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An Empirical Analysis of Factors Influencing the Information Service Quality of Recruitment Websites

Feng Hu[1, 2], Zhiyi Rao[1] and Jieping Li[1]

[1]*School of Management, Guangdong University of Technology, Guangzhou 510520*
[2]*Institute of Big Data Strategic Research, Guangdong University of Technology, Guangzhou 510006*
phoenin@163.com

Abstract

The online recruitment industry has developed rapidly under the Internet Plus environment, but the job hunters are rarely satisfied to the overall information service quality of recruitment websites. In order to improve the information service quality of recruitment websites, and maintain the competitive advantages of the industry, we conduct an empirical analysis of the factors influencing the information service quality of recruitment websites. Based on synthesizing the service quality evaluation indicators from both domestic and foreign studies,we propose the research model and hypotheses from the perspective of job hunters. We then conduct an online survey, and perform descriptive analysis, reliability analysis, factor analysis, variance analysis, correlation analysis and regression analysis on the sample data to test the research model and hypotheses with SPSS. The results show that the information content quality, reliability, ease of use, personalization and interactivity all have significantly positive correlation with the information service quality of recruitment websites.

Keywords: *Recruitment Websites, Information Service Quality, Factors, Empirical Analysis*

1. Introduction

Online recruitment has gained attentions from an increasing number of job hunters and recruiting firms in the "Internet Plus" environment, because it breaks the constraint of time and space in addition to its large information capacity and low cost. With 51job.com successfully listed on NASDAQ, and the acquisition of Zhaopin.com as well as ChinaHR.com, online recruitment industry has developed rapidly in China. According to China's online recruitment industry development report 2015-Q3 (simple version) from iResearch, data shows that the total revenue of two core operators, 51job.com and Zhaopin.com, has reached 520 million and 350 million yuan respectively in the third quarter, with a growth rate of 8.4% and 3.3% compared with the second quarter. It is mainly because the number of independent employers adopting online recruitment substantially increases, and the revenue structure is optimized continuously. However, employers usually pay to the recruitment websites, while job seekers have a free access to website services. It leads to a discrepancy between job seekers and recruiters in terms of service quality, which in turn negatively influences job seekers' overall satisfaction with recruitment websites, and further harms the future development of the online recruitment industry. In order to improve information service quality, and maintain the competitive advantages as well as the good momentum of the industry, it is extremely urgent to innovate in service for online recruiters.

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2. Literature Review of Service Quality Research

Information service quality has gained attentions from lots of specialists and scholars throughout the years. As early as 1985, Parasuraman, Zeithaml & Berry(1985,1988) propose the Conceptual Model of Service Quality (also known as PZB model) [1], and develop an instrument called SERVQUAL for assessing service quality[2]. Thereafter, various research models and measures of service quality are put forward from different perspective by both domestic and foreign scholars. Lociacono *et al*. (2000) construct the WEBQUAL model which incorporates twelve variables including information, interactivity, response time, trust, web design, *etc*. However, the measure focuses more on website interface design, instead of service quality [3]. Zeithaml, Parasuraman & Malhotra (2002) present the e-SERVQUAL model, which measures customer perceptions of service quality delivered by online retailers from four dimensions - efficiency, reliability, execution and privacy [4]. Huang & Li (2005) discuss the service quality of Internet-service website from more than ten dimensions, such as information quality, ease of use, site experience and interactivity [5]. Monideepa Tarafdar (2006) constructs important dimensions of 40 successful websites belonging to five categories from customer's perspective [6]. The results show that different types of successful website value different service elements. Fan *et al*. (2006) analyze the influence of five dimensions of service quality (reliability, responsiveness, security, empathy and tangibility) on service satisfaction and service loyalty [7]. Lu *et al*. (2008) evaluate the online information service quality from six aspects: usefulness, ease of use, tangibility, credibility, realization and responsiveness [8]. Some other researchers like Deng (2008)[9] and Cui (2011)[10] study on the influence of multiple dimensions (information content quality, ease of navigation, ease of use, personalization & customization, responsiveness, interactivity, security, empathy, *etc*.) on satisfaction of perceived service quality. Alvaro Rocha (2012) points out that general website service quality evaluation mainly involves three aspects: content quality, service quality, and technology quality [11]. Naci Karkin (2014) states that e-government website service quality can be measured from dimensions such as information content quality, usefulness, quality, accessibility, participation, transparency, responsiveness, interactivity, balance of interests and so on [12]. Liu & Chen (2015) explore the indicators for satisfaction of emergency website service quality, which include external feature, internal feature, information organization performance, technical feature, and service performance [13]. Guo & Xu (2015) analyze the formation mechanism, formation path and influencing factors of "satisfaction mirror" in library service quality, through investigations on five service dimensions of external library service quality [14]. Wen (2015) presents a review on library and information studies of service quality in the past decade. It assumes that foreign studies of service quality have extended from traditional library & reference service to e-service, and research themes involve influencing factors, users, service quality management, service performance, service quality evaluation, *etc*. [15]

