Factor-based Analysis on the Construction of Practical Teaching Evaluation System for Marketing Specialty in Colleges and Universities

Ziyuan Li, Dandan Guo

Xiamen Institute of Technology, Xiamen 361021, China

Abstract

Due to the importance of practical teaching in Marketing Specialty, diversified teaching methods have been adopted by many domestic colleges and universities to improve the practical ability of students. However, currently, many defects are identified in the practical teaching evaluation system for marketing specialty in domestic colleges and universities and hinder the enhancement of practical teaching quality. In view of these, based on the questionnaire survey, this paper uses exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to extract evaluation indexes of practical teaching in the such specialty. Based on the variance contribution rate of each factor in EFA, it determines the weighting coefficient of indexes at each level, and then constructs the practical teaching evaluation index system for marketing specialty, including 6 Level-I indexes, 8 Level-II indexes and 17 observation points. As indicated by the research, the system as constructed in this paper can evaluate the effects of practical teaching objectively from several aspects so that it can improve practical teaching quality fundamentally.

Keywords: Factor analysis, Marketing specialty, Practical teaching, Evaluation system.

1. RESEARCH BACKGROUND

1.1 Literature review

Currently, practical teaching evaluation for marketing specialty in colleges and universities emphasizes the cultivation of students’ practical ability. It mainly judges the value of the process and results of teaching activities by taking teaching goals as practical bases, using some operable scientific means and collecting relevant practical teaching information systematically. At present, many domestic and foreign scholars have shown keen interest in the field and conducted plenty of studies. According to Qian and Liu, in order to improve students’ practical ability, the practical teaching system for such specialty must be established based on requirements of employers and from the curriculum system including in-class practice, graduation design and in-post practical training and from the method system including project teaching (Qian and Liu, 2011). According to An and Liu, to establish such a system, the objectives of talent cultivation should be developed scientifically; a comprehensive and integrated curriculum system should be created; and an all-round practical teaching system should be established from the construction of teaching staff for practical teaching, on-campus practical training center and off-campus internship base, and the monitoring system for practical teaching quality (An and Liu, 2013). As believed by Zhao and Pan, economic globalization, extensive use of the Internet and popularization of network marketing have accelerated the development of marketing theories and practices, and enriched the contents of marketing; such changes have proposed higher requirements on the contents of practical teaching, ways and methods of practice for marketing specialty. They thought that regarding the system, positive exploration should be made on aspects of talent cultivation concepts, talent cultivation modes and in-campus and off-campus integrated teaching (Zhao and Pan, 2014). Yin Yuan analyzed the construction of the system and believed that the combination of teacher assessment and student assessment could reflect more realistically whether the practical teaching evaluation system could effectively examine the practical teaching effects (Yin, 2016).

1.2 Research objectives

Marketing theories and practice have seen a quick development and become more content-rich, with the in-depth development of global economy, the wide application of internet and the popularization of internet marketing;
such changes have proposed higher requirements on the contents of practical teaching, ways and methods of practice for the Marketing specialty. However, many defects are identified in the existing system and thus hinder the radical enhancement of practical teaching quality. The research aims to construct a new type of practical teaching evaluation system which can be used to evaluate the effects of practical teaching objectively from several aspects and thus improve practical teaching quality fundamentally. In view of these, this paper analyses the defects identified in the existing system and, based on the analysis, uses exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to extract evaluation indexes of practical teaching for the Marketing specialty. The results show that the 20 items can be illustrated with 8 factors which correspond to 8 Level-II objectives, namely, practical teaching objectives, teaching management, teaching environment, teaching staff, students' practical achievement, basic ability of students, comprehensive ability of students and students' innovative ability. Then it analyses the determination of weighting coefficient, rating and evaluation results of all indexes and proposes the methods for evaluation of observation points. Connection evaluation and students-oriented evaluation can truly reflect whether the practical teaching evaluation system can effectively test the effectiveness of practical teaching (Ma and Cheng, 2010). The new type of system as constructed in this paper can effectively make up for the deficiencies of the traditional evaluation systems.

2. DEFECTS IDENTIFIED IN THE EXISTING PRACTICAL TEACHING EVALUATION SYSTEM FOR MARKETING SPECIALTY IN DOMESTIC COLLEGES

2.1 Monotonous subject, content and method of practical teaching evaluation

The existing evaluation systems are identified with comparatively monotonous subject, form and content, which cannot reflect the actual situation in all aspects. Refer to the following aspects for specifics: Monotonous subject comes first. Teachers are the only subjects of evaluation, while students' self-evaluation and mutual assessment and evaluation of other social subjects are not conducted (Yan, 2010). Monotonous form of evaluation comes then. The evaluation mainly takes the form of practice report to test the effect of practical teaching on students. However, students’ overall comprehensive ability cannot be evaluated at all through practice report. Therefore, the method of evaluation is relatively simple as a whole, which is, to a certain extent, not conducive to making an objective and fair evaluation of the effectiveness of practical teaching (Xu, 2012). Finally, the existing evaluation is mainly designed to examine civil engineering majors' degree of mastery of theoretical knowledge, with application skills assessment underestimated. The content of exams and the design of items also lack of scientificity, resulting in students' restricted ability of speculation, analysis and integrated applying.

