A Study on the Moderating Effects of Problem-Solving Ability on the Effect of Consultant Selection Criteria on Consulting Service Repurchase Intention

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Abstract The aim of this study was to test the effect of consultant's problem-solving ability on consulting services. A questionnaire was conducted for the staff of companies that were consulted, the research models and hypotheses were tested by structural equation. As a result of this study, the moderating effect of the consultant’s problem-solving ability and the fit of the research model were confirmed. In this study, defining the problem solving ability of the consultant as an major variable was a new attempt on the research of the consultant’s competence. We expect that this study will promote various research on consultant’s problem-solving ability and encourage consultants to re-recognize their problem-solving ability. We will conduct research to develop a a tool for measuring the problem-solving ability of consultants recognized as the limitation of this study.

Key Words : Consultant selection criteria, Consultant competency, Problem-solving ability, Consulting service satisfaction, Consulting service repurchase intention

1. Introduction

Among the competencies required by the company to its employees in the workplace such as a company or a specific organization, problem-solving ability is most frequently presented as a representative capability
of common job ability[1]. Korea’s online recruiting company, JobKorea, conducted a survey on 382 small to medium enterprises (SMEs) with over 100 employees and fewer than 300 employees, and found that the ability to deal with problems was a top priority among the most highly regarded talents of the company[2]. Therefore, in any organization, problem-solving ability is a very important competence in the performance of the members of the organization. A management consultant is a specialist defined who has the expertise and insight. A management consultant provides a consultation service such as diagnosing problems in the company management and suggesting solutions for a company to achieve management objects or offers a management consultation and advice through more sophisticated planning, organization, motivation, communication, and resource utilization for a company to set a higher management goal or business execution [3]. In consulting, the most important factor that enables customers to determine the validity and reliability of consulting results is their problem-solving ability.

Consultant applicants who apply to Mckinsey & Company, a global consulting firm, should take the online or direct exam as part of the recruitment process. Depending on the roles they support, tests focus on many aspects of knowledge or ability. One of these tests is the McKinsey Problem Solving Test [4].

In this way, although the problem-solving ability of the consultant is very important in the performance of the consulting, the research on the effect of the consultant’s problem-solving ability on the consulting performance or the consulting repurchase intention is insufficient. So we studied whether the problem-solving ability was moderating in the relationship between consultant selection criteria, consulting service satisfaction and consulting service repurchase intention.

2. Theoretical Background

W. H. Yeo(2016) defines the variables that measure the competence of consultants as a job capacity and a common competence in the study on the effect of the management consultant’s capability and consulting perfection on business performance. First, the job competence and common competency of the management consultant have a significant effect on the completeness of consulting. Second, the job competency and consulting completeness of management consultant have a significant effect on business performance. Third, the completeness of consulting mediates the influence of the capacity of the management consultant on business performance. Fourth, the greater the managerial support, the greater the influence of the managerial competency of the management consultant on the organizational effectiveness [3].

J. H. Park(2015) proposed that the competency of the consultant is defined as ability, knowledge and attitude, and that the competency of the consultant has a positive effect on the consulting performance. In addition, it was suggested that enhancing the consultant’s competency is a prerequisite for enhancing consulting performance [5].

Y. S. Bae(2013) suggested that the common competence and job competence of consultants have a positive impact on the consulting project completeness of management consulting achievement, but the management competence of consultant does not have a significant influence on the completeness of consulting project. The researchers defined the competencies of consultants as common competence, job competence, and management competency [6].

Chung (2011) defined the components of problem-solving ability as horizontal thinking, problem recognition and judgment, alternative evaluation, solution execution, and performance evaluation as a result of reviewing many previous studies. Among them, as the three components of horizontal thinking, perception and judgment, and alternative evaluation and decision appear to give a direct effect of 0.758 on interpersonal abilities, the relationship between these problem solving abilities and interpersonal abilities is
the strongest among all relationships claiming to have a relationship[1]. In addition to these researches, there have been many studies on the relationship and influence of management consultants’ competence, consulting perfection, business performance, consulting service quality, consulting performance and customer loyalty, and definition of problem-solving ability.

However, it has been difficult to find out how the consultant’s problem-solving ability, which may be one of the important factors of the consultant’s competency or consultant selection criteria, affects consulting completion, consulting service quality, consulting performance, consulting satisfaction, and customer loyalty. Although there are various research models, the following study was conducted in this study.

3. Research Model and Hypotheses

3.1 Research Model

This study established a structural equation model as shown in Fig. 1 and evaluated it in order to investigate the direct and indirect effect of consulting satisfaction, a parameter, and the problem-solving ability of a consultant, a moderating variable, on the effects of consultant selection criteria on the consulting repurchase intention.