In summary, important research findings related to service quality are mostly from abroad, while domestic findings are quite limited. In the last decade, nearly one hundred measure dimensions have been put forward among various industries in previous studies on service quality evaluation index. Although these dimensions/indexes vary, most of them are based on PZB model, and further refined with regard to service characteristics in different industry.

3. Research model of the Influence Factors of Recruitment Websites Information Service Quality

3.1. Establish the Research Model of the Influence Factors of Recruitment Websites Information Service Quality

The review of relevant literature on the quality of service of both domestic and foreign websites has shown that an extensive research had been done in this websites service quality topic, in which already formed a relatively mature theory and nearly a hundred measurement dimensions. However, to measure the information service quality of recruitment websites, we must consider the characteristics of the recruitment websites in the information service industry, thus to adjust and modify the indicators for measurement.

Based on further consultation with HR from renowned enterprises and experts in the field, and combining with our research objectives and existing literatures, we further classify, merge and modify those around a hundred indicators. From a web job seeker's point of view, this paper adopts 5 dimensions as influence factors, namely the information content quality, reliability, ease of use, personalization and interactivity, to measure the information service quality of recruitment websites. The theoretical model of the influence factors of recruitment websites information service quality is shown as in Figure 1.

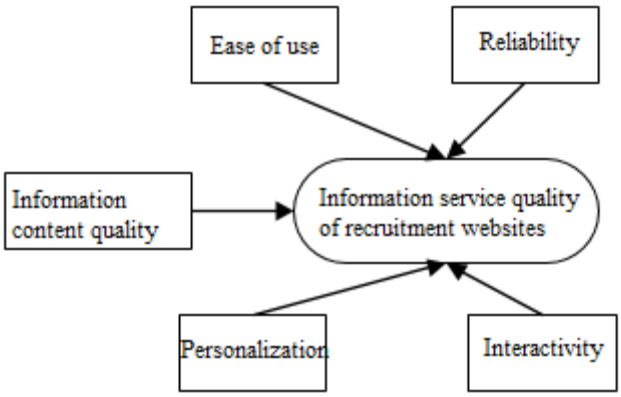

Figure 1. Theoretical Model

3.2. Hypotheses

According to the above research model, we decided to establish the following five hypotheses, thus to study the influence factors of recruitment website information service quality.

H1: Information content quality and recruitment website information service quality have a positive correlation.

H2: Reliability and recruitment website information service quality have a positive correlation.

H3: Ease of use and recruitment website information service quality have a positive correlation.

H4: Personalization and recruitment website information service quality have a positive correlation.

H5: Interactivity and recruitment website information service quality have a positive correlation.

4. The Survey and Preliminary Research

4.1. Questionnaire Design and Data Collection

In this study, the questionnaire was designed according to the research model and hypothesis needs, which divided into two parts:

(1)Basic information survey, including gender, education level, age *etc*.

(2)The scaled questionnaire of the overall recruitment website information service quality, and the questionnaire of the influence factors of service quality (information content quality, reliability, ease of use, personalization and interactivity)

4.2. Pre-Survey Pilot Test

It is necessary to examine the flaws and problems of questionnaire design by using pre-survey pilot test. In this study, we issued 50 pre-survey questionnaires and 45 of them were collected. By using reliability analysis (using Cronbach coefficient Cronbach's α) and feedbacks from the pilot test, we adjusted and refined the questions, and deleted problematic questions.

Then the SPSS analysis showed that the Cronbach coefficients (Cronbach's α) of information content quality (7 question items), reliability (3 question items), ease of use (4 question items), interactivity (4 question items), personalization (4 question items) and recruitment websites information service quality (3 question items) are 0.897, 0.831, 0.915, 0.817, 0.820 and 0.85 respectively, all of them are above 0.7, which indicating that this scaled questionnaire has good reliability.

