

WHAT ARE THE FACTORS
THAT DETERMINE E-SERVICE
QUALITY ON E-RECRUITMENT
SITES, TAKING INTO
CONSIDERATION APPLICANTS'
AND RECRUITERS' NEEDS?

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Master thesis

What are the factors that determine e-service quality on e-recruiting sites, taking into consideration applicants' and recruiters' needs?

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Abstract

Despite the increasing number of definitions and measurements of e-service quality, little research has addressed factors that determine the e-service quality of recruiting websites. In this research, we integrate knowledge from the e-recruiting and e-service quality literatures and derive factors for effective e-recruitment websites with consideration of the needs and perspectives of both groups of end users: applicants and recruiters. An explanatory research method was employed, divided into four steps. First, a literature selection method was devised to identify the most relevant e-service quality and e-recruitment literature. Second, we perform a literature review of e-service quality and e-recruitment fields. The factors related to e-service quality and e-recruitment websites were identified and summarized in the next step. Finally, these factors were classified into salient categories, which are correlative with proposed factors. As a result, we propose seven factors of service quality on recruiting sites: 1) quality of information, 2) security/privacy, 3) website design, 4) usability, 5) enjoyment/entertainment, 6) system quality, and 7) customer service. Our research is one of the first to investigate the overall characteristics of e-recruiting websites and makes a number of contributions to the understanding of web-based recruitment. The results of this study may be useful for information systems designers, recruiters, and human resources managers responsible for developing effective e-recruiting websites.

Keywords - E-service quality, Web service quality, e-recruitment, e-recruiting, applicant and recruiter requirements.

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1. Introduction

With online services offerings growing significantly over the past two decades, the issue of how to define and measure e-service quality has drawn increasing research attention (Chang et al., 2009; Hiem and Field., 2007; Sousa et al., 2008). E-service quality, as defined by Santos (2003), includes the overall customer perceptions, judgments and evaluation of the quality of service obtained from a virtual marketplace. The concepts of e-service quality may differ depending on what type of service, product or information is offered online. Various general models to define and measure service quality on the Internet have been developed. There are significant niche markets such as healthcare services and banking services that have been studied to determine the components of e-service quality. In the case of the e-banking field, attention has been given to factors such as responsiveness, reliability, ease of use and accuracy (Jun and Cai, 2001). Evaluation of websites providing online travel services focus more on information quality, security, website functionality and customer relationship (Ho and Lee, 2007). E-recruitment has also grown over the past two decades with the growth of the Internet, and has drawn increasing research attention in recent years.

The term “e-recruitment” refers to the formal sourcing of job information online (Galanaki, 2002). In most of the e-recruitment literature, e-recruitment has been defined as “...*a process of selecting the most qualified job candidates from large website databases, containing resume files and other characteristics pertaining to potential employees*” (Lin and Stasinskaya, 2002). In general, the recruitment services offered on a website are free for job applicants who are registered as members of the sites, though employers typically have to pay a subscription fee in order to use the recruitment service (Tong et al., 2005). The advantages of this kind of recruiting method over traditional recruiting methods have been demonstrated in many previous studies (Galanaki, 2002; Rozelle and Landis, 2002; Maurer and Liu, 2007; Koong et al., 2002). For instance, Galanaki (2002) indicated that e-recruitment could lower the cost of finding qualified candidates, reduce recruiting cycle time and reach a wider range of applicants. Job seekers could easily search for job opportunities (Lee et al., 2008) and their applications can be created and sent within a very short period of time (Puck et al., 2006).

The study of e-service quality of e-recruitment websites is justified by the importance that e-recruiting now has as a recruiting method. In the past, most organizations and job seekers used

traditional recruitment methods such as newspapers, television or employment agencies to advertise job vacancies or look for jobs. Nowadays, due to the rapid development of information technology, methods of recruitment have changed dramatically. Along with the growth of information services, online recruiting has become a primary method for marketing jobs in an increasingly world-wide labor market (Maurer and Liu, 2007). For example, over 90% of Fortune 500 companies recruit online (Feldman and Klass, 2005), and online sources now hold 110 million jobs and 20 million unique resumes (Maurer and Liu, 2007). Also, applicants are increasingly using online recruiting services to search for jobs (Tong et al., 2005). Jansen et al. (2005) indicated that over 52 million Americans have used online job search portals, with 4 million doing so daily. Numerous organizations applied this recruiting method to increase the effectiveness of human resources management by designing and developing career websites to attract online users to their services. Several well-branded job sites like Monster.com or Hotjobs.com been extremely successful and have attracted millions of users. However, not all career websites can satisfy the requirements of both recruiters and applicants for reasons such as low quality of information, complexity of use and security issues. As a result, recruiters and applicants may look for other websites that fulfill their expectations in regard to service quality (Furtmueller et al., 2010). The unsatisfactory websites may experience a decrease in the number of active job seekers which in turn may lead to a reduction in the number of recruiters (Tong et al., 2005). To prevent this, a comprehensively understanding of service quality of recruiting sites is needed. Several authors have identified diverse factors to measure the e-service quality of recruiting website. However, their studies have merely concentrated on individual factors. For instance, Thompson et al. (2008) examined the influences of website design on prospective job seekers, Maurer and Liu (2007) mainly emphasized the level of information content, vividness and interactivity required to affect targeted job seekers, and Braddy et al. (2008) focused on website usability and attractiveness. Since these factors have little in common, explanatory studies are needed to derive common factors that can be used to effectively evaluate the e-service quality of recruiting websites. Therefore this paper aims to provide a foundation for research aiming towards identifying factors of e-recruiting sites' service quality by discussing the characteristics of e-recruiting websites that are relevant to recruiters' as well as job applicants' needs and expectations. Accordingly, this study addresses the following research question:

“What are the factors that determine e-service quality on e-recruiting sites, taking into consideration applicants’ and recruiters’ needs?”

The results of this research are relevant to human resources and personnel departments as well as possibly of interest to management and information systems designers in charge of enhancing effective e-recruiting services. The paper is organized as follows: First, we describe the research strategy employed in this paper. Next, the e-service quality and e-recruiting literature is selected and reviewed. Then, we integrate and discuss the identified factors of both literatures with the aim of proposing factors of e-recruiting websites related to applicants and recruiters’ needs. Finally, we derive implications for e-recruiting services design and provide an agenda for future research.

2. Research Methods

With the aim of studying the characteristics of e-service quality related to the expectations of job applicants and recruiters, an explanatory research method has been employed. In this approach to empirical research, the focus is to identify the factors of e-service quality of a general recruiting website. The method was carried out in four steps (Figure 1).

First, a literature selection method has been devised to identify the most relevant e-service quality and e-recruitment literature (Wolfswinkel et al., 2011). This was necessary since more than a hundred papers related to e-service quality and e-recruitment topic were found in the preliminary literature search processes. Various criteria were applied to this selection process: year-published, type of paper, impact factor, relevance determined by title and abstract, and relevance determined by full text reading.

In the second step, the actual literature search was conducted using the specifically developed process described above. Unlike previous research which integrated e-quality factors based on the review of findings of a limited number of e-service quality articles (Barrutia and Gilsanz, 2009), in our research we systematically reviewed over 20 years of e-service quality and e-recruitment research.

Numerous papers from the e-service quality field were analyzed to obtain the appropriate e-service definitions. In doing this, e-service quality was defined based the definitions and concepts proposed by a number of researchers. We also reviewed e-service models, including general models and for specific markets of fields to see if any factors for service quality were relevant to e-recruitment sites. In the following analysis step, the models for e-service quality were presented and compared and overlapping concepts were categorized. Several models from the literature have described an overview of a few salient service quality dimensions (Riel et al., 2001; Zhang and Prybutox, 2005) while other research has categorized a considerable number of factors, for example 22 factors were identified by Parasuraman et al. (2005). Other models from the literature contain dimensions that are too specific and narrow to a specific field to apply to the topic of e-recruitment, but which could contribute to a broader understanding of service quality.

A methodological review of the e-recruiting literature is essential to enhance the understanding of why certain quality factors may be less or more important (Heim and Field, 2007; Kim and Lee, 2009). In the reviewed literature, several authors identified the quality factors of recruiting websites and measured the significance of these factors to users through empirical studies. However, these factors were not the same in all of the reviewed studies. In most of the e-recruitment articles, several important quality factors were identified such as quality of information, privacy, usability (Allen and Mahto, 2007; Maurer and Liu, 2007; Sylva and Mol, 2009, Thompson et al., 2008; Tong et al., 2005). However, other factors were examined in some studies, but were ignored in other. Those differences may lead to difficulties in evaluating the overall quality of recruiting services in the online environment.

In the third step, after the review processes, e-service quality factors of recruiting websites were selected. In order to select appropriate factors, we summarized the factors that had been identified by e-recruitment researchers. Since there were gaps in this list of factors, we combined these factors with ones identified by research related to e-service quality. All factors with the same features were then classified into a single category. Only factors relevant to recruiting websites were included in the categorization. Factors related directly to the characteristics of recruiters and applicants, such as IT skills and intention to use, were also not included. The classification process resulted in several categories.

Finally, in the final step, analyses of the proposed factors of e-service quality of recruiting websites were conducted to understand the relation between each factor and recruiters' and applicants' needs. In this step, each proposed factor was analyzed and discussed from various researchers' points of view (see an example on rigorous categorizing of factors in Furtmueller et al., 2011). The results of this step show the importance of each factor in increasing recruiters' and job applicants' intention to use an e-recruitment website. Furthermore, the factors could be considered constructs to measure the effectiveness of a recruiting website if they are applied in empirical studies.

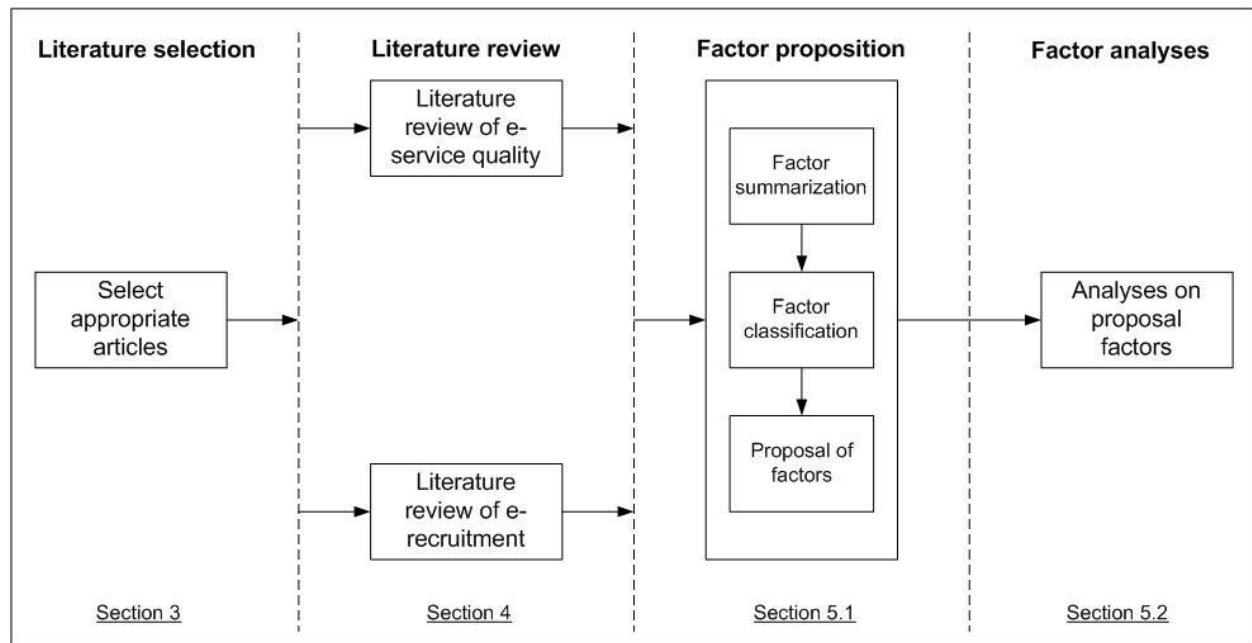


Figure 1: Research approach

3. Literature selection

With the purpose of providing an overview of the existing literature in the field, a systematic search for relevant e-service quality and e-recruitment literature was conducted. The search databases Web of Science and Scopus were used and the top 50 Information System (IS) journals (Schwartz and Russo, 2004) were reviewed for relevant articles. Since the terminology for e-service quality is related to various synonyms, the following keywords were used in both search engines to find suitable literature: “e-service quality”, “e-quality”, “website quality”, “online quality”, “online service quality”, “web-based quality”, “web-based service” and “quality of Internet”. Of these terms the top key words are “e-service quality”, “website quality” and “online service quality”. For e-recruiting the literature search was conducted using the following keywords: “e-recruit*”, “web-based recruit*”, “online recruit*”, “applicant service”, “recruiter service”, “applicant requirement”, “recruiter requirement”, “applicant perspective”, “applicant perception”, “recruiter perception”. A wildcard was included with the term “recruit” to ensure that no literature was missed. The search process was separated into two stages. In the first stage, all relevant literature was identified in the search databases Web of Science. The Scopus search engine was used in the second stage. After removing duplicate articles in the search databases, the search resulted in 168 articles. The selection was narrowed down using the five steps below:

1. Only journals from 1990-2011 were included in the literature sample to reflect this paper’s focus on the synthesis of knowledge since the increased usage of e-recruiting and e-service quality scales. As a result, 16 articles were removed from the list.
2. Articles were classified as academic papers, conference papers, book chapters or book reviews. All conference papers, book chapters and book reviews were rejected since this research concentrates on academic papers. After this step, 125 articles remained.
3. The remaining articles were compared to the top 50 Information System (IS) journal list identified by Mylonopoulos and Theoharakis (Schwartz and Russo, 2004). The articles that had been published in journals on this list were prioritized. Then the impact factor indicator of these journals was analyzed. We tried to select studies that had been published by journals with an impact factor score. If the impact factor of a journal could not be found, the index was taken into

account. As a general rule, we chose articles with indexes such as ISI Web of Science, Scopus, Social Science Citation Index (SSCI). Twenty-nine of 125 articles did not meet these criteria.

4. Next, we selected relevant articles based on titles and abstracts. Articles with titles and abstracts containing the selected keywords for e-service quality and e-recruitment (listed above) were approved. We identified papers from various sectors that met these criteria, especially from the healthcare sector, banking sector and tourism sector. From these sector-based studies, we selected the articles that contained general knowledge on e-service quality. This process left us with a set of 72 studies.

5. Finally, we read the full text of all remaining articles and selected those that were most relevant to our main research question. A back and forward search was also conducted to ensure that no relevant articles had been missed in previous searching processes. The final selection resulted in 64 papers for analyses, consisting of 30 articles on e-service quality and 34 articles on e-recruitment.

