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RECRUITING IT PROFESSIONALS IN A VIRTUAL WORLD

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RECRUITING IT PROFESSIONALS IN A VIRTUAL WORLD

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ABSTRACT

Already in 2002 Agarwal and Ferratt forecasted that talent shortage on the IT labor market will not cause a transient problem. They are proved correct, six years later the problem is not only existent but also worse. Recruiters in companies are more and more forced to break new ground to hire the needed number of IT professionals. The increasing usage of IT in particular Web 2.0 in recruitment therefore offered new opportunities to approach potential talents more focus oriented. An example for this growing opportunities is the virtual world Second Life. We conducted an empirical survey with almost 10,000 jobseekers (including over 700 degree holders in Computer Science and Information Systems) to explore the use of virtual communities as a support for the IT-staff recruitment. Combined with an exploratory single case study with IBM Entwicklung GmbH (IBM Research and Developement Germany) we brought evidence that virtual worlds might be a vital source to recruit IT-professionals in times of talent shortage.

Keywords: Virtual Worlds, IT Professionals, Recruitment, Second Life.
1 INTRODUCTION

“Finding and retaining valued workers in information technology demands bold and innovative solutions” (Agarwal and Ferratt, 2002). In the same way as the big bubble of the new economy demanded a great number of new IT-workers in the beginning of the 21st century the companies in today’s global IT-market aim to recruit as many IT professionals as they can get. But due to the current economic situation and demographic effects they are threatened with an increasing shortage of IT professionals. Requested target groups are employees in the fields of Computer Science, Information Systems and IT-Management. This situation forces the IT corporations not only to increase their recruiting efforts but also to bring out new innovative solutions, as proposed by Agarwal and Ferratt (2002). An innovative solution could be the inclusion of the numerous online communities, virtual networks or virtual worlds as a place to attract applicants by painting a vivid picture of employment in their organization. An MISQ special issue about “New Ventures in Virtual Worlds” for 2008 encourages the community among other things to find out how organizations are using virtual worlds to support their human resources function (e.g. recruiting). Therefore the approach of our paper is to observe the potential support function of online communities and especially virtual worlds for recruiting. We establish our work on prior research about recruiting strategies for IT professionals and former outcomes on virtual worlds especially its structures and benefits.

Therefore we will address the following research question:

RQ: Could online communities and especially a virtual world (e.g. Second Life) effectively support the recruiting of IT-professionals?

We will first analyse with an empirical research how often job seekers use online communities while searching for a new job and how effective these communities are to find a new job. Online communities are web platforms people join or use because of their common interest. In our case an online community is a website providing information about companies and career opportunities. We answer this part of our research question by analyzing the data of an empirical survey with almost 10,000 jobseekers on the German labor market (including over 700 degree holders in Computer Science and Information Systems). Based on these results the second part of our research question is to analyse whether a virtual world like Second Life can support recruiting activities or not and if virtual worlds are the next step in e-recruiting. Therefore we will present a case study with IBM Deutschland Entwicklung GmbH (IBM Research and Development Germany) who uses Second Life as a supporting function in their recruitment process.

We have structured the paper as follows. After the introduction, we will give an overview on the theoretical background of recruitment mechanisms and virtual worlds. In the following we present the results of our empirical survey and its implications for the following exploratory case study in the third section. In the end we conclude our paper by outlining limitations and future research opportunities as well as implications for practice.

2 THEORETICAL BACKGROUND

Our research is based on two theoretical discussions: First the discussion of recruiting strategies for IT professionals and second the evaluation und discussion of Second Life, virtual worlds and online communities as a supporter of business functions.

2.1 Recruiting IT professionals

Starting in 1980s, the Fortune 500 companies in the USA often had more than 100 vacancies for IT specific work profiles at any time. Especially in geographic areas with a weak economical situation it became extremely difficult for companies to recruit qualified IT workers (Rifkin, 1989). With an
increasing competition in almost every industrial sector and an omission of traditional boundaries the importance of information technology started to break out in the 1990s (Keen, 1991). The rising importance of information technology and therewith the growing demand for IT services led to a serious shortage of sufficiently qualified IT professionals (King, 1997). The tremendous challenge to recruit adequate IT workers with a diploma (master) in Computer Science or Information Systems who are able to manage the firm’s needs against the background of a dynamic development in information technology was recognized as the problem of an IT professional shortage already occurred. A reason for the specific shortage of IT talents was mentioned in the differences between IS people and average employees (Gillian, 1994). King stated in 1996 that one of the biggest challenges facing high tech will be attracting and retaining talent (King, 1996). The percentage of under agers in the U.S. massively declined over the last years in return the part of retirees aged 65 or older is forecasted to increase from 12 percent in 2000 to about 20 percent in 2030 (U.S. Census, 2000; Frank et al. 2004; Trauth et al. 2008). Frank et al. (2004) summarized the fact in the following way: ‘In summary, the demographic time bomb fueled by aging baby boomers is not a guess it is an actuarial fact.’