4.3. Survey and Data Collection

Based on the pre-survey pilot test results, this survey targets major recruitment websites (51 Jobs, Zhaopin, ChinaHR and others), and survey collection time is from 20th December 2014 to 16th April 2015. The survey respondents are mainly university fresh graduates, previous graduates, in-service young employees and other online recruitment job seekers. Questionnaires are mainly distributed in e-version through the Internet channel. We receive a total of 233 questionnaires, among them 215 are valid questionnaires, the return rate is 97.5%.

5. Data Analysis

Questionnaire data analysis and model validation process involve basic characteristics analysis of sample data, factor analysis, variance analysis, correlation analysis for model testing and hypotheses validation, and regression analysis.

5.1. Basic Characteristics Analysis of the Sample Data

The following parts are the basic profile about the survey respondents, as well as the statistical analysis of the online job seekers who are using recruitment websites - 51 Jobs, Zhaopin, ChinaHR.

1. Gender Male 96 persons, female 119 persons, the gender proportion is about average, male and female respondents account for 44.65% and 55.35% respectively.

2. Age Under age 20: 64 persons, 29.77%; age 20-25: 92 persons, 42.79%; age 26-30: 53 persons 24.65%; above age 30: 6 persons, 2.79%.

3. Education Level High school or below: 25 persons,11.63%; college or undergraduate: 152 persons, 70.7%; Master degree and above: 38 persons, 17.67%.

4. Employment status Current in-service: 64 persons,29.77%; job secured, to be on-board: 45 persons, 20.93%; job seeking: 106 persons, 49.3%.

5. Usage of recruitment websites by respondents 51 Jobs: 79 persons,36.74%; Zhaopin: 56 persons, 26.05%; ChinaHR: 37 persons, 17.21%; Others websites: 43 persons, 20%.

5.2. Reliability Analysis

Similar to the pre-survey reliability analysis, we conduct the same reliability analysis of the formal questionnaires by using Cronbach coefficient (Cronbach's α) method, the results are shown in Table 1:

Table 1. Reliability Analysis

Variables	Valid items	Cronbach's α value
Information content quality	7	0.747
Reliability	3	0.915
Ease of use	4	0.731
Personalization	4	0.817
Interactivity	4	0.720
Information service quality	3	0.832

The above reliability analysis has shown that the Cronbach's α value of five measurement dimensions and the recruitment websites information services are above 0.7, which means the reliability is acceptable and further data processing can be proceeded.

5.3. Validity Analysis

The validity analysis of this questionnaire mainly adopts factor analysis approach, by using the SPSS statistical analysis software, we obtain the maximum variance orthogonal rotation factor extraction results. We need to calculate the correlation coefficient between variables when conducting the factor analysis, the degree of correlation between variables can not be etiher too high or too low. If the correlation is too low, then we can not guarantee the stability of factor extraction; and if the correlation is too high, then multicollinearity may occur.

5.3.1. Factor Analysis of Recruitment Website Information Service Quality Survey Questions

The questionnaire included 22 items of service quality factors, and we have to use KMO (Kaiser-Meyer-Olkin) sample measurement and Bartlett (Bartlett) spherical test to analyze the data of the questionnaire whether it is suitable for factor analysis, and then we extract principal components for follow up research. Using SPSS to analyze the sample data, we obtain the KMO test statistic is 0.975, and the Bartlett sphericity test result is approximately a chi-square value of 5191.545, the significant probability is 0.000, which indicating that the sample data is suitable for factor analysis. The factor load table is shown as below:

Table 2. Factor Load Table

Item	Component					Factor explained variance (%)	Accumulated explained variance (%)	Factor load coefficient
	1	2	3	4	5			
A1	.627	.894	.633	.613	.556	30.89	30.89	0.889
A2	.682	.794	.621	.658	.760			0.569
A3	.726	.851	.671	.708	.457			0.782
A4	.718	.885	.660	.750	.407			0.658
A6	.750	.720	.644	.877	.554			0.850
A5	.722	.819	.643	.822	.423			0.795
A7	.793	.716	.679	.879	.402			0.653
B1	.729	.616	.910	.659	.647	12.915	43.805	0.740
B2	.748	.666	.905	.740	.542			0.852
B3	.824	.581	.781	.730	.674			0.652
C1	.761	.645	.771	.873	.610	18.772	62.577	0.786
C2	.663	.617	.725	.861	.697			0.658
C3	.751	.640	.820	.902	.480			0.869
C4	.785	.654	.912	.765	.511			0.741
D3	.820	.698	.882	.770	.464	17.659	80.236	0.569
D1	.859	.640	.751	.760	.551			0.532
D2	.761	.578	.705	.661	.787			0.893
D4	.885	.697	.752	.735	.531			0.847
E2	.824	.606	.712	.672	.730	13.245	93.481	0.658
E1	.901	.677	.715	.661	.544			0.693
E3	.896	.640	.700	.762	.559			0.852
E4	.872	.617	.699	.703	.481			0.749