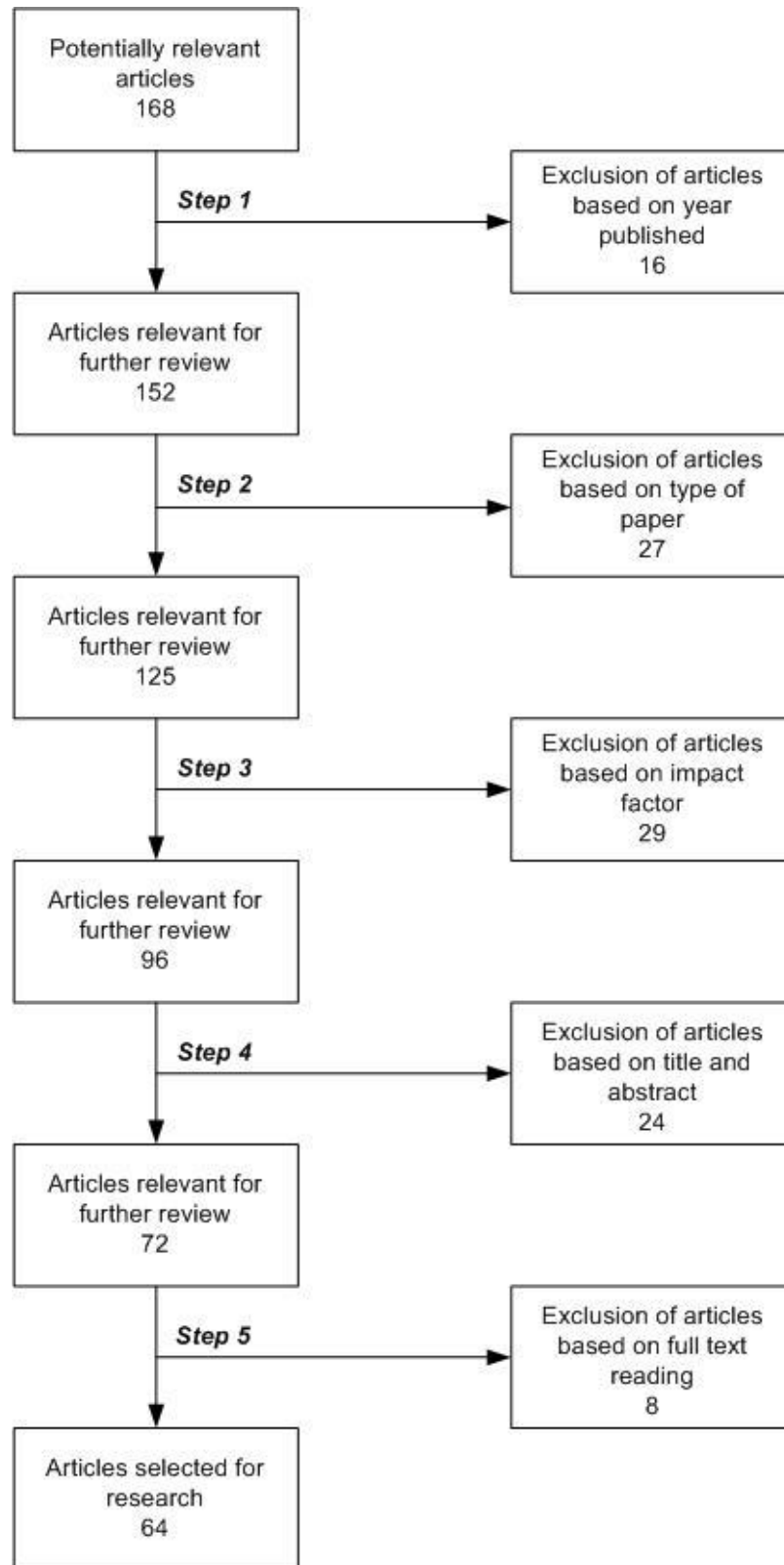


Figure 2: Selection procedure leading to the 64 analyzed articles

4. Literature review

The 21st century has witnessed the development of information technology and revolutions in online service delivery. Information technology has become an indispensable part of managing businesses and services and to enhance organizations operational tasks such as marketing, finance and human resource functions, all of which have been gradually changed or replaced over time (e.g., traditional recruitment methods complemented by e-recruitment) because of assumed efficiency gains. Changing organizational practices along with the increasing usage of the Internet are changing the way service firms and consumers interact (Rowley, 2006). The trend of incredible growth seen with the Internet over the past few decades has been reflected in the remarkable change in recruitment methods. Nowadays, there are a considerable number of organizations using e-recruitment as a main method to increase the effectiveness of recruitment activities. An analysis by Braddy et al. (2008) showed that 90% of large organizations have official recruitment web pages, and these pages are the second most frequently visited sections (after the homepage) of an organization's website. Maurer and Liu (2007) found that online recruitment now holds 110 million jobs and 20 million unique resumes, and that US online recruitment revenues will top \$2.6 billion in 2007. Furthermore, it is likely that a significant number of e-recruiting websites have attracted thousands of users each. Several organizations have designed their own recruiting websites so they can directly manage recruitment processes (Furtmueller et al., 2009). In addition, a large number of recruiting websites such as monster.com or taljobs.com have been implemented and are considered as intermediaries between job applicants and recruiters. A Monster Fact Sheet (2006) announced that the monster.com website has 61 million job seeker members worldwide, a resume database of more than 52 million resumes, and over 200,000 member companies. According to Maurer and Liu (2007), commercial job sites such as Monster.com and Hotjobs.com can offer job openings for millions of positions ranging from senior managers to maintenance workers. Understanding the factors driving the success of e-service quality is absolutely critical to enhance the effectiveness of recruiting activities on career sites.

4.1. Definitions and description of e-service from the literature

Rust and Lemon (2001) describe e-services as “...*providing a superior experience to consumers with respect to the interactive flow of information*” (p86). Several authors have defined e-services as web-based services or interactive services that are delivered on the Internet, while others have conceptualized e-service as an information service. According to Rowley (2006), e-service is “...*deeds, efforts or performances whose delivery is mediated by information technology, including the Web, information kiosks and mobile devices*” (p341). Job applicants can interact with or contact recruiters or organizations through information or communication channels provided online. Different from traditional interaction with face-to-face communication, the users seem to evaluate the information, images or sound files located on the website to decide whether these services should be trusted. Zhang et al. (2006) defined e-service as “...*an integration of business processes, policies, procedures, tools, technologies, and human efforts to facilitate both assisted and unassisted customer services using the Internet and other networks*” (p279). According to these authors, e-service has great potential for improving quality while at the same time creating substantial savings for the providers. By leveraging e-services, numerous organizations have successfully opened new revenue streams, lowered costs, improved customer satisfaction, and attracted new customers. Ruyter et al. (2001) described e-service as “...*an interactive, content centered and Internet-based customer service, driven by the customer and integrated with related organizational customer support processes and technologies with the goal of strengthening the customer service provider relation*” (p186).

E-services play an intermediary role between customers and organizations. The stakeholders using e-services - that includes buyers and sellers, applicants and recruiters - generally expect to benefit from the service (Wolfswinkel et al., 2010). The greater use of e-services was associated with higher satisfaction, which, in turn, was related to lower intentions of users to quit (Rozelle and Landis, 2002). Due to network effects, the more the services are used, the more likely people are to be attracted to start using e-services. Therefore, an analysis of e-service quality factors is necessary for the success of any e-service including e-recruiting services.

4.2. Literature on e-service quality

Service quality is one of the key factors that determine the success or failure of electronic commerce (Santos, 2003). Ziethaml et al. (2002) offered one of the first definitions of e-service

quality: Service quality on the Internet is “...the extent to which a Website facilitates efficient and effective shopping, purchasing, and delivery of products and services” (p363). This definition suggests that the concept of e-service quality extends from the pre-purchase phase to the post-purchase phase. The concept of service quality in the online context has also been described as the consumers’ overall evaluation and judgment of the excellence and quality of e-service offerings in the virtual marketplace (Santos, 2003). Riel et al. (2001) proposed a classification of service components comprised of the following aspects: core services, facilitating services, supporting services, complementary services, and user interface. With this categorization they attempt to assess the quality of e-service by measuring customer satisfaction with these specific components of an e-service (Bauer et al., 2006).

The factors of e-service quality

Increased understanding of e-service quality would make companies more effective, and can help them to achieve higher levels of customer satisfaction and retention (Santos, 2003). In line with the different conceptualizations of e-services, previous efforts to measure e-service quality also provide several different approaches and outcomes (Bauer et al., 2006). To measure e-service quality, several general models have been developed with the aim of creating a standard scale for analyzing a web service or e-service.

One of the first and most widely used instruments to measure service was developed by Parasuraman et al. (1988). SERVQUAL, as it is called, emphasizes measuring service quality based on the concept of a service quality gap between an organization’s service quality performance and customer’s service quality needs (Expectations–Perceptions) (Udo et al., 2010). It consists of five dimensions:

- *Tangibles*: the appearance of physical facilities, equipment, personnel, and communication material;
- *Reliability*: the ability to perform the promised service dependably and accurately;
- *Responsiveness*: the willingness to help customers and provide prompt service;
- *Assurance*: the knowledge and courtesy of employees and their ability to inspire trust and confidence

- *Empathy*: caring and individualized attention that the firm provides its customers

The SERVQUAL instrument has been widely used to assess the service quality of various service organizations, including insurance services, library services, information systems, healthcare settings, bank services, hotel services, etc. However, critics have argued that a single instrument like SERVQUAL is not appropriate for measuring service quality across industries. There are some doubts regarding the applicability of the five SERVQUAL dimensions in the e-service context because this model was built based on traditional service quality studies, thus this implies that not all dimensions are appropriately applied for e-service. For that reason, additional dimensions related specifically to the technology need to be included (Zeithaml et al., 2002). Riel et al. (2001) had a similar idea when they argued that some factors need to be reformulated before they could be meaningfully used in an e-service context. For instance, “tangibility” could be replaced with “user interface”, while “assurance” could be considered as the safety of online transactions, “reliability” could refer to accuracy of information and functionality of links. Other researchers have attempted to develop specific measurement scales for online service quality, but the task is neither simple nor straightforward.

For the reasons listed above, another version of an e-service quality model has been developed to reduce the weaknesses of previous SERVQUAL scale, namely E-SERVQUAL. This model is a multiple-item scale for measuring e-service quality delivered by online shopping websites. It includes two different scales that were necessary for capturing electronic service quality (Zeithaml et al., 2002). The first one is the basic E-S-QUAL scale, which is a 22-item scale of four dimensions: efficiency, fulfillment, system availability, and privacy.

- *Efficiency*: The ease and speed of accessing and using the site, or the ability of the customers to get to the Website, find their product and information associated with it, and check out with minimal effort.
- *Fulfillment*: The extent to which the site’s promises about having products in stock are kept, and the extent to which products are delivered within the promised timeframe.
- *System availability*: The correct technical functioning of the site.
- *Privacy*: The degree to which the site is safe and protects customer information.

The second scale, E-RecS-QUAL, is relevant only to customers who have non-routine encounters with sites and contains 11 items in three dimensions: responsiveness, compensation, and contact.

- *Responsiveness*: Measures the ability to provide appropriate information to customers when a problem occurs, have mechanisms for handling returns, and provide online guarantees.
- *Compensation*: The degree to which the site compensates customers for problems
- *Contact*: The availability of assistance through telephone or online representatives

Using rigorous empirical testing, e-service quality scales have been established by many academic researchers, and one of these is WEBQUAL, which is another instrument for consumer evaluation of websites. It is a highly validated instrument that can provide both wide and fine-grained measurements of organization websites (Loiacono et al., 2007). This model was developed based on the “Theory of Reasoned Action and Technology Acceptance Model” and includes 12 dimensions:

- *Information fit-to-task*: Includes appropriateness of information, quality of information, and presentation of information.
- *Interactivity*: The extent to which website users can communicate with the people behind the website, interactively search for information, and conduct transactions through the website.
- *Trust*: Maintaining the privacy of information provided by the website users.
- *Response time*: The time it takes for the Web page to load in a user’s browser and also the time required to complete subsequent transactions.
- *Design appeal*: The aesthetics of the website, including information organization and navigability.
- *Intuitiveness*: The ability of site users to grasp easily how to move around the website.
- *Visual appeal*: refers to the presentation of graphics and text on the site.
- *Innovativeness*: The “aha” (surprise) element associated with the website, including its creativity and uniqueness.

- *Emotional appeal*: The use of the site results in an enjoyable and engrossing experience for the users.
- *Integrated communication*: The seamlessness of communicating with retailers through multiple channels.
- *Business process*: the complementarity of the Web strategy with the general business strategy.
- *Substitutability*: The effectiveness of website interaction compared to other means such as physical stores.

Overall, evaluating websites based on the dimensions of WEBQUAL could be helpful for website designers to create websites that address the interaction perception of the users. The scale is therefore more pertinent to interface design rather than service quality measurement (Zeithaml et al., 2002). This problem has also been realized by Parasuraman et al. (2005) when they argued that although some factors in the WEBQUAL scale might affect perceived service quality, other dimensions such as innovativeness, business process, and substitutability are at best tangential to it. Moreover, the customer service dimension was eliminated from the WEBQUAL scale for various methodological reasons, and the fulfillment dimension was also excluded. Therefore this model cannot fully evaluate the quality of e-service (Parasuraman et al., 2005; Zeithaml et al., 2002).

SERVQUAL	WEBQUAL	E-S-QUAL	
Tangibles	Information fit-to-task	E-S-QUAL	Efficiency
	Interactivity		Fulfillment
Reliability	Trust		System availability
Responsiveness	Response time		Privacy
	Design appeal		
	Intuitiveness	E-Rec-QUAL	Responsiveness
Assurance	Visual appeal		
	Innovativeness		
Empathy	Emotional appeal		Compensation
	Integrated communication		
	Business process		Contact
	Substitutability		

Figure 3: Comparison of factors of several e-service quality models

In addition, a nine-item SITEQUAL scale has been developed by Yoo et al. (2001) for measuring four dimensions of site quality: ease of use, aesthetic design, processing speed, and security. However, SITEQUAL has the same problems as WEBQUAL since it does not capture all aspects of the purchasing process and therefore does not constitute a comprehensive assessment of a site's service quality (Parasuraman et al., 2005).

Besides the three models above, there are many other ways to evaluate the quality of services depending on the approach of each researcher. Studying factors identified by different authors could bring about a more comprehensive understanding of e-service quality. Liu et al. (2009) related service quality to user satisfaction by emphasizing four factors: *usability*, *privacy* and *security*, *adequacy of information* and *appearance*. They argued that it is different from service quality of business portals, in which items such as up-to-date information, complete product description, valuable tips on products, and detailed contact information had been found to be important. Zhang et al. (2006) found that *user satisfaction* with e-services is correlated with *perceived convenience*, *users' skills* and *experiences*, and *perceived security* when examining factors affecting user satisfaction with e-services. As stated by Santos (2003), e-service quality

consists of two dimensions: incubative dimension and active dimension. The incubative dimension is defined as “...*the proper design of a website, how technology is used to provide consumers with easy access, understanding and attractions of a website*” (p238), including five sub-dimensions: ease of use, appearance, linkage, structure and layout, and content. The active dimension is described as “...*the good support, fast speed, and attentive maintenance that a website can provide to its customers*” (p241). It consists of reliability, efficiency, support, communications, security, and incentives.

The factors that determine the quality of e-service not only depend on the method of researchers, but also depend on the environment in which these services are applied. Examining the quality of osteoporosis websites for patients, Lewiecki et al. (2006) identified six dimensions: content, credibility, navigability, currency, and readability. In the online banking environment, Jun and Cai (2001) derived a total of 17 dimensions of Internet banking service quality, which are classified into three broad categories: customer service quality, banking service quality and online systems quality. By studying online and offline focus groups, Wolfinbarger and Gilly (2003) developed the eTailQ model that consists of 14 items containing four factors: website design, reliability/fulfillment, privacy/security and customer service, with the aim of creating a scale to measure customer perceptions of e-tailing (the Internet version of retailing) quality.