H1: The consultant selection criteria have a positive effect on the consulting service satisfaction.

H2: The consultant selection criteria have a positive effect on the consulting service repurchase intention.

H3: The consulting service satisfaction influences the consulting service repurchase intention positively.

H4: The consulting service satisfaction mediates the relationship between the consultant selection criteria and the consulting service repurchase intention.

H5: The problem-solving ability of a consultant has a moderating effect on the relationship between the consulting service satisfaction and the consulting service repurchase intention.

3.3 Definition of Variables

3.3.1 Consultant Selection Criteria

Consulting service is an intangible achievement and the capability of a consultant is also invisible. Therefore, a client has to take a high level of uncertainty risk when selecting a consultant or a consulting firm. Chae(2011) suggested that a client should consider the consulting price, proposal and presentation contents, consulting firm’s experience, consulting firm’s awareness, consulting firm’s expertise, and the duration of consulting[7]. Lee(2014) proposed four duty criteria (i.e., consulting know-how, skills and experiences, the possession of skilled consultants, and industry reputation) and three partnership criteria (i.e., revenue size, the size of a company, and the possession of system)[8]. Jeon (2017) also examined the criteria for selecting a consultant and the criteria for considering the characteristics of a consulting firm from the viewpoint of embeddedness theory and signaling theory[9]. The embeddedness theory is the transition area between the economic theory that under-socializes the behavior and the conventional sociological theories that over-socializes behavior. It argues that it is more accurate to regard the economic rationality as the embedded in social relations[10]. Signaling theory is useful to explain the
behavior of two parties assessing different information and has been effectively used in various management literature including strategy management, entrepreneurship, and human resource management[11].

3.3.2 Repurchase intention

Repurchase intention is generally shown in the form of customer satisfaction[12]. When a customer is satisfied with a certain product, the customer is willing to purchase the same product continuously and the customer is not very sensitive to the price incentive activities of competitors. Furthermore, the customer plays an important role to attract new customers through positive word of mouth and increase the profit of the company [13]. Repurchase intention is related to maintaining existing customers and customer retention is an important part of continuously generating corporate profits from a long-term perspective. When a customer has a good perception of a product or service, the customer’s repurchase intention increases. On the other hand, a bad perception of a product or service decreased the repurchase intention[14].

3.3.3 Consulting service satisfaction

Consulting service satisfaction indicates how the consulting results satisfy the needs and expectation of a customer company. It includes various factors including the satisfaction of basic consulting needs, effectiveness, cost-efficiency, and overall satisfaction of the consulting process[15].

3.3.4 Problem-solving ability

Problem-solving ability refers to the ability to find practical solutions and achieve the desirable condition for performing the task properly by overcoming obstacles that cause problems in the process of work performance [16].

3.4 Operational Definition of Investigative Tools and Variables

This study used the questionnaire technique among various empirical analysis techniques such as the interviewing, the participation and observation technique, and the questionnaire technique. A total of 309 questionnaires (N=600, recovery rate = 65.5%) were collected from staffs who were in charge of consulting and worked for the companies received consultation more than once. A regression analysis using structural equation modeling was carried out. AMOS 19.0 was used as an analysis program. The questionnaire was composed of 24 items including 4 items for conducting demographic analyses and Likert 5 point scale was used for them except four items for demographic analysis. Measures related to variables are based on the following studies.

Choi and Hartley (1996) conducted a study on the selection of outsourcing partners based on existing literature. As a result of the factor analysis of 26 items, financial, consistency, relationship, and flexibility were selected as the selection factors[17].

The Korean Small and Medium Business Administration (2009) presented the results of a survey on the development of the consulting industry for companies with experience consulting in the SME consulting white paper. The questionnaire items was “What are the most important considerations when selecting a consulting company?” and the responses included 1) Career experience of consulting firm 2) Main field of consulting firm 3) Recognition of consulting company 4) External public institution evaluation (recommendation, award history, etc.) 5) Recommendation of company who has experience of consulting in the past 6) Proposal or announcement contents 7) Consulting cost 8) Consulting period and 9) Degree of human network formation with consulting firms[18].

Jeon (2017) presented 8 items as the consultant selection criteria based on the embeddedness theory and signaling theory. The items were 1) Recommendation of other companies who have experienced consulting, 2) Experience of past consulting with consultant, 3) Personal acquaintance
with the consultant, 4) Education of consultant, 5) Career and work experience of consultant, 6) Certification of consultant, 7) The reputation of the consultant (lectures, books, media exposure, etc.), 8) Recommendation of acquaintance’s consultant[9].