The IT talent shortage is no longer just a national problem; the whole thing has a global impact (Stokes, 2000; Hewitt, 2002). For example in European countries as France by the year 2006 more employees will leave the labor force and retire than young people join the labor force and start working. In Germany the situation on the national labor markets is even worse. Many national surveys predict that after the next two decades 7 of 10 Germans will be old-age pensioners (Sadin, 2003). Astonishingly even in Asia’s boom countries India and People’s Republic of China the lack of high trained employees has become a serious problem for the national economies, politics and research institutes. The situation in China could be traced back to two different reasons (Farrell and Grant, 2005). A declining birth-rate below the necessary number to maintain the same population size (Kahn, 2004) results in just 10 years in a dropping Chinese labor force overall (Jackson and Howe, 2004; Frank et al. 2004). As a second reason the People’s Republic suffers from a far too small number of high-qualified university graduates which could not meet the manpower requirements of the large-scale national companies. This increasing issue of talent shortage will be a serious threat for People’s Republic of China’s economic growth if the area of education won’t be elementary reformed (Farrell and Grant, 2005). In contrast India is confronted by a different situation. The subcontinent does not have a dropping birth-rate and a declining labor force. Nevertheless due to high turnover rates as a result of individual workers who sell their skills for higher payment India also faces an upcoming talent shortage problem (Acharya and Mahanty, 2008).

A challenge for all recruiting strategies lies in the fact that the group of IT professionals represents a bunch of candidates with strongly specific behaviors in the application process. It is indispensable for the companies to understand the individual needs and wants of their target group. IT professionals act in the recruiting process in more or less defined patterns. They use certain channels to seek information about potential employers and vacancies. Additionally they use certain forms of application afterwards. The companies need to adjust to these behavioral patterns and publish their vacancies in these channels the IT professionals prefer as well as accept this kind of application form they would like to use. The results of an empirical jobseeker survey reveal that IT professionals tend to look for vacancies published on corporate websites and in internet job boards. Speaking generally for companies the most promising way to attract IT professionals is the internet (Keim and Weitzel, 2006). Additional research by Ortiz, Tapia and Maldonado (2006) details this work. In their analysis they recommend online social networks as a possible solution for finding and recruiting IT employees. In addition the authors of this paper encourage the community to test the assumptions about the utility of such an approach and they believe it is important to qualify and quantify the results of online social networks and the impact of such networks on the IT workforce (Ortiz et al., 2006).

For this reason we combine the need for IT professionals with the approach to attract them via social networking communities. In the following subchapter we describe a design of such a community using the case of Second Life.
2.2 Virtual Worlds and Second Life

In virtual worlds digital characters (avatars) are not only interacting with each other for entertainment, virtual worlds allow avatars also to buy and sell goods, products and services (Bray and Konsynski, 2007). Virtual worlds refer to a three-dimensional (3D) environment that appears similar to our real world to supply online entertainment and social networking for users (Barnes, 2007). Virtual worlds are a part of the growing market of Web 2.0 applications and online communities. A lot of social networks such as LinkedIn, Facebook or MySpace are 2-dimensional (2D) ones.

The best known 3D virtual world is Second Life (www.second-life.com). Second Life has grown from 2 million residents in January 2006 to more than 8 million ones in July 2007. Statistics of March 2007 point out that 61 percent of active Second Life residents were from Europe (16 percent from Germany), 19 percent from North America and 12 from the Asia Pacific, 61 percent were male and 39 percent female (Barnes, 2007). Because of the increasing growth of virtual worlds they become a technology important for marketers, advertisers and businesses (Hemp, 2006). These worlds have the potential to be new channels for marketing content and products integrating the business in ‘v-commerce’ - an extension of e-commerce (Barnes, 2007). These concepts for a virtual 3D-internet may change the way as we surf the Internet dramatically from hyperlink, textual navigation, to a more embodied, 3D virtual experience (Bray and Konsynski, 2007). Future web browsers may rely less on two-dimensional textual navigation and more on 3D, interactive, embodied experiences akin to virtual worlds (Winograd and Flores, 1987). Furthermore the ability to form several decentralized peer-to-peer virtual worlds is also on the horizon (Bray and Konsynski, 2007).