In conclusion, various researchers have identified and analyzed many different factors that can influence on the quality of e-service. Each author or group of authors identified different factors depending on their points of view as well as the specific context. These factors have also changed over time due to the further development of information technology, and the changing requirements of users. As a result, Santos (2003) affirmed that there is no detailed framework in the literature that provides a comprehensive understanding of the determinants of e-service quality. The summary of the dimensions that have appeared in all articles is presented in Appendix A.

4.3. E-recruitment literature

E-recruitment is considered to be the process of recruiting through commercial job sites or company that promotes employment opportunities and retrieves potential employee information

(Lin and Stasinskaya, 2002). E-recruiting methods can be carried out through web-based technologies, which help recruiters and job applicants to conduct their tasks more efficiently and effectively (Furtmueller et al., 2010; Lee, 2011). The increasing use of online recruiting has not only changed the way companies recruit employees and the way job seekers search for jobs, it has also impacted both parties in other ways.

Maurer and Liu (2007) defined the virtual recruiting environment as “... *the online environment that allows companies and potential job applicants to interact with each other*” (p306). Based on the advantages of online recruiting sources, that they offer a vast number of interactive and informational design options, these authors emphasize information content, vividness, and interactivity as three main factors of effectiveness of recruiting websites. The first factor, information content, refers to the amount and quality of the actual content of information presented to recruiters and job seekers. Interactivity is defined as employers and applicants’ ability to respond to each other and exchange information in a synchronized environment. Finally, the vividness factor refers to the degree to which the employer’s website provides rich sensory information. Rozelle and Landis (2002) had another idea when examining the relationship between use of Internet as a recruitment source and student attitudes. They argued that greater applicant use of Internet-based recruitment information was expected to be associated with lower satisfaction with an organization.

Thompson et al. (2008) indicated that although both the formatting attractiveness and usability of online recruitment materials influenced applicants’ pursuit of jobs, formatting was more important than usability. Sylva and Mol (2009) found that features of the website, perceived efficiency and user-friendliness were by far the most important determinants of applicant satisfaction. In contrast, according to Lee (2011) security and privacy are major concerns for online job applicants.

Parry and Tyson (2008) carried out surveys and interviews to investigate the usage and perceived success of recruiting websites. According to these researchers, the most common reasons organizations used recruiting websites were cost effectiveness, followed by the ease of use for candidates, a larger candidate pool, ease of use for the organization, speed to hire and company policy. Moreover, the study pointed out that the reasons that recruiters stop using online

recruitment methods are the large number of responses from unsuitable applicants and a low response or no response at all to advertisements on commercial job boards. The lack of budget and poor customer support also are reasons leading to the discontinued use of using recruiting websites.

Lee et al. (2008) applied the SERVQUAL model of e-service quality to evaluate job applicants' perceptions. Their study revealed that job applicant behavior was affected by a larger set of factors than just perceived ease of use and perceived usefulness. They suggested that enjoyment may be one of the most important factors affecting job applicant behavior on recruitment websites. However, they found no relationship between perceived enjoyment attitude and intention to use. Thompson et al. (2008) indicated that factors of website design such as web formatting and usability can influence on prospective job seekers when examining the attractiveness of organizations. As stated by these authors, attractive formatting may be achieved via fonts, colors and layouts, which are preferred to low-quality sites with limited black and white text in a traditional read-only format. They also found that ease of use or easy navigation enhances website appeal and facilitates the recruiting processes. Similarly, Cober et al. (2004) demonstrated that two critical components of recruitment websites are aesthetics and playfulness. The former provides job seekers with vivid experiences and influences the job-pursuit decisions and the latter provides entertainment to users. They also described the positive relationship between website usability and user's behavior.

Puck et al. (2006) researching corporate website recruiting showed that recruiting is the combination of personnel pooling and personnel selection, with the purpose of obtaining and selecting an adequate number of applicants with necessary qualifications. For personnel pooling, the quality of information, the creation of interest, and ease of use are the factors of websites that are need to fulfill the recruiters' and applicants' needs. For personnel selection, they argued that corporate website recruiting will not take over the complete selection process because neither the company nor the job applicant can post sufficient amount of information on the website. Tong et al., (2005) focused on system qualities such as performance time, and maintained that should be considered for every step of the online job seeking process on recruitment websites.

Similar to the current situation with e-service quality models, there is currently no standard model to measure the quality of e-recruitment websites. Several researchers have analyzed applicant and recruiter satisfaction to evaluate the success of online recruiting methods, while others have focused on website characteristics. A summary of these factors of e-service quality found in e-recruitment articles can be found in Appendix B. See also Wolfswinkel et al. (2010) for analyses of the e-recruiting literature.

5. Factors involved in e-service quality of recruitment websites

5.1. Proposed quality factors of recruitment websites

After reviewing literature on e-service quality and e-recruitment, there are numerous quality factors of websites that can be discussed in relation to career sites. Cristobal et al. (2007) have conducted a similar review, however their study has its focus on e-retailing. They studied perceived e-service quality factors of e-retailing sites and provided an overview of major findings of 11 related publications in the field and derived a multidimensional model of perceived value. They recognized that besides having a strong focus on retailing, the available service quality literature is mostly focused on web design aspects and barely takes into account underlying reasons for certain e-service quality factors and the impact of these factors. The same applies to most of the e-recruitment literature that reviews website design aspects (Thompson et al., 2008), usability of e-recruiting sites (Braddy et al., 2008; Cober et al., 2004), the applicants' perspectives (Lee et al., 2008; Rozelle and Landis., 2002; Sylva and Mol., 1998), organizations' perspectives (Braddy et al., 2008; Turban, 1998) or recruiters' perspective (Bretz, 1993; Cole et al., 2007; Maurer and Liu., 2007). None of these examples present a grounded model for e-service quality concepts of career sites.

In this research, the factors of recruiting websites related to recruiters' and applicants' needs were identified using a multiple-step process. First, the factors identified by e-recruitment researchers were summarized. The result of this summarization presented in Table 1 showed that there were not many overlapping factors. Table 1 also demonstrates that several authors merely focus on particular factors such as usability, design and skip other ones. To ensure that no

important factors of e-recruitment websites were missed, we also summarized factors identified by e-service quality literature, as shown in Table 2.

Year	Author(s)	Context	Method	Subjects	Factors
2009	Parry and Wilson	E-recruitment	Survey		Compatibility, positive belief
2009	Sylva and Mol	E-recruitment	Survey	1360 applicants	Perceived efficiency, user-friendliness
2008	Braddy et al.	Online recruiting	Survey	217 students	Organizational familiarity, website usability, website attractiveness
2008	Goldberg and Allen	Recruitment websites	Survey	816 participants	Ease of use, usefulness, design.
2008	Braddy et al.	E-recruitment	Survey	175 students	Navigational ease, text formatting.
2008	In Lee et al.	Corporate career websites	Survey	233 respondents	Ease of use, perceived enjoyment, empathy, responsiveness, reliability, perceived usefulness.
2008	Thompson et al.	E-recruitment	Experimental design	182 participants	Website formatting, usability.
2007	Allen et al.	E-recruitment	Survey	814 students	Job information, organization information, organization familiarity, organization image.
2007	Maurer and Liu	E-recruiting websites	Explanatory research		Message content, interactivity, vividness
2006	Stone et al.	E-human resource systems	Explanatory research		Information flows, social interactions, perceived control, system acceptance
2005	Terzis and Economides	E-recruitment		6 job sites	Technical, interface, reliability, credibility, communications, security/privacy, usability, navigation, ease of use, social.
2005	Tong et al.	Online recruitment websites	Experimental design	100 students	Reliability, responsiveness, flexibility, ease of navigation, efficiency, assurance/trust, security/privacy, site aesthetics, customization./personalization.
2004	Cober et al.	E-recruitment	Explanatory research		Aesthetics, playfulness.
2003	Williamson et al. (2003)	E-recruitment	Survey	252 students	Usability, ease of use, content usefulness, organizational attractiveness.
2002	Lin and Stasinskaya	E-recruitment	Explanatory research		Data quality, privacy.
2002	Koong et al.	Internet Job Board	Exploratory research	5 major Internet Job Board	Information, appearance, usability, privacy, communication, etc.

Table 1: Summary of factors from e-recruitment literature

Year	Author(s)	Context	Method	Subjects	Factors
2010	Tsang et al.	E-service quality	Survey	266 respondents	Website functionality, information quality and content, safety and security, customer relationship.
2010	Ladhari	E-service quality	Explanatory research	Literature on e-service quality measurement models	Reliability/fulfillment, responsiveness, ease of use/usability, privacy/security, web design, information/benefit.
2010	Udo et al.	Web service	Survey	211 senior business	Perceived risk, website content, web service convenience, PC skills.

		quality		administration students	
2009	Liu et al.	General portal		380 responses	Usability, privacy and security, adequacy of information, appearance
2007	Ahn et al.	Online retailing	Survey	942 users	Perceived ease of use, playfulness, usefulness.
2007	Loiacono	E-service quality	Exploratory research	80 students	Information fit-to-task, tailored information, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, emotional appeal, consistent image, online completeness, relative advantage
2007	Hwang and Kim	Perceived web quality	Survey	325 students	Enjoyment, anxiety, integrity, benevolence, ability.
2006	Bauer et al.	E-service quality	Survey	384 responses	Responsiveness, reliability, process, functionality/design, enjoyment
2006	Zhang et al.	E-service satisfaction	Survey	704 responses	Perceived convenience, perceived security, user computer skills & Internet experiences.
2005	Yang et al.	Web portals	Survey	300 users	Usefulness of content, adequacy of information, usability, accessibility, privacy/security, interaction.
2005	Parasuraman et al. (2005)	E-service quality	Survey	549 responses	Efficiency, fulfillment, system availability, privacy, responsiveness, compensation, contact.
2004	Constantinides	E-service quality	Literature review		Usability, interactivity, online trust, aesthetics.
2004	Kim and Stoel	Website quality	Survey	273 US female online shoppers	Web appearance, information fit-to-task, transaction capability, response time, trust.
2003	Wolfenbarger and Gilly	Etail service quality	Survey	9 focus groups	Fulfillment/reliability, website design, privacy/security, customer service.
2003	Santos	E-service quality	Exploratory research	30 focus groups	Incubative dimension: ease of use, appearance, linkage, structure and layout, content Active dimensions: reliability, efficiency, support, communication, security, Incentive.
2002	Aladwani and Palvia	E-service quality	Survey	104 web users	Specific content, content quality, appearance, technical adequacy.
2001	Cox and Dale	E-service quality	Literature review		Accessibility, communication, credibility, understanding, appearance, etc.
2001	Van Riel et al.	E-service quality	Survey	52 respondents	Core service, supporting services, user interface
2001	Jun and Cai	Internet banking service quality	Literature review		Reliability, responsiveness, competence, courtesy, credibility, access, communication, understand the customer, collaboration, continuous improvement, contents, accuracy, ease of use, timeless, aesthetics, security
2000	Liu and Arnett	Website quality	Survey	Fortune 1000 companies' websites	Information quality, learning capability, playfulness, system quality, system use, service quality.

Table 2: Summary of factors from e-service quality literature

In the next step, the identified factors were classified into several categories. Factors with the same name or features were located in the same category. When a factor from either the e-

service quality or the e-recruiting literature did not directly correspond to a factor from the other field, it was disregarded for the time being. Moreover, since factors related to website characteristic were investigated, other factors outside of this scope, for instance, factors belonging to recruiters and applicants such as IT skills, Intention to use, etc, were removed. Result of classification process left us with seven categories.

Quality of information	Adequacy of information	Ahn et al. (2007); Liu et al. (2009)
	Website content	Santos (2003); Maurer and Liu (2007); Udo et al. (2010)
	Information fit-to-task	Kim and Stoel (2004); Loiacono (2007)
	Information	Koong et al. (2002); Allen et al. (2007); Ladhari (2010);
	Information quality	Liu and Arnett (2000); Lee and Kozar (2006); Tsang et al. (2010)
	Information accuracy	Jun and Cai (2001); Collier and Bienstock (2006);
	Content quality	Aladwani (2002)
	Usefulness of content	Williamson et al. (2003); Ahn et al. (2007)
	Information flows	Stone et al. (2006)
	Data quality	Lin and Stasinskaya (2002)
Security/ Privacy	Security/Privacy	Wolfenbarger and Gilly (2003); Yang et al. (2005); Terzis and Economides (2005); Tong et al. (2005); Li et al. (2009); Ladhari (2010)
	Security	Jun and Cai (2001); Santos (2003); Zhang et al. (2006)
	Privacy	Lin and Stasinskaya (2002); Koong et al. (2002); Parasuraman et al. (2005); Collier and Bienstock (2006)
	Safety and security	Tsang et al. (2010)
Web design	Appearance	Cox and Dale (2001); Aladwani and Palvia (2002); Santos (2003); Kim and Stoel (2004); Koong et al. (2008); Liu et al. (2009)
	Web design	Wolfenbarger and Gilly (2003); Baurer et al. (2006); Collier and Bienstock (2006); Goldberg and Allen (2008); Ladhari (2010)
	Aesthetics	Jun and Cai (2001); Cober et al. (2004); Constantinides (2004); Tong et al. (2005)
	Visual appeal	Loiacono (2007)
	Website formatting	Thompson et al. (2008); Braddy et al. (2008)
	Vividness	Maurer and Liu (2007)
	Structure and layout	Santos (2003)
Usability	Ease of use	Jun and Cai (2001); Williamson et al. (2003); Terzis and Economides (2005); Collier and Bienstock (2006); Ahn et al. (2007); Lee et al. (2008); Goldberg and Allen (2008); Ladhari (2010)
	Usefulness	Ahn et al. (2007); Lee et al. (2008); Goldberg and Allen (2008)
	Usability	Koong et al. (2002); Williamson et al. (2003); Constantinides (2004); Terzis and Economides (2005); Yang et al (2005); Thompson et al. (2008); Braddy et al (2008); Liu et al. (2009); Ladhari (2010)
	Convenience	Zhang et al. (2006); Udo et al. (2010)
	Functionally	Bauer et al. (2006); Collier and Bienstock (2006); Tsang et al. (2010)
	Ease of navigation	Tong et al. (2005); Terzis and Economides (2005); Braddy et al. (2008)
	User-friendliness	Sylva and Mol (2009)
Entertainment	Enjoyment	Bauer et al. (2006); Hwang and Kim (2007); Lee et al. (2008)
	Playfulness	Liu and Arnett (2000); Cober et al (2004); Ahn et al. (2007)
System	Response time	Kim and Stoel (2004); Loiacono (2007)

quality	Efficiency	Santos (2003); Parasuraman et al. (2005); Tong et al. (2005)
	System quality	Liu and Arnett (2000); Lee and Kozar (2006)
	Technical adequacy	Aladwani and Palvia (2002)
	System acceptance	Stone et al. (2006)
	System availability	Parasuraman et al. (2005)
	Responsiveness	Jun and Cai (2001); Tong et al. (2005); Lee et al. (2008); Ladhari (2010)
	Reliability	Jun and Cai (2001); Santos (2003); Tong et al. (2005); Terzis and Economides (2005); Lee et al. (2008); Ladhari (2010)
	Access	Jun and Cai (2001); Cox and Dale (2001)
Customer service	Communication	Jun and Cai (2001); Cox and Dale (2001); Santos (2003); Parasuraman et al. (2005); Terzis and Economides (2005);
	Support	Santos (2003)
	Service quality	Liu and Arnett (2000)
	Customer service	Wolfenbarger and Gilly (2003), Tsang et al. (2010)

Table 3: Classification of identified factors

Once all aspects from both literatures were examined, the remaining factors were reviewed in more depth. Taking into account the knowledge gathered from analyzing the literature and discussion among involved researchers, each remaining factor was evaluated once more. At this stage, we decided whether an emerging factor might be an essential e-service quality factor on recruiting sites, even if it was not previously discussed in the studied e-recruiting literature. If this was indeed the case the factor was added to the final selection of proposed factors.