In this study, because the problem-solving ability of the consultant was a controlling variable, we excluded the items related to the competence of the consultant including the problem-solving ability as the independent factor, the consultant selection factor.

Therefore, Jeon (2017)’s 8 item selection tool, which was judged to be the most suitable for the purpose of the study, was used as the measurement tool for the consultant selection criterion, which was an independent variable of this study model.

The dependent variable, consulting service repurchase intention, was also measured using the four measures proposed by Jeon(2017)[9]. The four metrics presented were 1) If you are consulted again, I will refer you back to the same consultant who has done the consulting before, 2) I am willing to receive in-depth consulting in the same field, 3) I will consult the consultant again if additional costs arise, 4) We are willing to encourage consultants to get around to other people.

The consulting satisfaction as a parameter was measured by four question items except the ‘consultant ability’ which was the same as the ability measurement among the five question items in the measurement tool presented by Yoon Hye Ran (2016). The items presented in the preceding research were 1) Ability of consultant, 2) Results of consulting, 3) Compliance with consulting contract period, 4) Post-management after completion of consulting, and 5) Suitability for management condition of consulting result[19].

Four items corresponding to the problem-solving ability, a regulatory variable, were constructed by extracting the items determined to correspond to the problem-solving ability among items related to the consultant’s competence, suggested by Shin (2012) and conducting an exploratory factor analysis[20].

4. Result

4.1 Analysis Results of Demographic Characteristics

Forty-eight respondents, out of 393 respondents, worked for listed companies and 87.8% of them were affiliated with unlisted companies. Based on the years of work experience, 34.0% were less than 5 years, 26.5% were over 5 years and less than 10 years, 23.7% were between 10 years and 20 years, and 15.8% were over 20 years. By industry, 288 people worked for manufacturing businesses (73.3%) and 26.7% worked for non-manufacturing businesses.

4.2 Validity and Reliability Verification

4.2.1 Verifying the Validity and Reliability of Investigation Tool

Descriptive statistics and exploratory factor analysis were conducted on the collected data by using SPSS 19.0 statistical program. The model and hypotheses were verified by using a structural equation modeling (AMOS). An exploratory factor analysis was conducted prior to verify it with using a structural equation model because it was not possible to find a measurement tool that could evaluate only the problem-solving ability of a consultant from previous studies. Therefore, we selected items that were considered to be problem-solving ability among the questionnaire items regarding the competence of a consultant, which were provided by previous studies, in order to develop a tool to measure the problem-solving ability of a consultant. Moreover, an explanatory factor analysis was conducted to verify if these questionnaire items were valid as a measurement tool.

The analysis results showed that 76.96% of total variance was explained by all variables including mediating variables and regulatory variables. Furthermore, all extracted factors had eigenvalues over 1.0 and the factor loadings of the items were all above 0.5. Consequently, the validity of the measurement tool was secured. The results of the validity analysis of the
tool are shown in Table 1.

Table 1. Validity analysis of the tool

| Items | Factor analysis | Comm-u
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>cps3</td>
<td>0.855</td>
<td>0.081</td>
</tr>
<tr>
<td>cps2</td>
<td>0.829</td>
<td>0.126</td>
</tr>
<tr>
<td>cps4</td>
<td>0.822</td>
<td>0.151</td>
</tr>
<tr>
<td>cps1</td>
<td>0.760</td>
<td>0.059</td>
</tr>
<tr>
<td>sin4</td>
<td>0.082</td>
<td>0.876</td>
</tr>
<tr>
<td>sin3</td>
<td>0.062</td>
<td>0.867</td>
</tr>
<tr>
<td>sin2</td>
<td>0.168</td>
<td>0.817</td>
</tr>
<tr>
<td>sin1</td>
<td>0.066</td>
<td>0.739</td>
</tr>
<tr>
<td>cs2</td>
<td>0.226</td>
<td>0.146</td>
</tr>
<tr>
<td>cs1</td>
<td>0.238</td>
<td>0.067</td>
</tr>
<tr>
<td>cs3</td>
<td>0.143</td>
<td>0.303</td>
</tr>
<tr>
<td>cs4</td>
<td>0.284</td>
<td>0.173</td>
</tr>
<tr>
<td>crp3</td>
<td>0.274</td>
<td>0.313</td>
</tr>
<tr>
<td>crp2</td>
<td>0.320</td>
<td>0.137</td>
</tr>
<tr>
<td>crp4</td>
<td>0.270</td>
<td>0.156</td>
</tr>
<tr>
<td>crp1</td>
<td>0.372</td>
<td>0.365</td>
</tr>
<tr>
<td>batae1</td>
<td>0.103</td>
<td>0.106</td>
</tr>
<tr>
<td>batae3</td>
<td>0.062</td>
<td>0.239</td>
</tr>
<tr>
<td>batae4</td>
<td>0.429</td>
<td>0.152</td>
</tr>
<tr>
<td>batae2</td>
<td>0.189</td>
<td>0.379</td>
</tr>
<tr>
<td>Eigen Value</td>
<td>3.55</td>
<td>3.44</td>
</tr>
<tr>
<td>Explained variance (%)</td>
<td>17.76</td>
<td>17.19</td>
</tr>
</tbody>
</table>