As can be seen from the table above, the value of each load factor is greater than 0.5, indicating that the scale has good construct validity. All the variable questions have passed the factor analysis, total five factors were taken out (information content quality, reliability, ease of use, personalization and interactivity), and their factors explained variance is 30.89% , 12.915% , 18.772 % , 17.659% , 13.245% , 93.481% respectively, and the accumulated explained variance is 93.481%. Based on the overall question items, the original variables can be well explained and has good practical significance.

5.3.2. Factor Analysis of the Dependent Variables of Recruitment Website Information Service Quality

This questionnaire includes 3 question items about service quality, and by using SPSS to analyze the service quality sample data we obtain the value of KMO, which is 0.936, and Bartlett sphericity test result is approximately a chi-square value of 1236.141, the significant probability is 0.000, which indicating that the sample data is suitable for factor analysis. The factor analysis result of the dependent variables of recruitment website information service quality is shown as Table 3 below:

Table 3. Factor Analysis of Information Service Quality

Total explained variance				
Item	Initial eigenvalues			Rotation sums of squared loadings α
	Total	Variance %	Accumulate %	Total
F1	5.218	74.550	74.550	3.673
F2	.479	6.838	81.388	3.688
F3	.323	4.619	86.006	3.800

As can be seen from the table above, all the 3 dependent variable questions about recruitment website service quality have passed the factor analysis, one factor was taken out, and its accumulate explained variance is 86.006%. Based on the overall question items, the original variables can be well explained, which indicates good reliability.

5.4. Variance Analysis

We use SPSS variance analysis to test whether the sample data basic information (such as gender, age, education level and employment status) will influence the information service quality of recruitment websites. The result is shown as Table 4 below:

Table 4 .Variance Analysis

	Square sum (SS)		Degree of freedom (df)	Mean square (MS)	F	Sig
Gender	Within group	4.019	1	4.019	.136	.956
	Among groups	185.2	256	.762		
	Total	189.219	257			
Age	Within group	2.320	4	3.251	.203	.729
	Among groups	190.23	256	.656		
	Total	192.550	258			
Education Level	Within group	2.363	2	2.00	.598	.675
	Among groups	123.2	257	.63		
	Total	125.563	259			
Employment status	Within group	74.288	4	17.233	.078	1.623
	Among groups	120.931	255	.563		
	Total	195.219	259			

From the above table, we can see significant probabilities of the 4 factors - gender, age, education level and employment status – are all greater than 0.05, which suggests that the respondent's gender, age, education level and employment status make no significant differences in the evaluation of information service quality.

6. Research Model and Hypotheses Testing

6.1. Correlation Analysis

We adopt the Pearson product-moment correlation analysis to examine the correlations in this study. SPSS is used to analyze the correlation between five independent variables and the dependent variable (information service quality of recruitment website). The results of correlation analysis are:

At a significance level of 0.01, five independent variables (information content quality, reliability, ease of use, personalization, interactivity) correlate with information service quality of recruitment website, with correlation coefficients as 0.326**, 0.455**, 0.325**, 0.456**, 0.620**, respectively (Note: ** indicates a significance level of 0.01). The results show that information content quality, reliability, ease of use, personalization, and interactivity all have significant positive associations with information service quality of recruitment website.

6.2. Regression Analysis and Hypotheses Testing

6.2.1. Regression Analysis on Information Service Quality of Recruitment Website

This section examines the influence of five factors (independent variables), namely information content quality, reliability, ease of use, personalization, and interactivity, on the information service quality of recruitment website (dependent variable), as well as the overall impact of these five factors. We conduct a stepwise multiple regression analysis using SPSS. The regression results are shown in Table 5.