Based on seven categories, we proposed seven main factors that emerged as important to maintain high levels of service quality on e-recruiting sites:

1. Quality of information
2. Security/Privacy
3. Website design
4. Usability
5. Enjoyment/entertainment
6. System quality
7. Customer service

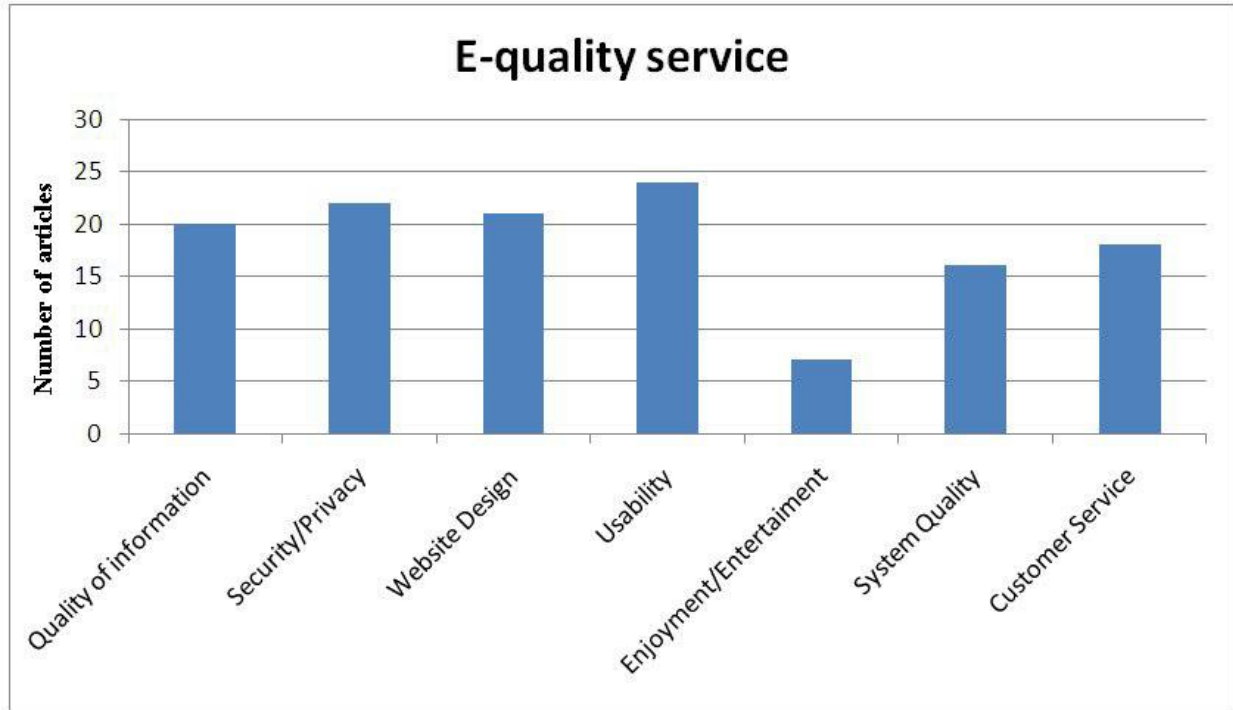


Figure 4: Seven factors reviewed in e-service quality literature

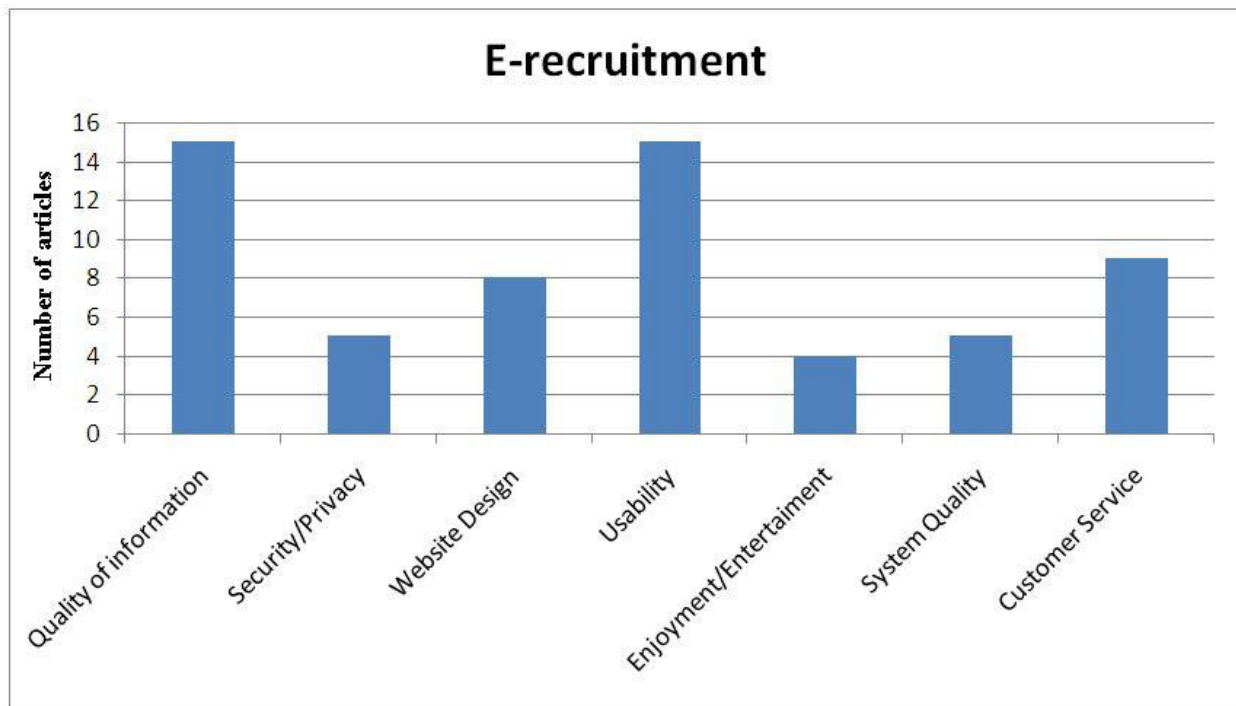


Figure 5: Seven factors reviewed in e-recruitment literature

An overview of authors and their corresponding references to the resulting factors can be found in Appendix C. Figure 4 illustrates the number of e-quality service papers that reference the different factors, and Figure 5 depicts the number of e-recruitment papers. In the next section, we continue by explaining these factors and elucidating why these factors are highly relevant.

5.2. Analyses of proposed factors

5.2.1. Quality of information

The first factor, quality of information received extant support in the entire body of selected literature. Twenty out of 27 papers in the e-service quality domain mentioned this concept, as well as fourteen out of 20 papers on the topic of e-recruitment. Different synonyms used were “quality of information”, “informational fit to task”, “information accuracy”, “content” and “completeness of information”, and in the field of retailing corresponding terms were found such as “product portfolio” and “price accuracy”.

One of the features differing from traditional recruiting methods is that traditional methods only contain a small number of jobs, while e-recruitment services can provide large numbers of job offerings. Therefore, major studies are likely to agree that quality of information is an important factor in evaluating e-recruiting services. The two main categories of information considered by applicants are job information and recruiter or organization information, while recruiters are concerned with the applicant’s profile and their skills.

Liu et al. (2009) suggested that adequacy of information was the most noteworthy element for customer satisfaction because when applicants and recruiters access a career site, they expect to gain unique and complete information and find links to other useful site. As stated by Rozelle and Landis (2002), accurate and complete information significantly and directly relate to met expectations, commitment, and role clarity. Therefore, applicants possibly gained an accurate picture of what a job entailed (i.e., the good and bad aspects of the job). Derous (2007) conducted comprehensive research wherein he concluded that applicants’ and recruiters’ perceptions in personnel selection processes do not correspond. Correct and adequate information could help to avoid this problem.

Correct information regarding the person-organizational fit, that is, information about culture within a company was of such importance that Dineen et al. (2002) conclude with the note that *“the fit test should be on each employer’s website along with their values”*, indicating the importance of quality information.

Factor	Year	Author(s)	
Quality of information	2010	Udo et al.	Recruiter and applicant satisfaction is in part determined by service quality, which in turn depends partly on website content. Website content has a significant positive influence on how recruiters and applicants perceive web service quality (p489).
	2010	Ladhari	Information quality/benefit, refers to the adequacy and accuracy of the information recruiters and applicants get when visiting a recruiting website (p473).
	2009	Liu et al.	Information quality and quantity play important roles in Internet portals. Adequacy of information was the most important part of service quality and most noteworthy for customer satisfaction. Thus, when a user accesses either portal, he or she expects to gain unique and complete information and find links to other useful sites (p56).
	2008	Lee et al.	When job applicants subscribe to a job agent service, they expect the career website to do what it was asked to do (p323).
	2008	Braddy et al.	Job seekers are often limited in their knowledge about a potential hiring organization. Thus any information that a job seeker views will guide his or her impressions of the hiring organization. (p2993).
	2007	Maurer and Liu	The quantity and quality of information contained in marketing messages influences consumer brand evaluation and decision-making quality (p310). Applicants who tend to lack the ability or desire to cognitively process complex information may prefer a less rich environment that contains basic job information about factors.
	2007	Cole et al.	Recruiters use resume information to draw conclusions about applicants’ abilities, motivation, personality, and job fit. Thus, the presence or absence of information, regardless of its relation to actual skills or abilities, may weigh heavily in a recruiter’s overall assessment of employability (p322).
	2007	Cristobal	A large amount of freely available information is frequently mentioned by consumers as an important reason to purchase on the Internet (p322).
	2006	Puck et al.	The objective of information is to fulfill the applicants’ information needs (p184).
	2006	Lee and Kozar	The higher the quality of the website information, the more online customers would select that website for online shopping (p1388).
	2006	Collier and Bienstock	<i>Information accuracy</i> presents information about a product or service in a clear and concise manner (p264).
	2004	Kim and Stoel	Providing adequate information to support a recruiter and applicant’s task (p114).
	2004	Cober et al.	The amount of information job seekers possess relates positively to applicant attraction (p635).
	2003	Santos	Respondents advised that websites should “provide lots of details information” and that they should “use simple words and phrase ... very easy to understand” (p240).

	2002	Zeithml et al.	Online buyers perceive a benefit in obtaining information directly from a site rather than having to go through salespeople in an offline store (p363). The ability to search price and quality information increases satisfaction with both the experience and product purchased and improves intentions to revisit and repurchase from a website (p363).
	2000	Liu et al.	Information quality is directly related to website success (p24).

Table 4: Summary of the findings related to the quality of information factor from the analyzed literature

Compared to traditional recruitment such as newspaper advertising, web-based recruitment enables companies to provide far more information to potential applicants through interactive and multimedia capabilities of the Internet. Therefore accurate information when a job advertisement uses multimedia will allow for meeting the individual applicant's information need more efficiently (Puck et al., 2006). Additionally, when recruiters provide accurate information about the job and the organizations, applicants will have more positive perceptions of the job attributes (assuming the information is positive) and therefore more attraction to the firm (Parry and Tyson, 2008). Similarly, the amount of information job seekers possess relates positively to applicant attraction (Cober et al., 2004). Job seekers are likely often limited in their knowledge about a potential hiring organization. Therefore, any information that a job seeker views will guide his or her impressions of the hiring organization (Braddy et al., 2008).

Up-to-date information also is an important element of evaluating quality of information. In the competitive labor market, new information about jobs and organizations may increase opportunities for applicants to find appropriate jobs. Meanwhile, because applicants change their curriculum vitae (CV) frequently, up-to-date information ensures that recruiters to receive the newest information on applicants to enable accurate evaluation for selection processes. According to Parry and Tyson (2008), candidates' data could be captured automatically and kept by the organization as a kind of "talent pool", facilitating the searching processes.

It seems that several papers that did not explicitly include quality of information as a determinant for e-service quality and often simply looked at specific factors, as is the case in Holloway and Beatty (2008) where satisfiers and dissatisfiers in the online environment were studied. Also some studies were aimed at a specific niche market where other factors are of greater value, e.g.,

security in the case of online banking (Yu, 2008). Parry and Tyson (2008) indicated that low quality of information could be a problem for e-recruitment. Their research demonstrated that 59% of recruiters in the survey stopped using recruiting websites because of the large amount of information from unsuitable applicants. More information seems not always to be better, and the main task of a recruiting manager is determining the proper balance of website information to be provided (Maurer and Liu, 2007).

In conclusion, quality of information is positively correlated to applicants and recruiters satisfaction. Recruiting websites with high quality information may attract more job seekers and recruiters to their services.

5.2.2. Security/Privacy

The security/privacy factor was discussed in twenty-two out of 27 papers in the shortlisted e-service quality literature. Factors that were combined from previous studies to derive this factor are “security”, “trust”, “risk”, “system integrity”, “assurance” and “privacy”.

Despite the obvious relevance of this aspect in the e-service quality literature, in four papers in the recruitment literature this aspect was not explicitly mentioned. Although the recruitment literature in this paper’s sample includes several papers on e-recruitment, they seemed to not look at the internal workings of such systems but merely examine what the users can see and do on these services at the frontend. This seems logical because papers on e-recruitment are mostly published in fields such as human resource, psychology, management and marketing fields rather than in fields that study data security and privacy, like computer science and information systems. The factor “security/privacy” has a technical aspect and is important for maintaining high service levels on e-recruiting sites.

Web-based recruitment requires both applicants and recruiters to provide private information, such as personal data, CV, information on companies, etc. Some of this information is sensitive and may influence the decisions of applicants and recruiters. Privacy and security are apparently major concerns of general portal users (Liu et al., 2009). Not surprisingly, when employees look for new jobs, they do not want their boss to be able to easily find their profiles posted on resume databases and require privacy for their personal data. End users of e-recruiting services therefore

require ‘trust’ in the system with regard to privacy. Next to the technical implications of security, such as proper coding and use of secure databases, data transfers and data access, the system should provide the user with a sense of privacy. A concrete example of this aspect would be the ability for users to post their resume anonymously, and possibly apply for an opening without directly revealing their identity. Derous (2007) identified the need of applicants as well as of recruiters to have a strong impression of objectivity with regard to the selection process. This may imply the need for privacy in the system.

Factor	Year	Author(s)	
Security\Privacy	2010	Udo et al.	The security of a website is no longer a strategic feature but rather a basic necessity which the recruiter and applicant are now taking for granted (p490).
	2009	Liu et al	Privacy and security are apparently major concerns of general portal users (p56).
	2008	Lee et al.	Since job applicants need to provide personal information as a part of the job application, the assurance dimension could be very important for the success of the e-recruiting (p324).
	2007	Heim and Field	Privacy policies and processes that protect customers’ personal privacy should increase privacy experience ratings, while privacy policies allowing retailers to sell or share personal customer information should tend to decrease customer ratings (p979).
	2007	Cristobal et al	The lack of confidence motivated by the absence of security and privacy in the online environment is one of the main obstacles to e-commerce development (p323).
	2006	Zhang et al.	When a recruiter or applicant is required to provide personal or financial information online, security concerns naturally arise, and these concerns have generally retarded the growth of e-services and e-commerce (p283).
	2006	Collier and Bienstock	The construct of <i>privacy</i> refers to companies not sharing information with third parties unless the customer gives permission. It also includes the security of sensitive information between the customer and the company. In addition, this includes providing visual symbols so customers know a secure connection is being achieved (p264).
	2006	Bauer et al.	Prices, reputation of the provider, order delivery time, etc. are all assessed by navigating through the website content in order to structure the purchase decision (p868).
	2005	Parasuraman et al.	<i>Privacy</i> : The degree to which the site is safe and protects recruiter and applicant information (p220).
	2003	Wolfenbarger and Gilly	<i>Security/privacy</i> is security of credit card payments and privacy of shared information (p193).
	2003	Santos	Security refers to freedom from danger, risk, or doubt (including financial insecurity) during the service process (p242).
	2002	Zeithaml et al.	Privacy involves the protection of personal information. Security involves protecting users from the risk of fraud and financial loss from the use of their credit card or other financial information (p364).