4.2.2 Validity Analysis of the Model by using Structural Equation

The validity of measurement model, convergent validity and discriminant validity are generally used to verify the validity of a measurement tool and a study model by using the confirmatory factor analysis.

The validity analysis of the measurement model is to test the fit of the model by combining the factors with single dimensionality through confirmatory factor analysis.

The validity analysis of measurement model generally uses χ²(Pearson’s chi-square test), Degree of Freedom(DF), Q(χ²/DF; CMIN/DF), GFI(Goodness-of Fit Index), AGFI(Adjusted Goodness-of Fit Index), CFI(Comparative Fit index), TLI(Tucker Lewis Index), RMSEA(Root Mean Square Error of Approximation)[21].

The results of the validity analysis of the measurement model of this study are shown in Table 2.

Table 2. Results of the validity of measurement model

<table>
<thead>
<tr>
<th>χ²</th>
<th>df</th>
<th>p</th>
<th>Q</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>186.28</td>
<td>69</td>
<td>&lt;0.001</td>
<td>2.70</td>
<td>0.976</td>
<td>0.968</td>
<td>0.066</td>
</tr>
</tbody>
</table>

The χ² test conclude that if the value is large, the model does not fit the data. The model did not fit the data as χ²=186.28(p<0.001) in this study. However, rejection in the χ² test is a requirement for the model, not a sufficient condition, so we referred to other fitness indices[19]. As a criterion for fitness indexes other than χ² test, Q is 3 or less, GFI, AGFI, CFI, TLI are 0.9 or more, RMR is 0.05 or less, and RMSEA is 0.1 or less.

Especially, TLI and RMSEA can examine the fitness and simplicity of the model at the same time without being affected by the sample size and CFI is not influenced by the sample size much[22].

In this study, Q was 2.700, CFI was 0.976, TLI was 0.968, and RMSEA was 0.066. Therefore, the fitness of this research model can be evaluated as acceptable.

Convergent validity is the concept that there must be a high correlation between the values measured in different ways to measure the same concept. It is a way to verify how multiple items examining the same concept agree to each other well. Convergent validity is measured by several criteria such as β (≥ 0.5), p (<0.05), average variance extracted (AVE; ≥ 0.5), and construct reliability (C.R.; ≥ 0.7). Discriminant validity is the concept that when different concepts are measured, there must be a difference between measurements even though different measurement methods are used. In general, AVE≥R²(square of correlation coefficient) is used as a validation index.

The convergent validity and discriminant validity of the measurement tools were obtained as shown in Table 3. All AVE values of measurement tools were over 0.5 and all C.R. values were over 0.7 as well. Moreover, Cronbach α was always over 0.7. It could be concluded that the study model met convergent validity and reliability criteria. On the other hand, all AVE values were larger than the square of 0.750 (0.5625), which was the correlation coefficient between the
problem-solving ability and the repurchase intention, the greatest correlation coefficient. Therefore, it could be concluded that the study model secured the discriminant validity among between tools.

Table 3. Analysis results of the model validity

<table>
<thead>
<tr>
<th>Correlation &amp; AVE</th>
<th>C.R.</th>
<th>Cronbach α</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A] Consultant Selection Criteria 0.551*</td>
<td>0.710</td>
<td>0.656</td>
</tr>
<tr>
<td>[B] Consulting Result Satisfaction 0.565</td>
<td>0.909</td>
<td>0.897</td>
</tr>
<tr>
<td>[C] problem-solving ability 0.512</td>
<td>0.967</td>
<td>0.964</td>
</tr>
<tr>
<td>[D] Repurchase Intention 0.681</td>
<td>0.890</td>
<td>0.897</td>
</tr>
</tbody>
</table>

* (): AVE

4.3 Hypotheses Testing

4.3.1 H1, H2, and H3 Testing

H1 (“The consultant selection criteria have a positive effect on the consulting service satisfaction”) was accepted as shown in Fig. 2 and Table 4.