2.1 Lack of standards for practical teaching evaluation

Currently, the practical teaching evaluation for marketing specialty in colleges and universities is lack of standards. The theoretical teaching for marketing specialty in colleges and universities is already equipped with a complete set of theoretical teaching evaluation standards, which can be used to measure the actual teaching efficiency from all angles. However, compared with the theoretical teaching, the practical teaching is identified with such characteristics as of less teaching hours, fewer credits and decentralized practical teaching bases, which leads to the one-sidedness in the evaluation of practical teaching efficiency in colleges and universities, although the practical teaching is comparatively well developing. Formulating the evaluation standards for practical teaching efficiency might see so many uncertainties in the process (Xu, 2010). Teachers are possibly with a certain degree of subjectivity and lack of objectivity and fairness, which might have a direct impact on students' daily performance and be not conducive to improving students' learning enthusiasm. In general, the lack of such standards makes it difficult to improve the quality of practical teaching (Du, 2012).

3. FACTOR-BASED ANALYSIS ON THE CONSTRUCTION OF PRACTICAL TEACHING EVALUATION SYSTEM FOR MARKETING SPECIALTY IN COLLEGES AND UNIVERSITIES

3.1 Determination of practical teaching evaluation indexes

In order to fully reflect the evaluation indexes of practical teaching in marketing in colleges and universities, when designing the items of the questionnaire, we comprehensively considered the current situation of practical teaching in marketing specialty in our country, and, on the basis of the questionnaire survey, held a forum of marketing teachers to design the questionnaire (Lu and Zong, 2013). To guarantee the validity of survey sample data, a total of 650 questionnaires were distributed in the form of e-questionnaires or through major retail website forums, questionnaire stars and e-mails from January to March, 2017, while 623 copies were collected. With those
identified incomplete deleted, we finally obtained 609 valid questionnaires, with an effective recovery rate of 93.69%. Subsequently exploratory factor analysis and confirmatory factor analysis were conducted on the survey data to determine the evaluation index system.

3.1.1. Exploratory factor analysis

Exploratory factor analysis was conducted on the published 609 questionnaire results with SPSS 22.0, while KMO values and Bartlett's test of sphericity were used to test their suitability. Refer to Table 1 for the results.

| Table 1 KMO and Bartlett's Test of Sphericity |
|-----------------|---------|-----------------|-----|------|
| Test index      | KMO value | Chi-square value in Bartlett's sphericity test | df  | Sig. |
| Index value     | 0.812    | 8069.384        | 1421| 0.000|

As shown in Table 1, the KMO value is 0.812 (above 0.8), which indicates that these data are suitable for factor analysis. Bartlett's test of sphericity can be used for factor analysis only when the null hypothesis of uncorrelated variables is rejected. The significance level of the test in this paper is \( p = 0.000 <0.05 \), which indicates that the data are suitable for factor analysis.

By orthogonal rotation of the factors and selection of the data whose eigenvalues are more than 1, we find that the survey items can be illustrated with 8 factors. Moreover, the metric structure constructed by all the factors in this paper cumulatively explains the variance contribution rate of 69.12%. After the rotation, we find that the factor loading of the original variables corresponding to all factors is above 0.5, which indicates that the next step can be taken.

3.1.2 Confirmatory factor analysis

In this paper, LISREL8.70 was used for analysis to obtain the goodness-of-fit index of the CFA model as indicated in Table 2.

| Table 2 Goodness-of-fit index of the CFA model |
|----------------|---------|----------------|-------|-------|-------|-------|-------|-------|-------|
| Index Value    | \( x^2/df \) | RMSEA | PGFI | AGFI | NFI | NNFI | CFI | IFI | RFI | SRMR |
|                | 1.54    | 0.005 | 0.75 | 0.59 | 0.84 | 0.85 | 0.86 | 0.87 | 0.82 | 0.045 |

It is indicated in Table 2 that all the goodness-of-fit indexes have reached the standard for the model. That is, the model fitting is good, and the factor obtained through factor analysis is comparatively reliable. Therefore, the model does not need to be amended.

3.1.3 Reliability test

Reliability analysis was conducted on the selected data with Cronbach’s Alpha test method (Table 3);

First, the statistics of the business synergies index scale show that the sample reliability is as comparatively high as \( \alpha=0.894>0.7 \). Second, the statistics of the equipment synergies index scale see \( \alpha=0.842>0.7 \), which indicates the sample reliability is good; third, the statistics of other synergies index scales show that the \( \alpha \) value of Cronbach’s Alpha is mostly above 0.8. Therefore, the overall internal reliability of the scale is good.

3.1.4 Determination of practical teaching evaluation indexes

Based on the results of exploratory factor analysis, confirmatory factor analysis and scale reliability test, it can be seen that the 20 items can be illustrated with 8 factors which correspond to 8 Level-II objectives, namely, practical teaching objectives, teaching management, teaching environment, teaching staff, students' practical achievement, basic ability of students, comprehensive ability of students and students' innovative ability.