Table 5: Summary of the findings related to the security/privacy factor from the analyzed literature

Recruiters commonly have to pay fees for permission to use e-recruiting services. Contrary to recruiters, applicants can normally join to the website for free. However, numerous websites also offer advanced services such as advanced search engines, notices of new job information, etc., for which users are charged to access. As a result, there are significant online transactions that are carried out on the website. Therefore, security problems need to be considered to ensure the success of these transactions, and the security issues could impact the attraction and retention of applicants and recruiters.

Some other researchers considered “assurance” to fall within factor of security by arguing that job applicants need to provide personal information as a part of job application, and the assurance that website is secure could be very important for the adoption of the e-recruitment website by the job applicants. Assurance will help applicants have confidence that the website is secure and that it protects job applicants’ privacy (Lee et al., 2008).

5.2.3. Website design

Website design was discussed in twenty-one out of 27 e-service quality papers. In the recruitment literature, eight out of 20 articles mention web design. Appearance was categorized in the literature based on terms such as “appearance”, “graphic quality”, “design appeal”, “user interface”, “graphics”, “website appearance”, “website design”, “aesthetic”.

It seems obvious that the appearance of a website is of critical importance. With the growing number of online services options, not only does a website require proper content and accurate information (high information quality) but also a suitable layout. Having a graphically well-designed website has been found to attract potential customers and makes working with the site more pleasant.

Appearance is usually the first element observed by web users (Santos, 2003), and is defined as the proper use of color, graphics, images, animations, text, format, sound and layout (Collier and Bienstock, 2006; Santos, 2003; Zeithaml et al., 2002). Design plays a critical role in attracting candidates in the electronic recruitment process and can also impacts on the first impression of

applicants or recruiters when they visit these websites. Appearance is positively related to applicants' attraction to organizations and their intentions to apply for positions with the hiring companies. Applicants are more likely to apply to companies that maintain appealing recruitment websites (Thompson et al., 2008). Furthermore, Cober et al. (2004) indicated that website aesthetics, in particular, provide job seekers with "vivid experiences" and have been found to account for a large proportion of the variance in the initial impressions formed toward a website and appear to influence the job-pursuit decisions of applicants. A "vivid" recruiting method may also increase job search effectiveness by affecting the candidate's ability to recall important information about job openings (Maurer and Liu, 2007).

Factor	Year	Author(s)	
Website design	2010	Ladhari	Web design, refers to a esthetics features and content as well as structure of online catalogues (p473).
	2009	Liu et al.	Appearance was found to be a critical factor of service quality for general portals (p56).
	2008	Thompson et al.	Organizational home pages should be designed with potential recruits in mind (p2386) Moderate-quality sites with engaging fonts, colors, and layouts were preferred to low-quality sites with limited black and white text in a traditional paragraph format (p2386).
	2008	Lee et al.	The visually appealing layout of the site may draw more attention from the job applicants (p323). Website appeal was positively related to participants' ratings of their attraction to organizations and their intentions to apply for positions with the hiring companies that maintain appealing recruitment websites (p2995).
	2007	Maurer and Liu	More than 20% of job seekers have rejected job opportunities simply based on poorly designed websites (p306). Company-designed websites are so complicated that about three-quarters of all job seekers are unable to use them successfully (p306). Richer media that contain vivid persuasive information such as colorful images tend to have stronger effects on information recipient attitudes (p311).
	2006	Collier and Bienstock	<i>Design</i> is the visual appearance and audible applications of a site. This includes factors such as uses of color, animation, pictures, text, format, and sound (p264).
	2004	Kim and Stoel	Web appearance is the most dominant factor, accounting for the greatest proportion of individual differences in recruiter and applicant perceptions of the quality of recruiting websites.
	2004	Cober et al.	The appearance and presentation of a website are important determinants of the initial reactions, and subsequent attitudes and behaviors toward both the website and the organization it represents (p626). Website aesthetics, in particular, provide job seekers with vivid experiences and have been found to account for a large proportion of the variance in the initial impressions formed toward a website and appear to influence the job-pursuit decisions of college students (p627).

	2003	Wolfinbarger and Gilly	<i>Website design</i> includes all elements of the consumer's experience at the website (except for customer service), including navigation, information search, order processing, appropriate personalization and product selection.
	2003	Santos	Appearance is defined as the proper use of colour, graphics, images, and animations, together with appropriate size of Web pages (p239). Appearance is usually the first determinant observed by Web users (p239). Simple, clear, and consistent layout, good use of frame, provision of a site map that allows users to skip sections that are of no interest, a clearly listed menu, and the company logo being present on each page were recommended as e-service quality factors favored by focus group participants (p240).
	2002	Zeithaml et al.	Graphic style involves such issues as color, layout, print size and type, number of photographs and graphics, and animation (p364).

Table 6: Summary of the findings related to the website design factor from the analyzed literature

Parasuraman et al. (1988) reflect a similar view when they mention the tangibles dimension of the SERVQUAL model to evaluate e-service quality. In a traditional service context, tangibles can be considered to be the appearance of physical facilities, equipment, personnel, and communication material. However in the online recruiting environment, applicants and recruiters are concerned about the availability of information and services offering that appear on the website. Parasuraman et al. (1988) suggests that the visually appealing layout of a site may draw the attention of the job applicants. Cober et al. (2004) support this idea when investigating how organizational websites generate applicant interest. They suggest that the appearance and presentation of a website are important determinants of the initial reactions, and subsequent attitudes and behaviors toward both the website and the organization it represents. Maurer and Liu (2007) demonstrated that more than 20% of job seekers have rejected job opportunities simply based on poorly designed websites and three-quarters of all job seekers are unable to use recruiting websites successfully.

5.2.4. Usability

The second aspect of design concerns usability. The literature study showed that twenty-four out of 27 papers in the e-service quality sample and fifteen out of 20 studies in the recruitment sample indicated usability as an important aspect. It was referred with the terms: "usability", "functionality", "intuitiveness" (with regard to usage), "ease of use", "clarity of layout",

“structure”, “ease of navigation”, “customization / personalization”, “features” and “interactivity”. Combining these terms, we derived the service quality category *usability*. These terms cover a broad component of using information systems. One can, for instance, place the integration of a clear website menu in this category, as was shown to be important to users (Maurer and Liu, 2007), while also including the ability to modify your personal view and the use of interactive elements. All these instances relate to the functionality developers build into the e-recruiting system.

Usability factors should be taken into account at every level of website development, and should thus be looked at by the designer(s) and developer(s) of new systems. In addition, in a sophisticated development process feedback from end users will be carefully and continuously integrated.

Factor	Year	Author(s)	
Usability	2010	Udo et al.	Service convenience has a significant positive influence on how applicants and recruiters perceive web service quality (p489).
	2010	Ladhari	Ease of use/usability refers to user friendliness, especially with regard to searching for information. Ease of access to available information is an important reason for consumers choosing to purchase through the Internet (p473).
	2008	Thompson et al.	Organizations should therefore provide tools for easy navigation and allow direct access to the information the viewer wishes to see (p2386). People viewing easily navigated websites were more willing to apply for a job than were individuals using sites that were difficult to navigate (p2387).
	2008	Parry and Tyson	Successful organizations have also minimized the number of unsuitable applications by taking advantage of the ability to include vast amounts of information in different formats on their corporate recruitment websites.
	2008	Braddy et al.	The ease of navigation to a job advertisement on a company's website was positively related to general impressions of the hiring organization under investigation (p2994).
	2006	Puck et al.	Getting qualified people to apply, can only be reached if the personnel homepage is easy to use (p184).
	2006	Collier and Bienstock	Ease of use is the ability of a recruiter or applicant to find information or enact a transaction with the least possible amount of effort. (p264).
	2004	Cober et al	Usability is based on objective system features and initial affective reactions, such as the enjoyment derived from using a website (p631).
	2003	Williamson et al.	If users are satisfied with the usability of a site they are more likely to develop positive attributions about the organization sponsoring the site and the products offered by that organization (p246). Ease of use may be positively related to individuals'

			organizational attractiveness perceptions (p249).
	2003	Santos	Ease of use is defined as how easy the website is for customers to conduct external search in cyberspace and internal navigation and search within the website (p239). Ease of use was the most important determinant in the incubative dimension of e-service quality (p239).
	2003	Braddy et al.	Web page navigation and formatting can significantly influence applicants' assessments of organizational web pages (p377).
	2002	Zeithaml et al.	Internet-based transactions might seem complex and intimidating to many customers, it is reasonable to expect the ease of use (EOU) of websites to be an important determinant of perceived e-SQ (p363).
	2000	Liu et al.	Customers should be able to trust the system and use its on-line purchase capabilities. They should feel that the system is both under their control and easy to use (p25).

Table 7: Summary of the findings related to the usability factor from the analyzed literature

In general, usability refers to user friendliness, especially with regard to searching for information with the least possible amount of effort (Collier et al., 2006; Ladhari, 2010). Ease of access to available information is an important reason for applicants to look for jobs or recruiters to look for potential employees using the Internet. Puck et al. (2006) point out that in order to get qualified people to apply, e-recruiting websites can be built to encourage job applicants to access direct links from the company's home page to the web page where job offers are located. Moreover, a high level of usability may facilitate application processes. By using e-recruiting websites, job applicants can apply for a job directly by filling in information and then sending it to recruiters. Websites also use message boxes or email to ask recruiters or companies for more relevant information. Braddy et al. (2008) indicated that people viewing easy-to-navigate websites were more willing to apply for a job than were individuals using sites that were difficult to navigate.

When Feldman and Klaas (2002) asked job seekers for advice on how to make online recruiting more applicant friendly, two of the top suggestions focused on usability (i.e., improve procedures for submitting resumes and make website navigation more user friendly). Research conducted by Thompson et al. (2008) indicated that straightforward functionality is one of the factors that will enhance a website's appeal. Organization should provide tools for easy navigation and allow direct access to the information the viewers wish to see. Easy navigation will allow applicants and recruiters to acquire information and move logically from place to place. Moreover, Braddy

et al. (2003) showed that the ease of navigation to a job advertisement on a company's website was positively related to general impressions of the hiring organization. It also was associated with applicants' increased willingness to pursue a job with an organization and to recommend prospective employers to their friends (Cober et al., 2004).

5.2.5. Entertainment/Enjoyment

The factor of the model with the least support in the common literature is that of enjoyment and entertainment. In total it only received seven out of 27 references in e-service quality literature and four out of 20 papers of recruitment literature fit in this category. The reason it is included is due to a general problem career sites have to deal with: sustainability. Most applicants will only use career websites until they have found a job and from that point on barely visit again, or may even immediately delete their account. This implies that recruiting sites cannot rely on a stable user base. In order to overcome this challenge, ways need to be found for end users to find their way back to the same recruiting site when they apply for new jobs.

Factor	Year	Author(s)	
Entertainment	2007	Hwang and Kim	Perceived enjoyment is the extent to which the activity of using a computer system is perceived to be personally enjoyable in its own right, aside from the instrumental value of the technology (p750).
	2004	Kim and Stoel	It measured the extent to which the user perceived a website to be exciting, clever, imaginative, and interesting.
	2004	Cober et al.	Entertainment dimension correlated positively with participants' attitudes toward the website (p628).
	2003	Santos	Incentive is the encouragement given by Web providers to consumers to browse and use the website, including rewards for doing so (p242).
	2000	Liu and Arnett	The likelihood of a repeat visit to a website is enhanced when the visitors find the visit enjoyable (p24).

Table 8: Summary of the findings related to the entertainment factor from the analyzed literature

According to Kim and Stoel (2004), the enjoyment dimension refers the extent to which the user perceived a website to be exciting, clever, imaginative and interesting. The more enjoyable the visitors find a website, the more the number of revisits to that website increases (Hwang and Kim, 2007). The need for organizations find potential employees of organizations requires them to use web-based recruitment frequently. Entertainment feature of a website may be play an important role to encourage applicants and recruiters to revisit and approach services. Research

by Santos (2003) indicated that incentives and rewards also can encourage users to use the website. This can be applied to e-recruiting websites, and one possible application would be to provide priority status for applicants and recruiters. For example, recruiters who frequently use a recruiting website could receive application of potential applicants faster than others. For applicants, they could obtain job information that fits their skills as well as on information of organizations they are interested in from Web providers.

5.2.6. System quality

The literature has referred to system quality as “availability”, “performance”, “storage capacity”, “processing speed”, “responsiveness” (of the system), “response time”, “reliability”, “technical quality”, “access” (with regard to available time, etc).

This dimension partly relates to the dimension of security and trust. In the analyzed e-service quality literature, sixteen out of 27 papers named system quality as an important aspect. In the e-recruitment literature, only five out of 20 articles mentioned this dimension.

Once again, this can probably be related to the fact that the e-recruitment literature found in the research does not take into account the technical development and system demands as much as authors in the field of e-service quality do. Traditional recruitment literature was not focused on computer systems used in personnel selection processes. Also e-recruitment researchers have mainly come from the management fields and not computer science.

Factor	Year	Author(s)	
System quality	2010	Ladhari	Reliability/fulfillment refers to the performance of a promised service in an accurate and timely manner and to the delivery of intact and correct products (or services) at times convenient to customers (p473).
	2008	Lee	Speed in access and download appears to be of great importance to job applicants (p323).
	2006	Lee and Kozar	Recruiters and applicants dissatisfied with websites characterized by poor navigation, slowness, non-vividness, being unsecured, and with no personalized services are likely to leave the site even if the information provided by the website is of high quality (p1389).
	2005	Parasuraman et al.	<i>Efficiency</i> : The ease and speed of accessing and using the site. <i>Fulfillment</i> : The extent to which the site’s promises about order delivery and item availability are fulfilled. <i>System availability</i> : The correct technical functioning of the site. (p220).
	2005	Tong et al.	Slow speed is the number one complaint of web users.

			Longer performance time will result in lower service quality ratings.
	2004	Cober et al.	Job seekers' perceptions of the usability of a website will positively influence their website search behavior (p634).
	2004	Kim and Stoel	How quickly the website loads (p114).
	2003	Wolfenbarger and Gilly	<i>Fulfillment/reliability</i> is the accurate display and description of a product so that what customers receive is what they thought they ordered, and delivery of the right product within the time frame promised (p193).
	2003	Santos	Efficiency refers to the speed of downloading, search, and navigation (p241). Reliability refers to the ability to perform the promised service accurately and consistently, including frequency of updating the website, prompt reply to customer enquiries, and accuracy of online purchasing and billing (p241).
	2002	Zeithaml et al.	Reliability/fulfillment ratings were the strongest predictor of customer satisfaction and quality and the second strongest predictor of loyalty/ intentions to repurchase at a site (p364).
	2000	Liu and Arnett	A reliable system should have quick error recovery and ensure correct operation (p25).