Table 5. Regression Analysis on Information Service Quality of Recruitment Website

Model	Unstandardized Coefficient	Standardized Coefficient	t	Sig.	Collinearity Statistics	
					Tolerance	VIF
(Constant)	-1.567E-10		0.11l	0.912		
Information content quality	.299	.336 8	.910	.000	.966 1	.035
Reliability	.196	.224 2	.955	.003	.992 1	.008
Ease of use	.145	.157 3	.329	.001	.875 1	.143
Interactivity	.211	.236 6	.40	.000	.875 1	.143
Personalization	.125	.136 7	.500	.000	.938 1	.066
a. Dependent Variable: Service quality, R2 = 0.659 F = 83.754 DW = 1.009						

As shown in the results above, VIF values are all smaller than 10, which imply that multicollinearity is not high in the regression. DW = 1.009 implies that serial correlation does not exist. Information content quality, reliability, ease of use, personalization and interactivity all pass the T-test and F-test at the significance level of 0.05. The coefficients are 0.299, 0.196, 0.145, 0.211, 0.125 respectively, which are all significantly greater than zero. It shows that all five independent variables are positively associated with the dependent variable – information service quality. The standardized regression paths are shown in Figure 2.

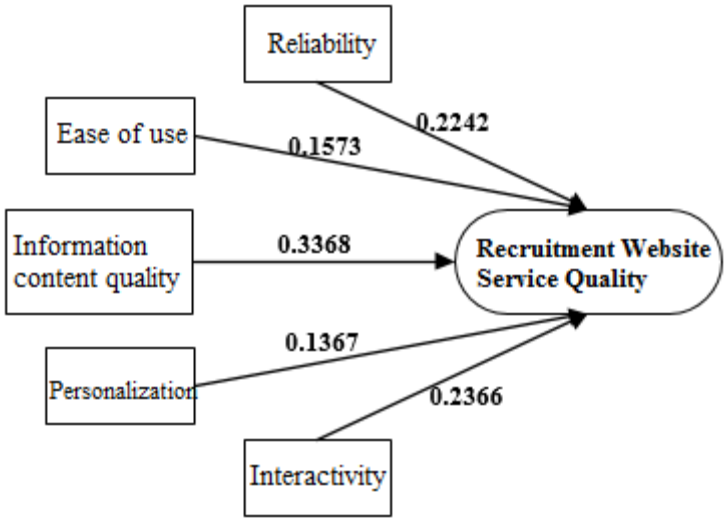

Figure 2. Standardized Regression Paths

The standardized regression equation is: information service quality of recruitment website = 0.3368*information content quality + 0.2242*reliability + 0.1573*ease of use + 0.2366*interactivity + 0.1367*personalization. These five independent variables explain 65.9% of variance (R2 = 0.659) in the dependent variable, *i.e*. information service quality of recruitment website. Among the independent variables, information content quality has the greatest impact on information service quality of recruitment website, followed by interactivity and reliability, while the impact of ease of use and personalization is small.

6.2.2. Hypotheses Testing

According to the regression analysis above, we summarize the results of hypotheses testing in Table 6.

Table 6. Hypotheses Testing Results

	Hypothesis	Result
H1	Information content quality is positively correlated with information service quality of recruitment website.	Supported
H2	Reliability is positively correlated with information service quality of recruitment website.	Supported
H3	Ease of use is positively correlated with information service quality of recruitment website.	Supported
H4	Personalization is positively correlated with information service quality of recruitment website.	Supported
H5	Interactivity is positively correlated with information service quality of recruitment website.	Supported

7. Limitations

(1) The target of this empirical study is the user of recruitment website (online job seeker), and five dimension indexes are proposed with reference to scales developed by many domestic and foreign scholars. Therefore, our conclusions only apply to studies on recruitment website information service. Items and indexes need to be modified if future research is conducted in other industry domains.

(2) Although we collect data by random sampling in an online survey, the sample size is not very large. So our sample is not representative sufficiently, leading to biased results to some degree.

(3) It is quite complicated to investigate the factors influencing information service quality, on which this study empirically analyzes from only five dimensions. In the actual operation and maintenance process, the recruitment website service enterprises should consider the influence of a variety of factors, such as culture difference and user psychology, on the information service quality. Only by enhancing online job seeker's satisfaction can practitioners gain the competitive advantage in the recruitment industry.

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Authors

Feng Hu, she is a Ph.D, lecturer, research interest: Competitive Intelligence and Knowledge Management.