3.2 Determination of index weight for practical teaching evaluation
3.2.1 In this paper, Level-I and Level-II index weights were determined according to the variance contribution rates of all factors obtained in exploratory factor analysis based the questionnaire.

3.2.2 Determination of weights of observation points

In this paper, weight coefficients of observation points were mainly determined based on the communalities of all indexes as identified in factor analysis. The reason is that the communalities consider the amount of information provided as the weight and thus have strong practical significance. The more information contributed to the integrity, the greater the weight.

3.3 Practical teaching evaluation index system

3.3.1 The practical teaching evaluation index system is designed according to the analysis and calculation results, as indicated in Table 3.

| Table 3 Practical Teaching Evaluation Index System for Marketing Specialty |
|------------------|------------------|-----------------|--------------------------------|-----------------|
| Level I(z)       | Level II(y)      | Weight          | Index                           | Weight          |
| Objective        | practical teaching objectives | 100             | specialized training goal       | 30              |
| Teaching         | in-post practical training | 50              | methods for practical teaching  | 50              |
| implementation   | teaching environment | 40              | On-campus practical teaching base | 50              |
| system           | teaching staff    | 20              | Qualification of part-time advisers | 20              |
| Teaching         | students' practical achievement | 100             | Achievement in contests         | 50              |
| efficiency       | Achievement in in-post practical training | 50             | Ability in Oral expression      | 30              |
| system           | basic ability of students | 100             | Ability in active participation | 30              |
| Basic ability    | comprehensive ability of students | 100             | Ability in industry understanding | 40              |
| Comprehensive     | With high marketing planning ability | 50              | With creative project plans     | 50              |
| ability          | students' innovative ability | 100             | With creative practice process  | 50              |
| Innovative       | With unique concept in practice report | 50              |                                |                 |
| ability          |                                |                 |                                |                 |
| Total            |                                | 100             |                                |                 |

3.3.2 Determination of ratings

The practical teaching evaluation index system for marketing specialty involves altogether 6 Level-I indexes, 8 Level-II indexes and 17 observation points. The evaluation standards for observation points can be classified into 4 levels, namely, A, B, C and D.

Score of each observation point=score of level * weight, namely, $X=x_i*n$.
Score of each Level-II index = sum of all observation points for Level-II index * weight, namely, \( Y = y_i \times \sum X \).

Total score = sum of all Level-II indexes * weight of Level-I indexes, namely, \( Z = z_i \times \sum Y \).

3.3.3 Determination of evaluation results

Based on the calculated value of \( Z \), 85 points or more is excellent, 70 to 85 points is good, 60 to 75 points mean pass, while less than 60 points mean fail.

4. METHOD FOR OBSERVATION POINTS ASSESSMENT

As to observation point assessment, colleges and universities can, with the actual situation taken into consideration, give each evaluation form a weight coefficient and finally calculate its final scores. For example, score of each observation point = score obtained through college teachers’ assessment *30% + score obtained through business guidance teachers’ assessment *40% + score obtained through students’ assessment *30%. Assessment can be conducted in the following ways:

4.1 Connection evaluation

The practical teaching evaluation indexes for marketing specialty in colleges and universities are established to facilitate evaluation and reflect it in a comprehensive and objective way. A single evaluation index can not reflect the integrity of evaluation, and, therefore, all the index evaluation results should be connected and integrated. When conducting the evaluation, we should not simply list the results of a single evaluation index, but should reveal the inner connection between each other, such as how far teaching objectives are achieved in the teaching process, or how far teaching methods are applied to safeguard the teaching efficiency (Xiong, 2011). In-class teaching evaluation indexes directly correspond to the teaching practice. It is not advised to conduct evaluation of single indexes without analysing their connection, which might decrease the validity of evaluation for failure in considering in-class teaching as a whole and make people lose the ability to judge the whole in-class teaching.

4.2 Students-oriented evaluation

Students-oriented evaluation is conducted to measure teachers’ teaching efficiency through examination of students’ performance in study. In the practical teaching for marketing specialty, students' performance in study mainly involves students’ mastery of marketing practice skills, students’ learning attitude, interest, expectation, independence and creativity (Lei and He, 2016). Students’ mastery of marketing practice skills, can be used to directly test teachers’ teaching quality; students’ learning attitude and interest can be used to directly test teachers’ teaching behaviors. Evaluation of students’ independence and creativity can directly reflect whether teachers are innovative in teaching, whether they have paid due attention to students' practical skills in daily teaching, and whether they have focused on challenging learning tasks in their assignments.

5. CONCLUSIONS

All in all, the practical teaching evaluation system of marketing specialty as constructed in this paper can be used to evaluate the practical teaching efficiency in a more scientific, reasonable, objective, fair and comprehensive way and identify gaps in the process, based on which a series of measures can be taken to narrow the gaps so as to effectively improve the practical teaching efficiency. This paper is innovative by combining quantitative and qualitative methods to determine the indexes, methods and index weight of practical teaching evaluations, which might help advisers to analyse the practical teaching effects on students in a comprehensive way and make more objective and fair judgments. It is hopeful that the evaluation system will be widely used in all colleges and universities in the near future.

REFERENCES

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