Beside the technical aspects of designing the virtual world of the future Bray and Konsynski (2007) pointed out the need for research in four areas to discover all impacted sciences of virtual worlds: Information Systems, Neurobiology, Political Science and Organizational Governance. Furthermore the possibility of the positive influence of avatars and virtual representations on trust and online purchasing intention was pointed out by several researchers as Barnes (2007) summarized (Holzwarth, Janiszewski and Neumann, 2006; Li, Daugherty and Biocca, 2002). Junglas, Johnson, Steel, Abraham and Loughlin (2007) accomplish that there is little knowledge about how human behaviors, for example the actions of avatars, are different from the ones in real life. Junglas et al. (2007) identified three important behaviors impacted by virtual worlds: identity formation, learning styles and trust. Trust is understood by users of virtual worlds as the meaning that is assigned to it as a social phenomenon and is used to reduce the complexity of these worlds. Trust is the basic to understand individuals’ behaviors, how avatars interact, the norms and social structures in virtual worlds like global virtual teams (Piccoli and Ives, 2003; Jarvenpaa and Leidner, 1999).

As Bray and Konsynski (2007) pointed out the leading question of research in virtual worlds is: “What does the future of virtual worlds bode for businesses, social and political institutions?” As Barnes (2007) discuss virtual worlds have the ability to be a medium for advertising. The approach of our research is to discuss the specific form of advertising for candidate attraction in Second Life. Our results are based in a general analysis the usage of online communities by job seekers and especially how Second Life can be used to attract candidates. The results of our research will be presented in section 3.

3 A CASE STUDY APPROACH TO RECRUIT IT- PROFESSIONALS IN SECOND LIFE

For our approach to discuss candidate attraction in virtual worlds we will present on the one side results of an empirical analysis with almost 10.000 job seekers about their usage of online communities and on the other hand an exploratory case study of IBM Deutschland Entwicklung GmbH (IBM Research and Development Germany) who implemented a recruiting centre in Second Life.


3.1 Empirical Analysis

3.1.1 Research Methodology

For our empirical analysis an online questionnaire was used. The questionnaire was promoted in the target group of job seekers and within a period of three weeks over 10,000 jobseekers answered our questionnaire. Following the dataset clearing for doublets and fake-participants we included a total of 9,679 jobseekers into our analysis. The distribution of survey participants regarding their current career status is visualized in Table 1 and for study subject in Table 2.

<table>
<thead>
<tr>
<th>Career Status</th>
<th>Number of participants</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprentices</td>
<td>68</td>
<td>0.7%</td>
</tr>
<tr>
<td>Students</td>
<td>116</td>
<td>1.2%</td>
</tr>
<tr>
<td>Graduates</td>
<td>687</td>
<td>7.1%</td>
</tr>
<tr>
<td>Young Professionals</td>
<td>1791</td>
<td>18.5%</td>
</tr>
<tr>
<td>Professionals</td>
<td>3068</td>
<td>31.7%</td>
</tr>
<tr>
<td>Mid Management</td>
<td>1200</td>
<td>12.4%</td>
</tr>
<tr>
<td>Top-Managers</td>
<td>136</td>
<td>1.4%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>900</td>
<td>9.3%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1713</td>
<td>17.7%</td>
</tr>
</tbody>
</table>

Table 1 Distribution of survey participants by career status

<table>
<thead>
<tr>
<th>Study Subject</th>
<th>Number of participants</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science</td>
<td>426</td>
<td>4.40%</td>
</tr>
<tr>
<td>Engineering</td>
<td>1355</td>
<td>14.00%</td>
</tr>
<tr>
<td>Med and Health</td>
<td>126</td>
<td>1.30%</td>
</tr>
<tr>
<td>Natural Science</td>
<td>465</td>
<td>4.80%</td>
</tr>
<tr>
<td>Law</td>
<td>252</td>
<td>2.60%</td>
</tr>
<tr>
<td>Social Studies</td>
<td>639</td>
<td>6.60%</td>
</tr>
<tr>
<td>Information Systems</td>
<td>339</td>
<td>3.50%</td>
</tr>
<tr>
<td>Business Management</td>
<td>2013</td>
<td>20.80%</td>
</tr>
<tr>
<td>Others</td>
<td>1103</td>
<td>11.40%</td>
</tr>
<tr>
<td>No Study</td>
<td>2961</td>
<td>30.60%</td>
</tr>
</tbody>
</table>