Table 9: Summary of the findings related to the system quality factor from the analyzed literature

System quality can be analyzed through various processes that evaluate how quickly and accurately the website loads (Kim and Stoel, 2004; Ladhari, 2010; Santos, 2003). Ahn et al. (2005) pointed out that system quality has a positive impact on perceived ease of use and usefulness of website. In particular, two factors presented in various articles to measure system quality are efficiency and reliability. According to Parasuraman et al. (2005) and Santos (2003), efficiency refers to ease and speed of accessing the site, and the speed of downloading, search and navigation. Lee and Kozar (2006) demonstrated that users who are not satisfied with websites characterized by poor performance, slowness and being unsecured are likely to leave the site even if the information provided by the website is high quality. Reliability, in some papers equivalent with fulfillment, refers to the performance of a promised service in an accurate and timely manner and addresses if promises about order delivery and item availability are fulfilled (Ladhari, 2010; Parasuraman et al., 2005; Santos, 2003; Wolfenbarger and Gilly, 2003). Some papers mention response time as a factor influencing system quality. Research by Cober et al. (2004) concluded that a transition of 10 seconds is the approximate limit for keeping users' attention before they return to other tasks. As a result, this implies that the pages with faster retrieval times were rated as significantly more interesting than the slower web pages.

5.2.7. Customer service

Customer service was coded with the following terminology: “understanding”, “compensation”, “contact”, “communication”, “supporting services”, “responsibility”, “serviceability”, “empathy”, “credibility”, “fulfillment”, “service convenience”.

We once again found a strong difference between e-service quality and recruitment literature. In the analyzed e-service quality literature, eighteen out of 27 papers mention customer service, while in the e-recruitment literature only eight out of 20 papers acknowledge its importance.

In the e-service quality literature, not surprisingly, customer service is an important concept. In traditional recruitment literature, barely any notion of customer service is apparent: applicants either get accepted or rejected. Applicants do not pay for recruiters interviewing time and thus organizations only minimally offer some kind of customer oriented service. Providing ‘customer service’ in recruitment departments has thus not been prioritized in organizations.

Factor	Year	Author(s)	
Customer service	2010	Ladhari	Responsiveness refers to a willingness to help users, prompt responses to recruiters and applicants’ enquiries and problems and the availability of alternative communication channels (p473).
	2008	Lee et al.	While there is no human interaction between job applicants and corporate career websites, many websites provide features that can be personalized by the job applicants who submit a personal profile (p324).
	2007	Maurer and Liu	Highly interactive contacts with employers tend to increase applicant interest and avoid the discouraging effects of slow responses to job inquiries (p311).
	2007	Hu et al.	Providing real-time feedback to applicants is an important and valuable feature of Web-based recruitment that may be related to applicant attraction (p2511).
	2007	Heim and Field	Customer support processes can assist the customer while operating an e-service interface, as well as after a product has been purchased and delivered (p979).
	2007	Cristobal et al.	Consumers expect to be able to complete transactions correctly, to receive personalised attention, to have the product delivered on time, to have their emails answered quickly and to have access to information (p322).
	2006	Puck et al.	Some companies offer “culture-fit” tests on their homepage, which candidates can use to test whether they fit into the corporate culture (p184).
	2006	Lee and Kozar	To provide better service, retailers implement several service functions into the website such as 24_7 services, FAQs, online delivery tracking systems, and complaint management systems (1388).
	2005	Parasuraman et al.	<i>Responsiveness</i> : Effective handling of problems and returns through the site.

			<i>Compensation:</i> The degree to which the site compensates customers for problems. <i>Contact:</i> The availability of assistance through telephone or online representatives (p220).
	2003	Wolfinbarger and Gilly	<i>Customer service</i> is responsive, helpful, willing service that responds to customer inquiries quickly.
	2003	Santos	Support is constituted by the technical help, user guidelines, and personal advice available to customers from a website (p242). Communication is defined as keeping recruiters and applicants properly informed and communicating with them in language they can understand (p242).
	2000	Liu and Arnett	Management and Web designers should carefully consider how to arrange and present customer service opportunities. This care is necessary because of the lack of face-to-face contact on a website (p25).

Table 10: Summary of the findings related to the customer service factor from the analyzed literature

However, a career website does not merely have applicants as its users, but also recruiters. More often than not the applicants get to use the service for free while recruiters have to pay in order to place openings for jobs as well as to search through the posted resumes. Customer service can be defined as responsive, helpful, willing service that responds to customer inquiries quickly (Wolfinbarger and Gilly, 2003). In the e-recruiting context, this can include services offered by Web providers to create communication among recruiters and applicants. Because there are considerable communication channels between organizations and prospective applicants (e.g. Internet, newspapers, brochures), job seekers probably use more than just a recruitment website when investigating a particular job (Rozelle and Landis, 2002). Both recruiters and applicants expect to receive the support from the website to forge a connection with each other, therefore websites with high-quality customer services may be selected by users.

Since electronic recruiting makes it easier for an applicant to apply for a job, organizations can receive numerous applications within a very short period of time (Puck et al., 2006). In order to support recruiters, web providers could provide them some selection services that help to remove job applications that do not fit the requirements of company. For applicants, the most important information they expect to get when visiting a recruiting website is job information and information about the organizations that they are interested in. Web-based recruitment not only provides information from web pages, but also through some other manners that connect applicants and recruiters. These connections can be formed via various methods such as email,

telephone, helpdesk or chatting tools. These services allow applicants to maintain control over the online environment and the information they receive (Maurer and Liu, 2007). Moreover, highly interactive contacts with employers tend to increase applicant interest and avoid the discouraging effects of slow responses to job inquiries. Therefore, the role of customer service is also important to attract more recruiters and applicants to use recruiting websites.

Some authors argued that responsiveness is one of the aspects of career website important for supporting users. According to Ladhari (2010) and Parasuraman et al. (2005), responsiveness refers to a willingness to help users, prompt responses to customers' enquiries and problems and the availability of alternative communication channels. Furthermore, career websites can often be businesses on their own. These websites need not only to focus on the recruiting aspect but also must run a business that creates revenue, and hopefully creates a profit, by providing services to their customers. And these customers require customer services.

6. Discussion

In this paper, we analysed and discussed service quality factors on e-recruiting websites considering users of such sites: recruiters and applicants. The review of e-service quality and e-recruitment literature demonstrated that there is no detailed model for measuring the e-service quality on recruitment sites available in the literature. By reviewing and synthesizing the findings of different previous studies, our research tried to identify important factors of e-service quality that could be useful for further empirical researches to measure recruiters' and applicants' satisfaction with recruiting websites. We identified seven salient service quality factors: 1) quality of information, 2) security/privacy, 3) website design, 4) usability, 5) enjoyment/entertainment, 6) system quality, and 7) customer service.

The results of the literature analysis reveal that these factors are significantly related to recruiter and applicant satisfaction. Figure 6 presents the comparison of frequency for each factors identified in the e-service quality and e-recruitment studies.

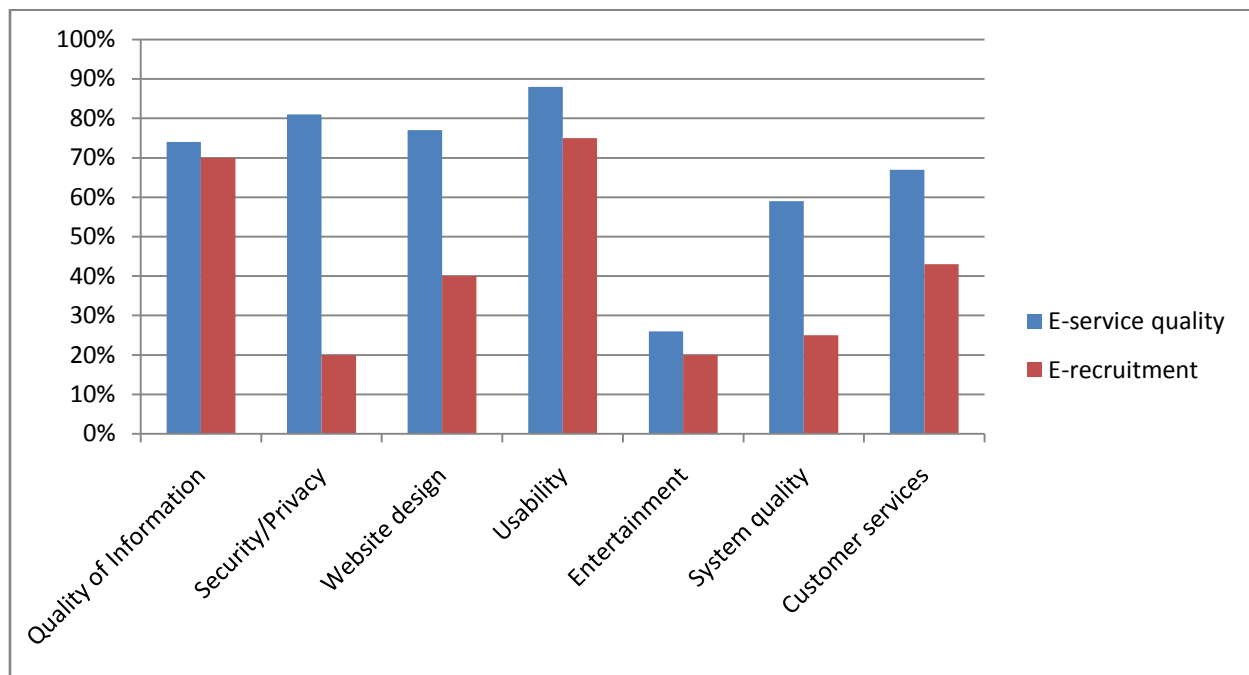


Figure 6: The comparison of the frequency that each factor appeared in e-service quality and e-recruitment literature

Website usability seems to be considered the factor most strongly associated with recruiter and applicant intention, appearing with the highest frequency in both e-service quality (88%) and e-recruitment literature (71%). This is consistent with previous studies which concluded that website usability is positively related to users' attraction (Braddy et al., 2008; Thompson et al., 2008). Liu et al. (2009) measuring how service quality was related to customers, found that usability contributed more significantly to service quality than did appearance and security/privacy. Typically, both recruiters and applicants have to carry out many tasks when using recruitment websites. Applicants might search for job information or organizational information; create, modify or update a CV or contact recruiters, etc.; recruiters post job information, select potential candidates. Favorable usability, ease of use and ease of navigation improve the general impressions of recruiters (Braddy et al., 2003) and applicant's willingness to pursue a job (Cober et al., 2003).

Similar to usability, the information quality factor is discussed in a large percentage of the reviewed articles (74% of e-service quality studies and 75% of e-recruitment literature). Liu et al. (2008) indicated that information quality was the most important element for customer satisfaction. The IS Success Model developed by DeLone and McLean (2003) indicated that information quality is one of factors that affect user satisfaction and intention to use. In the online recruitment context, information can be posted by website administrators, recruiters, companies or applicants. Therefore, verifying the quality of information seems to be necessary to help recruiters and job applicants avoid confusing and complex information, or more importantly to help them avoid incorrect information.

Along with information quality, website design is another factor that influences recruiter's and applicants' intention to use recruiting services. This factor appears in 77% of the reviewed e-service quality articles and 40% of the e-recruitment studies. Our results confirm the findings of Kim and Stoel et al. (2004), who examined the satisfaction of online retail customers and found that web appearance is the most dominant factor, accounting for the greatest proportion of individual differences in consumer perception of the quality of websites. Nevertheless, a study of Wolfinbarger and Gilly (2003) determined that website design is especially important for an experiential user's perception of quality, users who probably spend more time at a site than do

goal-oriented users like applicants and recruiters. Based on that study, they argued that this factor may not always predict overall quality of recruiting websites.

Perhaps most surprising is the finding that 81% of analyzed e-service quality studies mention security/privacy, but only 20% of e-recruitment literature mentions this factor. This difference could be explained in that security/privacy is a topic that is in some ways related to technical issues and would require researchers to have some IT knowledge to analyze this factor appropriately, if internal processes inside the system are also to be taken into account. This reason may lead researchers in the recruitment-related fields to concentrate on other factors than technical issues like security/privacy. Wolfinbarger and Gilly (2003) also reached the same conclusion when they indicated that security/privacy is eclipsed by other factors. However, it could not be concluded that security/privacy is not an important factor of e-recruitment websites. Liu et al. (2009) and Zhang et al. (2006) suggested that privacy and security are apparently major concerns of general portal users. The concern of recruiters and applicants related to the security/privacy factor can be explained in several ways. First, a feature of e-recruiting methods is that job applicants and recruiters are forced to provide real information on the Internet. Obviously, no one expects their personal information to be posted in the public area. Therefore, the issue of dispatching sensitive information on the Internet requires higher level of privacy. If security is not guaranteed by recruiting websites, the personal information may leak or be stolen and can affect application processes. Second, the increasing number of monetary transactions requires technical solutions as well as policies to protect the interests of users. A monetary transaction may contain a great deal of information such as personal details, bank account information, private messages, etc. Thus, transactions carried out successfully would enhance the intention of re-using e-recruiting services.

System quality and customer services are the next most frequently mentioned factors. The findings show there was a small gap between the frequency of mention of e-service quality and e-recruitment studies. For system quality, this proportion is 59% and 25% accordingly, and 67% and 40% for the customer services factor, respectively. Although system quality has garnered less attention by researchers than usability or quality of information, this factor can have significant impact on recruiter and applicant satisfaction. Defined as speed of access, speed of download (Parasuraman et al., 2005; Santos, 2003), response time (Cober et al., 2004), reliability

or fulfillment (Wolfenbarger and Gilly., 2003), it seems to prove that applicants and recruiters who are not satisfied with websites characterized by poor performance or slowness, are likely to leave the site if though other services provided by the website are high quality. Tong et al. (2005) support this idea by arguing that customers count speed of service as a key reason with certain company and this may also true for job seekers. Inconvenience and poor technological applications make job seekers impatient and they may look for other recruitment websites (Tong et al., 2005). Given the influence of customer services, offering personalized support and services through communication channels such as live chat features, online conferences, 24/7 helpdesk, etc., may enhance awareness and attraction of recruiters and job applicants. The appearance proportion of this factor is not as high as we had expected, however once there are no remaining differences among other factors, customer services may be play a more important role to increase competitive advantage among recruiting websites.

Finally, the proportion of e-service quality and e-recruitment literature that mention the factor “entertainment” is negligible, 26% and 20% respectively. It may reflect the fact that this factor is of little concern to recruiters and job applicants. Users in the online recruitment environment seem to concentrate on features that support them in their task, like searching for job information, or selecting talented candidates. Lee et al. (2008) concluded that there is no relationship between perceived enjoyment and intention to use. A possible reason for that result could be that job applicants’ purpose of using career website is different from that of online consumers (Lee et al., 2008). However, when e-recruiting methods become more popular, playfulness could be a factor that enable for career sites to attract recruiters and job applicants.

Factors from the literature not included in the selected factors

There were actually very few factors could not be included in the scope of this paper. Some papers that were mainly focused on retailing mention aspects such as speed of delivery (Sohn and Tadisina, 2008). These aspects cannot directly be related to career websites, as career websites generally do not offer any physical delivery of goods and their service is offered online, directly. Looking at it very abstractly, this could be included under ‘system quality’, as speed of delivery in this case means the processing speed. Still, this interpretation changes the original meaning of the aspect. Factors such as this one, directly targeting retail markets in a very detailed

way, were thus discarded immediately. Trust, which is mentioned in some articles, could be an important factor of e-service quality of recruiting websites. Obviously, when applicants and recruiters trust some career sites, they intend to use those sites more frequently than others (Hwang and Kim, 2007). Although it was positively related to e-service quality, we did not choose this factor to analyze because it is covered by some of the seven factors in this study. If an e-recruiting website provides users with high quality information, high system quality and assure the privacy and security, applicants and recruiters will increase trust in the provider when using services in this website to fulfill their tasks.

