS COM DISCAPACIDAD: LA TECNOLOGÍA A FAVOR DE LA DIVERSIDAD?

RESUMEN

Objetivo: Analizar contratación a través de *Web Based* de personas con discapacidad.

Originalidad/laguna/relevancia/implicaciones: Pocos estudios sobre usabilidad y accesibilidad en los sitios *web* de contratación de personas con discapacidad en

el mundo. Ninguno utiliza anuncios *web* para análisis. En Brasil, tampoco se ha encontrado ninguno en e-Contratación de personas con discapacidad.

Principales aspectos metodológicos: Un estudio descriptivo y cualitativo. Trató de analizar los anuncios disponibles en los sitios *web* dirigidos exclusivamente a la contratación de personas con discapacidad. Categorías de análisis: el contenido del anuncio, acceso y uso de los mismos. El análisis por medio de la accesibilidad pruebas de validación automática mediante utilización de una herramienta (Hera).

Síntesis de los principales resultados: Todos los sitios tienen errores que dificultan el acceso y uso de la página. El gran número de currículos registrados y las ofertas de empleo disponibles en los sitios *web* denotan que el reclutamiento en línea está llegando a la meta de atraer a candidatos y empresas. En cuanto al contenido, además de las relativas a cada puesto de trabajo, hay cuestiones relacionadas con este público específico, como la disponibilidad de la accesibilidad en la empresa, los dispositivos permitidos por el contratista, el uso de filtros para la discapacidad del candidato y necesidades especiales requeridas por la empresa.

Principales consideraciones/conclusiones: Las empresas especializadas en este tipo de contratación necesitan saber el uso de experiencias web de personas con distintos tipos de discapacidad que buscan empleo. Aunque los anuncios contemplan diversa información relacionada con el empleo, hay pruebas claras de que no están equipados para recibir los trabajadores con discapacidad. Además, necesitan una mejor orientación sobre la eliminación de prácticas discriminatorias.

PALABRAS CLAVE

Reclutamiento. Sitios *web*. Personas con discapacidad. Accesibilidad. Usabilidad.

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