Table 2 Distribution of survey participants by study

3.1.2 Empirical Results

‘How often do you use online communities to search for vacancies and potential employers?’ and ‘How effective do you think are these online communities to get a new job?’ are the questions we asked in our questionnaire to discuss the usage behaviour of job seekers in online communities. As Figure 1 shows that 53.4 percent of these jobseekers who studied Business Management or Information Systems use virtual communities at least regular to collect information about potential jobs and employers. 43.8 percent of Computer Scientists use online communities regular, 43.8 percent of IS professionals and 41.3 percent of business managers. Thus professionals with IS background are the most frequent users group of online communities to search for new jobs. Engineering (29.7 percent), Natural Science (29.7 percent), Law (33.6 percent) and Social Studies (36.7 percent) use online communities less than Information Systems, Computer Science and Business Management. Med and Health do not use online communities as often as the other groups to search for new jobs. Only 24.2 percent marked at least a regular usage of online communities.
Figure 1  Usage Frequency of Virtual Communities

In addition Figure 2 illustrates how jobseekers evaluate the effectiveness of online communities to get a new job. 29.2 percent of Computer Scientists, 23.0 percent of business managers and 24.3 percent of IS professionals indicate at least a high chance to get a new job because of using online communities. Thus IS related fields of study have the highest designed chance to get a job using online communities. In addition 18.8 percent of Engineering, 17.8 percent of Natural Science, 20.8 percent of Law and 21.8 percent of Social Studies indicate at least a high chance as well. Conspicuously Med and Health indicate a relative high effectiveness. With 23.6 percent Med and Health professionals have a relative high percentage of those who expect at least a high chance to get a job using online communities.

Figure 2  Effectivity of Virtual Communities to find new jobs

1 Job seekers who declared themselves to be former or current students
The empirical data shows that especially jobseekers with Computer Science, Information Systems and Business Management background use online communities to search for new jobs and potential employers and in addition these jobseekers indicate a high chance to get a new job by using online communities.

One example of online communities is a virtual world such as Second Life. We conducted an exploratory case study with a leading technology company to evaluate the potential to use Second Life as a online community to offer information about job descriptions and the company itself and to generate employment.

3.2 Case Study Approach

For the case study research we defined in the planning phase our research design and its components following the guidelines of Eisenhardt (1989) and Yin (2003). Then we prepared our data collection and created interview guidelines based on basic theoretical models. Afterwards we checked them for consistence to provide adaptiveness and flexibility. We started to prepare data collection and sectioned the interviews in two stages. We collected the evidence with a part-structured interview to discover the context variables in End of July 2007 and a structured interview to develop the model elements at the Mid-August 2007. As far as possible we added further documents provided by the company to extend our outcomes. Finally the case study report was checked by our interview partners.

The company for our case study was chosen because of its long tradition and high importance for the IT workforce in Germany and its great depth of awareness of IT-adoption throughout its whole entrepreneurial processes (Dewar and Dutton 1986). Our case study company is IBM Deutschland Entwicklung GmbH (IBM Germany Research and Development).

3.2.1 Description of the case study company

IBM Germany is a subsidiary company of the global innovative technology enterprise IBM. Our chosen organisation is part of the German branch and in charge for sales and services in Germany as well as for research and development activities. In Germany IBM employs 21,000 people and its activities are distributed over 40 branches in Germany. The parent company has 365,000 employees and its activities are spread over 170 countries. The portfolio contains hardware and software solutions as well as specific consulting and implementation services.

The company characterises itself as an innovative one that uses new technologies as leverage for business performance. The research and development branch employs computer scientists, engineers and technicians to design new products and solutions. One example of an innovative solution is the implementation of a recruiting centre for the branch in Second Life.

3.2.2 The company’s approach to Second Life

For IBM virtual worlds are a basic technology for the future. The company’s vision is that the design of software and hardware, the concepts of Web 2.0, the attractiveness of online games and virtual worlds will result in a 3D concept on the internet. For this reason the company is developing and testing virtual business cases in Second Life and has own organisational units in charge for virtual 3D solutions.

The German unit developed the concept of a virtual recruiting centre in Second Life. In the context of the “war for talents” Chambers et al. (1998 the company has to meet the challenge to recruit graduates and young professionals with technical experiences. The need for different channels to communicate and to address this target group and to present the company as an attractive employer is therefore identified by our case study company. The company expects that one channel these computer and technique freaks are using is Second Life. Therefore the concept of a virtual recruiting centre in Second Life was developed and implemented in spring 2007.
3.2.3 Concept of a recruiting centre in Second Life

The basic idea is that visitors can use interactive information boards to get information about IBM as a potential employer and about specific job vacancies. Furthermore interested job seekers can directly apply online for an announced vacancy. In addition the company holds recruiting events on its Second Life Island to offer special information for potential candidates. Private talks between recruiting employees and interested job seekers complete the offered recruiting services by our case study company in Second Life.