Several factors studied by researchers in the recruiting context have not been applied in our research because they cover the same concept as our factors, but perhaps with differently named factors. For example, playfulness is quite similar to enjoyment or entertainment, website design factor is equivalent to web appearance, design appeal or aesthetics. Usability, ease of use and functionality all have the same definition. Meanwhile, some other factors are not mentioned in this paper because they are considered constructs that measure the same things as the seven factors we chose. Website design, for instance, could be measure constructs such as attractiveness, graphic style, proper use of font, color and format, etc. Responsiveness, transition speed, communication and compensation could be used to measure customer service. A few papers provided unique factors that were not found in any of the other literature. Loiacono et al. (2007), for example, designates “consistent image” as a factor, and Carless and Imber, (2007) mention reputation and location as important. Although these factors are in fact important for applicants when determining if they want to work for a certain company, they do not refer to the intermediate business – in this case the career website. As both examples named above already had information as a determinant the other factors were discarded. This was also done for other similar cases.

Contributions to e-service quality and e-recruitment literature

This study makes significant contributions to the e-service quality and e-recruitment literature. First, compared with the SEVRQUAL model (Parasuraman et al., 1988), e-SERVQUAL model (Zeithaml et al., 2002) and WEBQUAL scale (Loiacono et al., 2007), our findings of seven factors of e-recruiting websites seem to be consistent with most criteria for measuring quality of

e-services, and also resolve the disadvantages of these models. For example, technical criteria are proposed in our research such as security and system quality with the aim of gaining overall e-service measurements, which could not be carried out in the SERVQUAL model. The scope of these seven factors extends from the pre-sale to the post-sale phase, which is different from E-S-QUAL (Zeithaml et al., 2002) or SITEQUAL (Yoo et al., 2001), which eliminated the customer service factor in its scale. Therefore, seven factors may be applied to examine the e-quality services not only in the recruitment field but also in other areas. A second contribution of this study is that it provides an explicit and comprehensive understanding of e-recruitment and its relations with recruiters and applicants. Contrary to previous studies that only examined specific factors of websites that influence recruiter or/and applicant behavior (for instance, a study by Thompson et al. (2008) investigated the influences of website design on prospective job seekers, and Lee et al. (2008) examined job applicants' perception of career websites), our research discussed all identified factors of service quality in recruiting websites to determine the relationships of these factors with both recruiters and applicants. Recognition of these seven factors will enable website designers, human resources staff, etc., to more effectively assess and revise website design, relative to customer preferences.

Limitations of the study

Though this study contributes to the field by reviewing and discussing salient service quality concepts on recruiting websites as found in e-service quality and e-recruitment literature, this study had several limitations. First, as mentioned in the research methods section, the seven service quality factors are derived only from the literature. We may have not included all relevant literature. There has been no direct interaction with recruiters and job applicants in our research. Therefore, the lack of empirical analyses may lead to inaccurate evaluation of the relations among the proposed service quality factors and applicants' and recruiters' intentions. Secondly, there are different kinds of recruitment websites present on the Internet. For instance, Liu et al. (2008) separated their study on quality of service into two categories of websites: general portal and business portal. Several authors carried out research on corporate and commerce recruiting websites (Parry and Tyson, 2008; Puck et al., 2006). Furthermore, a recruitment website could be an international site such as Monster.com, Hotjobs.com, which presents job information in a worldwide website, or a local website that is restricted to a

specific geographical area. Each kind of recruiting website has its own characteristics and objectives. However, because our research only studied general recruiting sites, some factors of service quality may have been omitted or possibly did not fit the requirements of recruiters and job applicants.

7. Conclusion

The increasing number of recruiting websites has increased the competition among them. In order to survive and attract qualified job applicants and recruiters using the services, e-recruiting websites need to improve their services to adequately address the user's needs. The purpose of this study was to identify determinant service quality factors of e-recruitment websites considering applicants and recruiters requirements. This was achieved by analyzing the findings of both e-service quality and e-recruitment literature. Our study resulted in the identification of seven salient factors: 1) quality of information, 2) security/privacy, 3) website design, 4) usability, 5) enjoyment/entertainment, 6) system quality, and 7) customer service. These factors should be considered by online recruiting managers who are looking for ways to improve e-service performance to enhance recruiter and applicant satisfaction.

Recognition of these seven dimensions will enable website designers to more efficiently assess and revise their designs, relative to customer preferences. Firstly, given the fact that quality of information is identified as a key dimension of e-recruiting services, web providers need to provide information in various formats such as word, pdf, XML, images, video, etc., to allow applicants and recruiters to easily access, update, download or exchange information. Moreover, the information presentation should be changed frequently by web designers to avoid the boring site visitors. Secondly, recruiting websites need a well-organized structure to be able to satisfy users' needs. Due to the differences in applicants and recruiters' requirements, each kind of users has different ways to approach recruiting services. Thus, a clear and logically structured website will be easy for user to search for and navigate information. Third, given the importance of the dimension of security, applicants and recruiters must be made to feel secure in providing personal and sensitive information, such as curriculum vitae, and credit card details. Web developers should not only invest in technical infrastructure to improve the data management, and prevent the attacks from inside and outside the network, but also provide an explicit policy and reassuring guarantees that career websites take full responsibility for protecting personal information at all times. Fourth, career websites should not only provide recruiting information but also develop extra services and functions to enhance the usability of the website. A job offering can receive a hundred of applications, thus application management becomes an

obstacle that recruiters need to overcome, so they do not miss any good candidates. Besides, adequate job information could be provided for job seekers on the website each day, the problem of filtering to avoid useless information and finding appropriate jobs needs to be taken into account. Therefore, web designers could integrate data management software to support users to use information effectively. Moreover, along with pure information about jobs, organizations, and applicants and recruiters, website managers also should provide analysis about the development or trends of the labor marketplace to support users in making right decisions when applying jobs or selecting employees. Finally, a career website typically is a place that the job applicant and recruiters gain a better understanding about each other. Thus, the communication channel needs to be integrated in the website to enhance the interaction between users. Beside common online connections such as email and chatting tools, a virtual community could be created by web developers with members from such as applicants and recruiters that have joined the career website. It would be an open community that all users not only can discuss about the labor market in general, and about particular job, but also a place to exchange experiences, give advice, consult others without the difficulty of distance, the difference of age, and level of positions. Developing communication links is helpful for web providers to provide better customer services with the aim of taking better care of applicants and recruiters.

Based on the limitations of this study, several directions are suggested for future research. First, empirical research should be conducted to accurately measure the relationship among the seven factors of recruiting websites, and the relationship of these factors with recruiter and applicant behavior and intention to use. Survey instruments, consisting of questionnaires and face to face interviews with diversified users need to be carried out. In addition, it could be useful to segment applicants into several categories such as by age, technical skills, working experience, etc., to accurately examine their satisfaction. Data from responses and feedback of users would become an important source for measuring the impact of e-service quality on applicants and recruiters. Furthermore, future studies should examine other types of recruiting websites to see whether the dimensions of service quality are consistent across different applicant and recruiter needs.

The relationship between the seven factors of e-recruitment sites and applicants and recruiters that are discussed in this research demonstrated the benefit of e-recruitment methods in comparison to traditional recruitment methods. Therefore concentrating on these service quality

factors is likely to contribute to the success of career websites, and also enhance the competitive advantage of companies by means of increasing efficiency and lowering costs. Improving these factors also offers benefits to job seekers.

Appendix

Appendix A

Year	Author(s)	Research Goal	Research Method	Findings	Future research	Journal
2010	Udo et al.	Examine the dimensions of web service quality based on e customer's, expectations and perceptions	Empirical, quantitative	Three dimensions are identified: perceived risk, web content and service, convenience.	Explore the effect of perceived risk on how e-customers perceive web service quality.	International Journal of Information Management
2010	Tsang et al.	Explore the underlying dimensions used by online customers to evaluate the e-service quality of online agencies.	Empirical, quantitative	Six dimensions are identified: Website Functionality, Information Quality and Content, Fulfillment and Responsiveness, Safety and Security, Appearance and Presentation, Customer Relationship	Test the e-service quality instrument for specific online travel agency websites.	Journal of Travel & Tourism Marketing
2010	Ladhari	Review the literature on e-service quality, identify several conceptual and methodological limitations associated with developing e-SQ measurement	Theoretical	Six dimensions of e-SQ: reliability/fulfillment; responsiveness; ease of use/usability; privacy/security, web design; and information quality/content.	Use random samples of appropriate Internet shoppers to identify the key dimensions and their relative influence on online consumer behavior.	Journal of Retailing and Consumer review
2009	Liu et al.	Identify an instrument to measure the service quality of general portals.	Empirical, quantitative	A four-factor instrument for measuring the service quality of general portals. It included usability, privacy and security, adequacy of information, and appearance.		Information and Management
2009	Kim & Lee	Verify the impact of consumers' information privacy concerns on firms' collection and use of consumer information for web-based personalization.	Theoretical	A firm of inferior ability in customer information utilization is more affected by privacy concerns than a firm of superior ability in choosing to collect and use consumer information for personalization.	Analyze the effects of consumer privacy concerns related to a firm's strategic choice to collect and use consumer information for offering web-based customer services.	Electronic Commerce Research and Applications

2007	Loiacono et al	Apply the Theory of Reasoned Action and the Technology Acceptance Model to develop the WebQual instrument for consumer evaluation of websites	Theoretical	12 dimensions were identified: informational fit-to-task, tailored information, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, emotional appeal, consistent image, on-line completeness, relative advantage	Explore the implications for website quality with after-sales service quality added. Other types of activities used to utilize Web to convey information and facilitate transactions also could be investigated.	International Journal of Electronic Commerce
2007	Hwang & Kim	Examine the effects of the perceived Web quality with service contents on e-trust.	Empirical, quantitative	The mediation effects of enjoyment and anxiety on integrity as well as ability dimensions of e-trust are supported, while the effects of enjoyment and anxiety on benevolence are not supported.	Research the additional antecedents of enjoyment and anxiety, such as social or cultural factors.	Decision Support Systems
2007	Heim & Field	Examine relationships between e-service process attributes and e-service quality dimensions	Theoretical	4 dimensions are identified: website design, fulfillment/reliability, security/privacy, customer service. A number of e-service process attributes are positively or negatively associated with different e-service quality dimensions.		Journal of Operation Management
2007	Cristobal et al.	Develop a multiple-item scale for measuring e-service quality and to study the influence of perceived quality on consumer satisfaction levels and the level of website loyalty	Theoretical	Perceived quality is a multidimensional construct: web design, customer service, assurance and order management; that perceived quality influences on satisfaction; and that satisfaction influences on consumer loyalty.		Managing Service Quality
2006	Zhang et al	Examine factors affecting user satisfaction with e-services.	Empirical, quantitative	User satisfaction toward e-services was affected by perceived convenience, perceived security, and user characteristics.		Human Systems Management
2006	Rowley	Review research and is to gather conceptual perspectives on the role and nature of e-service, and the e-service experience.	Theoretical	In order to understand e-service experiences it is necessary to go beyond studies of e-service quality dimensions and to also take into	Different e-services mean different e-service experiences.	Internet Research

				account the inherent characteristics of e-service delivery and the factors that differentiate one service experience from another.		
2006	Lee & Kozar	Investigate website quality factors, their relative importance in selecting the most preferred website, and the relationship between website preference and financial performance	Empirical, quantitative	There is different relative importance for each website quality factor and priority of alternative websites across e-business domains and between stakeholders. Websites with highest quality produced the highest business performance.		Decision Support Systems
2006	Collier & Bienstock	Extend the work on e-service quality to encompass not only website interactivity or process quality but also outcome quality and recovery quality	Empirical, quantitative	A conceptual framework of e-service quality is proposed and empirically tested that combines process, outcome, and recovery dimensions.	Investigate the role that satisfaction plays in the future behavioral intentions of a customer.	Journal of Service Research
2006	Bauer et al.	Develop a transaction process-based scale for measuring service quality (eTransQual)	Empirical	Five discriminant quality dimensions are identified: functionality/design, enjoyment, process, reliability and responsiveness	Investigate the roles of a service provider's market orientation and innovativeness	Journal of Business Research
2005	Yang et al.	Develop and validate an instrument to measure user perceived service quality of Web portals	Empirical, quantitative	Five dimensions are identified: usability, usefulness of content, adequacy of information, accessibility and interaction		Information and Management
2005	Parasuraman et al.	Conceptualize, construct, refine, and tests a multiple-item scale (E-S-QUAL) for measuring the service quality delivered by websites on which customers shop online	Empirical, quantitative	A 22-item scale of 4 dimensions; efficiency, fulfillment, system availability and privacy. Also E-RecS-Qual for non-routine encounters has 11 items in 3 dimensions: responsiveness, compensation and contact	Examine the reliability and validity of E-RecS-QUAL in the context of more diverse websites that have a higher incidence of problem encounters.	Journal of Service Research
2005	Ahn et al.	Investigated the effect of playfulness on user acceptance of online retailing and tested the relationship between Web quality factors and user acceptance behavior.	Empirical, quantitative	Playfulness plays an important role in enhancing user attitude and behavioral intention to use a site. Web quality, categorized into system, information, and service quality, had a significant impact on the perceived ease of use,		Information and Management

				playfulness, and usefulness.		
2004	Kim & Stoel	Examine the dimension of website quality affecting shopper satisfaction	Empirical, quantitative	Only 3 of 12 dimensions of WebQual instrument significant affect shopper satisfaction: informational fit-to-task, transaction capability, and response time.	Examine the consistency of website dimensionality of other types of online retail, and the importance of different dimensions affecting customer satisfaction.	Journal of Retailing and Consumer Services.
2004	Constantinides	Analyze the factors affecting the online consumer's behavior and examines how e-marketers can influence the outcome of the virtual interaction and buying process.	Theoretical	Identify three main constituents of the online experience or Web experience: the functionality, the psychological, and the content elements.	Identify the role and weight of the Web experience elements, the influence on the shopping behavior of customers.	Internet Research
2003	Wolfenbarger & Gilly	Establish the dimensions of the e-tail experience, and develop a reliable and valid scale for the measurement of e-tail quality.	Empirical, quantitative	Four factors—website design, fulfillment/reliability, privacy/security and customer service—are strongly predictive of customer judgments of quality and satisfaction, customer loyalty and attitudes toward the website.	Investigate how characteristics of various product categories may affect the importance of the four factors in predicting quality.	Journal of Retailing
2003	Santos	Create a conceptual model of the determinants of e-service quality	Theoretical	The incubative dimension consists of: ease of use, appearance, linkage, structure and layout, content. The activate dimension includes reliability, efficiency, support, communications, security, and incentives.	Investigate e-service quality in different online service categories, compare with tradition service quality models. -An exploration of the differences in customer expectations and perceptions between the e-environment and tradition channels	Managing Service Quality
2003	Buckley	Focus on the issue of e-service quality in the public sector.	Theoretical	E-service has more potential relevance to certain categories of public sector organization based on complexity of		Managing Service Quality

				service		
2002	Zeithaml	Review and synthesize the literature about service quality delivery through websites	Theoretical	Criteria customers use in evaluating e-SQ: Information availability and content, ease of use, privacy/security, graphic style, fulfillment/reliability, etc.	Examine other factors: personalization/customization, company reputation, appearance of the site, etc.	Journal of the Academy of Marketing Science
2002	La & Kandampully	Examine the unique characteristics of electronic distribution, with special emphasis on the increasingly popular use of the Internet as a service retailing channel.	Theoretical	E-commerce organizations not only enjoy several advantages over traditional trading firms, but also encounter many challenges similar to that of traditional firms, as well as those that can	Focus on the identification of characteristics that are specifically related to the electronic market.	Managing Service Quality
2002	Aladwani & Palvia	Research the development of an instrument that captures key characteristics of website quality from the user's perspective.	Empirical	Four dimensions of web quality are identified: technical adequacy, specific content, content quality and appearance.		Information and Management
2001	Riel et al.	Investigate the way consumers evaluate an Internet portal site and identify the major components of the online service offer	Empirical, quantitative	Three service components: core service, supplementary services and the user interfaces, were identified.	Investigate how the user interface influences customer evaluation in various situations.	International Journal of Service Industry Management
2001	Jun & Cai	Provide insights into service quality in the context of emerging Internet banking	Theoretical	Identify 10 dimensions of customer service quality, six dimensions of online service quality, and one dimension of banking service quality.	Analyze collected data via mail surveys and/or interviews	International Journal of Bank Marketing
2001	Cox & Dale	Identify suitable determinants for the e-commerce operating environment	Theoretical	Identify the conceptual model of service quality, the dimensions and determinants of service quality, and the measurement of service quality.		Managing Service Quality
2000	Liu & Arnett	Explore the factors associated with website success in the context of electronic commerce	Empirical, quantitative	Four factors are identified: information and service quality, system use, playfulness, and system design quality		Information and Management