H2 (“The consultant selection criteria have a positive effect on the consulting service repurchase intention”) was accepted as shown in Fig. 2 and Table 4.

H3 (“The consulting service satisfaction influences the consulting service repurchase intention positively”) was accepted as shown in Fig. 2 and Table 4.

Table 4. Hypotheses test result by AMOS

<table>
<thead>
<tr>
<th>H1</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>CR(t)</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>0.923</td>
<td>0.113</td>
<td>0.580</td>
<td>8.172</td>
<td>&lt;0.001</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>0.856</td>
<td>0.119</td>
<td>0.513</td>
<td>7.224</td>
<td>&lt;0.001</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>0.266</td>
<td>0.055</td>
<td>0.303</td>
<td>4.804</td>
<td>&lt;0.001</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

4.3.2 H4 Testing (Mediating Effect)

Sobel’s formula was used to test the statistical significance of the mediating effect.

H4 (“The consulting service satisfaction mediates the relationship between the consultant selection criteria and the consulting service repurchase intention”) was tested by using the Sobel Test. As shown in Table 5, the z value was 4.162 and the p value was <0.001. The results showed that it was partially mediated.

Table 5. Mediating effect by Sobel test

<table>
<thead>
<tr>
<th>H1</th>
<th>B</th>
<th>SE</th>
<th>z</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>0.923</td>
<td>0.113</td>
<td>4.162</td>
<td>&lt;0.001</td>
<td>Partial Mediation</td>
</tr>
</tbody>
</table>

4.3.3 H5 Testing (Moderating Effect)

The statistical significance of the moderating effect was tested by using the X, Mo measurement model after centering the mean of variables. H5 (“The problem-solving ability of a consultant has a moderating effect on the relationship between the consulting service satisfaction and the consulting service repurchase intention”) was tested by using the X, Mo measurement model of AMOS. As shown in Fig. 3 and Table 6, the CR(t) value was -3.357(>±1.96) and the p value was <0.001. Therefore, H5 was accepted.
Table 6. Results of Moderating effect

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>CR(t)</th>
<th>p</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consulting Satisfaction → Problem-Solving Ability → Repurchase Intention</td>
<td>-0.095</td>
<td>0.028</td>
<td>0.874</td>
<td>-3.357</td>
<td>&lt;0.001</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

5. Conclusion

A management consultant is an expert who needs to provide specific solutions to companies or organizations that have consulting contracts or to provide services such as advice on various management issues. In consulting practice, a consultant does not always have more knowledge and experience in a customer's area. However, the consultant must respond to customer requests clearly, quickly, and logically. In this case, the competency needed is the ability to solve problems.

In the results of this study, it has been confirmed that the consultant selection criteria such as recommendation by others, reputation, consultant's academic background and qualifications have a significant (+) influence on consulting service satisfaction and consulting repurchase intention, and the level of problem solving ability of consultant is moderating to consulting service repurchase intention affect.

It suggest that the problem-solving ability of the consultant is one of the factors that have an important influence on the consulting business and in order to increase the consulting service contract renewal rate with the clients, various kinds of systematic education programs are required in addition to the consultant’s own efforts.

For this study, we used a research information sharing service (RISS) site [23], which is widely used in Korea, and searched for previous studies that included 'consultants' in the key words and 'problem solving' in the abstracts including Korean. We found 61 research articles including 26 articles in Korean journals and 35 theses. No research accomplishment was found that problem-solving ability was defined as independent variable. Although not presented in this paper, the results of the Big Data analysis are also similar.

The results of this study, which defined and confirmed the problem-solving ability of the consultant as a variable, suggest a new research model on the competence of the consultant.

This study has several important limitations.

First, the consultant's problem-solving ability measurement tool set for this study was constructed through exploratory factor analysis and confirmatory factor analysis, but it can not be said to be fully verified. Second, there is a possibility that the causal relationship may not be clear because the response to the independent variables and dependent variables may not be a response to the same consulting project. Third, because of the limitations mentioned above, the moderated mediation effect of consultant problem solving ability is not tested and left as a further study.

There are some limitations to this study, we expect that the results of this research will contribute to the re-recognition of the problem-solving ability by the consultant himself, and to the promotion of various research on the consultant education system innovation and the problem-solving ability of the consultant.

As the further research, we will study the development of measurement tools that can measure the problem-solving ability of consultants objectively and clearly, as well as the development of innovative training programs that can substantially enhance the problem-solving ability of consultants.

REFERENCES


[23] www.riss.kr
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