Four information terminals are built to offer different kinds of information about possible chance to join the company. The terminals include topics like internships & bachelor/master thesis, development jobs, business jobs and the university of cooperative education. If someone wants to apply for a specific job offered he/she can use the link to the companies recruiting website to use the standard application form. This link from the 3D-world to the 2D one is necessary because an application must be manages with the standard recruiting process of the company and an interface to a 3D-world is not implemented yet.

Beside the information aspect the focus of the concept is the interaction and communication between the visitors of the recruiting centre and the recruiting staff of the case study company. It is just one click to start a conversation with a recruiter to get more information about the company. If a detailed and private conversation is necessary the recruiter can invite job seekers in a private area which can only be entered by authorised avatars. Special recruiting events are the last component of the virtual life recruiting concept of our case study company. At irregular intervals recruiting events like speeches, fairs, job talks etc. are offered to support the contact between the company and potential candidates. The Managing Director for Human Resources in Germany for example made a speech in July 2007 about the opportunities the company offers its employees and discussed with the audience the characteristics of an attractive employer. In August 2007 regular job talks took place to inform about potential opportunities to start a career at the case study company. Latest projects include virtual conferences of trainees who are working in different German branches and can so get together for a virtual team meeting. The voices are streamed into Second Life to support verbal communication of the avatars.

With these three functions of the recruiting centre – information, communication and interaction – the company wants to address the target group of technical orientated students, graduates and young professionals and to introduce itself as a attractive employer.

3.2.4 Results

The recruiting centre was implemented in April 2007 and at the end of the year the company can present first results. The HR-Manager responsible for the project summarized that his expectations are complete fulfilled. With over 5,700 individual avatars between April and November 2007 visiting the centre an above average visit of avatars can be identified. The first speech by the Director Manager for Human Resources and the job talks in August 2007 were visited by around 40 avatars each. In July 2007 about 10 percent of the visitors used the link in the 2D world (companies website) to get more information about a specific job offer or to apply for it. Beside these figures the responsible HR-Manager pointed out that all visitors of the centre who used the possibility of personal interaction attracted positive attention because they were really interested in the company and ask detailed question about the possibilities to work for the company.

3.2.5 Outlook

At the end of the day the project is a pilot one to gain first experiences with virtual worlds and their integration in business processes. This project is part of IBM’s strategy to develop a 3D internet for the future. Today it is not sure what the benefit of the recruiting centre in Second Life can be. At the moment it is just an alternative recruiting channel of personal marketing to address required target groups within a channel they are familiar with. However, approach like virtual team meetings as
managed by IBM can be one further possibility how Second Life can be used for supporting business. Recruiting in virtual worlds is one innovative approach to approach actual recruiting problems.

4 CONCLUSION, IMPLICATIONS AND FUTURE RESEARCH

Recruiting IT professionals in a virtual world is the basic idea of our research. Our empirical analysis with 10,000 jobseekers in Germany shows that especially Computer Scientists, Information Systems employees and Business Managers are using online communities to search for information about potential employers as well as new jobs and that these occupation groups indicate a high chance to find a new job using online communities. Furthermore our case study with IBM is an example how a virtual world like Second Life can be used to attract candidates in an innovative way. Virtual Worlds could support companies to recruit IT-professionals effectively as online communities already do.

The main limitation of our research is that we only analysed data of one country. Applicants’ searching behavior for jobs could differ from country to country. Future research should discuss the characteristics of other countries and compare the results with ours. The presented data of Second Life residents separated by countries indicates that the usage behavior differs and that Germany has a relatively high percentage of residents in Second Life. Therefore Germans are a valuable target group for research in Second Life. Furthermore we only present one exploratory case study to support our hypothesis that Second Life can support the recruiting processes. Attracting candidates in Second Life could be one more solution to overcome the talent shortage on the labor market for IT professionals. In general one can pointed out that online communities are platforms where recruiters can contact IT-professionals, but to address the discussed shortage an integrated solution of different methods is necessary.

Additionally we suggest a few implications to practice. The rising usage of information systems in staff recruitment both on employer and candidate side demands a pattern of an integrated IT-HR-strategy and methods of online recruiting. Online communities and virtual worlds respectively seem to be a new and innovative approach to attract a small candidate group as IT professionals.
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