Appendix B

Year	Author(s)	Research Goal	Research Method	Findings	Future research	Journal
2011	Walker et al.	Demonstrate that recruitment website characteristics influenced the development and modification of organizational image perceptions via a priming mechanism	Empirical	Having technologically advanced website features and depicting racially diverse organizational members served as contextual primers and influenced participants' organizational image perceptions. participants' familiarity with recruiting organizations moderated the effects of these website characteristics on several dimensions of organizational image such that effects were weaker for more familiar organizations.	Further investigate the specific nature of organizational personality dimensions.	Organizational Behavior and Human Decision Processes.
2011	Maurer & Cock	Employ a job marketing perspective to organize and review contemporary theory-based studies of the effects of website recruiting sources on job seeker attitudes and employment application behaviors.	Theoretical	Each of these theoretical areas offer useful insights but that considerably more theory-based research is needed to assess the effect of e-recruiting sources on the attitudes and decisions of highly qualified job seekers actively engaged in the job search process.		Computers in Human Behavior
2011	Lee	Review the integration issues in e-recruiting and presents an e-recruiting integration decision model.	Theoretical	The optimal investment in the e-recruiting process integration results in a lower total cost than the separate e-recruiting investments.		Decision Support Systems
2009	Parry and Wilson	Examine the reason behind an organization's decision to use online recruitment, and report on the development of a model of the factors affecting the adoption of this recruitment method	Empirical, quantitative	Factors related to the adoption of corporate websites and commercial jobs boards are found to be different.	Investigate the factors moderated by other factors.	Personnel Review
2009	Sylva & Mol	Examine applicant perceptions of web-based procedures	Empirical, quantitative	Features of the website, perceived efficiency and user-friendliness, were by far the most important determinants of	Examine the relationship between information provision and overall satisfaction with	International Journal of Selection and

				applicant satisfaction.	online application procedures while controlling for the specific vacancy announcement.	Assessment
2008	Goldberg and Allen	Examine the impact of website design and content characteristic on applicants' intentions to pursue employment.	Empirical, quantitative	The design characteristic of ease of use and usefulness impact attraction indirectly through website engagement and attitude toward the organization		Human Resource Management
2008	Thompson et al.	Examine the influences of website design on prospective job seekers	Empirical	The attractiveness of the ad's formatting, the usability of the website, overall evaluations of the organization's web appeal, impressions of the organization, and willingness to pursue employment with the hiring organization can influence on applicants.	Investigate additional variables that may influence applicants' decision processes during web-based job searches.	Computers in Human Behavior
2008	Parry & Tyson	Investigate the usage and perceived success of both corporate and commercial websites.	Theoretical, quantitative	Companies that use corporate website successful for recruitment are those that either have a prominent to drive job seekers to their website. The use of a back-office system for managing the recruitment process had led to significant efficiency savings.	Empirically test the theories with a larger sample of online recruitment users	Human Resource Management Journal
2008	Lee et al.	Use the general theoretical frames of the technology acceptance model (TAM) and SERVQUAL to investigate the constructs that influence job applicants' perceptions of the career website.	Empirical, quantitative	Perceived ease of use, perceived enjoyment, empathy, responsiveness, and reliability positively affect perceived usefulness	Use broad samples of job applicants.	Human Systems Management
2008	Celani et al.	Develop a model that integrates organizational justice and trust perspectives to better understand the processes underlying applicant reactions across different stages of the selection	Theoretical	Initial trust is likely to affect applicant perceptions of the fairness of the procedures — the higher their initial trust in the organization the more likely they are to perceive high organizational justice.	Examine the issue of justice/injustice Asymmetry and new testing technology	Human Resource Management Review

		process				
2008	Breaugh	Address the external recruitment of individuals.	Theoretical	A key issue for an organization using a website to recruit is whether site visitors view the information provided as credible. Site visits and timing issues need to be concerned on e-recruitment.	Identify targeted recruitment, not treat all employee referrals as being equivalent.	Human Resource Management Review
2008	Braddy et al.	Test the assumption that recruitment websites influence viewers' opinions of recruiting organizations by using a protest/pretest design.	Empirical, quantitative	Participants' organizational favorability, image as employer, and organizational attractiveness perceptions were affected by their viewing of organizational recruitment websites.	Examine the specific aspects of additional website features that predominately influence job seekers' impressions of organizations.	Computers in Human Behavior
2007	Maurer & Liu	Identify development implications for creating an effective "e-recruitment" source on a corporate website.	Theoretical	Website design, message content, interactivity and vividness can influence on the effectiveness of e-recruitment.		Business Horizon
2007	Hu et al.	Examine applicant attraction to an organization in the context of Web-based recruitment.	Empirical, quantitative	Participants with high subjective P-O fit perceptions and participants who received high P-O fit feedback information reported higher applicant attraction. Furthermore, the interaction between P-O fit feedback information and whether the P-O fit feedback information was consistent with participants' subjective P-O fit was significantly related to applicant attraction.	Examine issues related to the provision of personally tailored feedback on recruitment websites.	Computers in Human Behavior
2007	Hoye & Lievens	Examine the effects of web-based employee testimonials and web-based word-of-mouth on organizational attraction.	Empirical	Word-of-mouth was associated with higher organizational attractiveness than web-based employee testimonials. However, potential applicants were more attracted when testimonials provided information about individual employees than about the organization.	Examine company-dependent and company-independent recruitment sources.	International Journal of Selection and Assessment
2007	Cole et al.	Investigate relationships between recruiters' pre-interview assessments of applicant résumé	Empirical	Recruiters' perceptions of applicants' academic qualifications, work experience, and extracurricular activities interacted to predict recruiters'	Use applicant résumés that contain a more diverse set of academic majors. And focus on the manner in which recruiters	Applied Psychology: An International

		information and estimates of applicants' employability for relevant job openings.		perceptions of applicants' employability.	from various countries integrate these information sources when evaluating applicants' résumés.	Review
2007	Allen & Mahto	Address how all 3 types of signaling mechanisms influence early job pursuit decisions in the context of organizational recruitment websites.	Empirical, quantitative	A priori organization image is related to pursuit intentions when subsequent information search is controlled, but organization familiarity is not, and attitudes about a recruitment source also influence attraction and partially mediate the effects of organization information.	Focus on the relative efficacy of attraction and realism on a variety of outcomes across the recruitment process would be valuable.	Journal of Applied Psychology
2006	Stone et al.	Examine factors affecting the acceptance and effectiveness of electronic human resource systems	Theoretical	eHR systems have the potential to yield a number of functional and dysfunctional consequences for both individuals and organization. In addition, there are several important determinants of the degree to which such systems will be both accepted by individuals and will result in functional consequences.		Human Resource Management Review
2006	Puck et al.	Analyze the influence of national culture on the comprehensiveness to which companies in different countries make use of corporate website recruiting.	Empirical	Cultural effects are relevant even though a management technique is provided on the World Wide Web. Particularly, individualism has a strong influence on the use of corporate website recruiting in different countries.		Journal of International Management
2005	Jansen et al.	Examine the extent to which job seekers are meeting their objectives	Empirical	Individuals seeking job information generally submit only one query with several terms and over 45 percent of job-seeking queries contain a specific location reference.	Continue to examine the changing trends in searching and explore the manner by which individuals use job boards to find job-related information	Internet Research
2005	Terzis and Economides	Provide a Job Site Evaluation Framework both from the job seeker and the recruiter point of	Empirical	Foreign recruiting sites score higher than the Greek ones for the Job Market criteria		Human Systems Management

		view				
2005	Tong et al.	Propose an evaluation tool to assist online recruitment websites in quantifying service quality and examine the relationship between service quality and measures of mental workload and performance time.	Empirical	The total time spent on the whole job seeking process can impact the perceived electronic service quality of a recruitment website.	Research on other websites and other e-service domains.	International Journal of Industrial Ergonomics
2004	Cober et al.	Present a model that explicates how job seekers interact with and respond to website characteristics to predict various job seeker attitudes and behaviors	Theoretical	Job seekers are initially affected by the facade of a website, comprised of the website's aesthetic and playfulness features.	Investigate organizational website recruitment impacts the demographic composition of applicant pools.	Journal of Management
2003	Williamson et al.	Investigate the relationships among recruitment website orientation, individuals' expectations concerning the use of Internet technology, website usability, and organizational attractiveness.	Empirical, quantitative	Website orientation and outcome expectancy influenced organizational attractiveness perceptions through influencing the perceived usability of the website	Examine the interactive effect of company website orientation and organizational reputation on perceptions of organizational attractiveness. And extend the model tested in this study to encompass multiple recruitment mediums	Journal of Vocational Behavior
2003	Braddy et al.	Investigate the effects of two website design features on prospective applicants' evaluations of a hiring company's online recruitment image.	Empirical, quantitative	Companies should build websites that are easy to navigate so prospective applicants can access desired information with minimal effort.	Examine the reasons why navigational ease influences impressions of an organization and their willingness to respond to an online job advertisement would be informative.	Social Science Computer Review
2002	Koong et al.	Examine the resources or attributes that are provided to job seekers and corporate recruiters by Internet Job Boards.	Empirical	All Internet Job Boards do not have equal capabilities.	Assess the ease of use and effectiveness of the respective attributes in the Internet Job Boards.	Human Systems Management
2002	Lin and	Overview the development	Theoretical	Major issues for managers in using		Human

	Stasinskaya	of database housing, to discuss the pros and cons of online recruitment		online recruitment present accuracy, verifiability and accountability of the data selected.		Systems Management
2002	Galanaki	Provide an insight on how the companies perceive and value online recruitment.	Empirical, quantitative	Identify the effect that the perceived attributes of the practice have on the decision of companies to recruit through Internet	To examine the effectiveness of online recruitment, the connection between the satisfaction with the size of company.	Career Development
2002	Rozelle & Landis	Investigate the extent to which applicant use of the Internet during recruitment was related to post-entry attitudes.	Empirical, quantitative	Internet recruitment would be perceived as presenting less realistic information to applicants as compared to informal forms of recruitment. Greater applicant use of Internet-based recruiting information was expected to be associated with lower satisfaction with the organization.	Investigate the impact of the Internet on recruitment practices and outcomes, and how prospective applicant process multi-source information.	Computers in Human Behavior
2002	Lin and Stasinskaya	Discuss the pros and cons of online employment and to determine what implications the growth of online employment databases.	Theoretical	Online hiring saves managerial time and gives an opportunity for large and small customers to find the most qualified fit for their employment needs.		Human Systems Management
2000	Kinder	Analyze the use of the Internet in recruitment processes using a new model for decomposing e-commerce.	Theoretical	The use of the Internet in recruitment processes is likely to generalize, alter the interface between some internal and external labour markets and adjust present patterns of intermediation in labour markets.		Technovation
2000	Arab et al.	Developed an interactive web-based system to automate all levels of management of a biomarker-based clinical trial.	Theoretical	Web based systems have the potential to streamline the process of recruitment and day-to-day management of clinical trials in addition to improving efficiency and quality.		Contemporary Clinical Trials
1998	Turban	Test a model of how organization reputation, job and organizational attributes, and recruiter behaviors influence	Empirical, quantitative	Recruiter behaviors did not have a direct effect on applicant attraction, but influenced attraction indirectly through influencing perceptions of job and organizational attributes.	Examine specific recruiter behaviors that serve as signals for unknown job and organizational attributes.	Journal of Vocational Behavior

		applicant attraction to firms				
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Appendix C

E-service quality								
Year	Author(s)	Quality of information	Security/Privacy	Website design	Usability	Enjoyment/Entertainment	System Quality	Customer Service
2010	Udo et al.	X	X		X			
2010	Ladhari	X	X	X	X		X	X
2010	Tsang et al.	X	X	X	X		X	X
2009	Liu et al.	X	X	X	X			
2007	Cristobal et al.		X	X	X			X
2007	Loiacono et al.	X	X	X	X	X	X	X
2007	Hwang and Kim		X			X		
2007	Heim and Field		X	X	X			X
2006	Zhang et al.		X		X			X
2006	Lee and Kozar	X	X				X	X
2006	Collier and Bienstock	X	X	X	X		X	X
2006	Lewiecki et al.	X	X		X			
2006	Bauer et al.		X	X	X	X	X	X
2005	Parasuraman et al.	X	X		X		X	X
2005	Yang et al.	X		X	X			X
2005	Ahn et al.	X			X	X	X	
2004	Kim and Stoel	X	X	X		X	X	
2004	Constantinides	X	X	X	X	X		
2003	Santos	X	X	X	X		X	X
2003	Wolfenbarger and Gilly		X	X	X		X	X
2003	Buckley	X	X	X	X		X	
2002	Zeithaml et al.	X	X	X	X		X	X
2002	Aladwani and Palvia	X	X	X	X		X	
2001	Jun and Cai	X	X	X	X		X	X
2001	Cox and Dale			X			X	X
2001	Riel et al.	X		X	X			X

2000	Liu and Arnett	X		X	X	X		X
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E-recruitment								
Year	Author(s)	Quality of information	Security/ Privacy	Website design	Usability	Enjoyment/ Entertainment	System Quality	Customer Service
2009	Syvla and Mol				X		X	
2008	Parry and Tyson	X			X		X	X
2008	Thompson et al.			X	X			
2008	Lee et al.		X	X	X	X	X	X
2008	Braddy et al.	X		X	X			
2008	Goldberg and Allen				X			X
2007	Maurer and Liu	X		X				X
2007	Cole et al.	X						
2007	Allen and Mahto	X						
2006	Puck et al.	X			X	X		
2006	Stone et al.	X			X			X
2005	Tong et al.						X	
2005	Jansen and Jansen	X			X			
2005	Terzis and Economides	X	X	X	X	X	X	X
2004	Cober et al.	X		X	X	X		
2003	Williamson et al.	X			X			
2003	Braddy et al.			X	X			
2002	Rozelle and Landis	X			X			
2002	Lin and Stasinskaya	X	X					X
2002	Koong et al.	X	X	X	X			X

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