An Analysis of Educational Quality of Universities in the North of Vietnam

Bui Thi Thanh Huong¹, Nguyen Thi Thu Ha²* and Nguyen Van Huy¹
¹Faculty of Marketing, Commerce Tourism of Thai Nguyen University of Economics and Business Administration, Vietnam
²Faculty of Economics, Thai Nguyen university of Economics and Business Administration, Vietnam

Abstract
The aim of this study is to find the solutions of quality improvement for selected leading universities in the North of Vietnam. The authors collected data from parents, staffs, government officer, industrial experts, etc. This study used Likert scale of five. From the results of hypotheses, the author found the relationships among variables. Based on that point of view, the author proposed general recommendations for university and leaders and the suggestion for each stakeholder in education. In terms of important findings, finding dimensions and analyzing their relationships contribute to the evaluation of educational quality in North of Vietnam.

Keywords: Total quality management; Total quality education; Education quality; Statistical analysis

Introduction
As a developing country, Vietnamese government invests a large number of resources in upgrading and renovating its education system. Most of the universities in Vietnam are public schools which has been dominating their educational market for decades. In the past, the Ministry of Education and Training (MOET) organized the university entrance exam in different groups such as A, B, C, D and other groups (A1, D1). In fact, group A involves Mathematics, Physics, and Chemistry; Group B: Mathematics, Chemistry, and Biology; Group C: Literature, History, and Geography; Group D: Mathematics, Literature and foreign language [1]. For example, if you want to become a doctor, you will take the exam of group B. Another loves becoming a journalist, he or she can take the group C. Examinations take this general-purpose input for universities and colleges in Vietnam. An examination by the Ministry of Education and training is held every year, right after High School Graduation Examination for about a month. According to the plans, the two exams lumped together in 2010 [2]. However, until now, in 2015, the MOET has decided to merge two exams, in which students would take at least four subjects for exam and one sub-subject. Scores from these subjects would be used to assess whether the students pass high school graduation exam and are eligible to apply for their desired college with three chosen from the four given subjects [3]. This means that students have more opportunities in their decision to the universities they consider. Nevertheless, competition amongst universities is increasing. Therefore, many Vietnamese universities have become up with solutions to attract more students. Yet, very few of them have discussed how to improve their competitiveness and student attraction based on analyzing their core resources and voice of stakeholders.

Review of Literature
In order to review previous studies on the issue, the researcher has collected key papers in Web of science based on such key words as “total education quality” “higher education”, “total quality management”. More than one thousand papers were extracted. In addition, the researcher also found references about education quality in higher education of Vietnam. Based on the citation, key related studies were reviewed [4] (Table 1).

In general, these studies tend to focus on teaching quality and student engagement. Since many of them are from Asia, it is clear that Asian countries have paid attention to further improve education quality. The research studies in Vietnam also look for the solutions to labour quality as well as teaching and learning activities.

Research Framework
In the previous chapter, we already found the key variables for the framework. Based on the literature review and the interview with expert, we proposed the framework and hypotheses as Figure 1.

H1: Campus environment and teaching quality has influence on technical system and social system, and management system (for clear recruiting, nurturing and developing faculty and staff, Budget priorities, and clear evaluation and control system).

H2: Campus environment and teaching quality influence management system for goals, vision, mission, leadership, organization design and clear policies.

H3: International opportunity and the output after graduation for students has influence on Technical system and social system, and management system (for clear recruiting, nurturing and developing faculty and staff, Budget priorities, and clear evaluation and control system).

H4: International opportunity and the output after graduation for students has influence on Management system for goals, vision, mission, leadership, organization design and clear policies.

H5: Faculty’s competence and attitude has influence on Technical system and social system, and management system (for clear recruiting, nurturing and developing faculty and staff, Budget priorities, and clear evaluation and control system).

H6: Faculty’s competence and attitude has influence on Management system for goals, vision, mission, leadership, organization design and clear policies.

*Corresponding author: Nguyen Thi Thu Ha, Faculty of Economics, Thai Nguyen university of Economics and Business Administration, Vietnam, Tel: 84912102154; E-mail: nthuha01@gmail.com

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Table 1: Related studies or researches on higher education.

<table>
<thead>
<tr>
<th>Year</th>
<th>The author</th>
<th>Title</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>Bornman, Elirea; Pauw, J C; Potgieter, Petrus H</td>
<td>A relationship marketing approach to education as a service: an application to the University of Valencia</td>
<td>Spanish</td>
</tr>
<tr>
<td>2014</td>
<td>Tran Thi Lan</td>
<td>Labor quality of the intelligentsia in Vietnam higher education today</td>
<td>Vietnamese</td>
</tr>
<tr>
<td>2013</td>
<td>Kim, Gyesoo</td>
<td>Effects of Difference Education Quality on Student Satisfaction and Student Loyalty</td>
<td>Korean</td>
</tr>
<tr>
<td>2010</td>
<td>Nguyen Thi Thu Hang</td>
<td>Organization of teaching activities towards promoting creative thinking ability for Agriculture - Forestry - Fishing majors at colleges and universities</td>
<td>Vietnamese</td>
</tr>
<tr>
<td>2005</td>
<td>H Coates</td>
<td>The value of student engagement for higher education quality assurance</td>
<td>English</td>
</tr>
</tbody>
</table>

The hypotheses between expectation of all testers and satisfaction of faculty

- **H1**: Campus environment & teaching quality
- **H2**: International opportunity & the output
- **H3**: Faculty’s competence and attitude
- **H4**: Technical system, social system & management system
- **H5**: Management system
- **H6**: Reputation, facility & activities
- **H7**: Campus environment & teaching quality
- **H8**: International opportunity & the output
- **H9**: Faculty’s competence and attitude

The hypotheses between expectation of all testers and satisfaction of student

- **H10**: Campus environment & teaching quality
- **H11**: International opportunity & the output
- **H12**: Faculty’s competence and attitude
- **H13**: Public information on website & diverse curriculum
- **H14**: Faculty’s competence and attitude
- **H15**: Public information on website & diverse curriculum

Figure 1: The proposed research framework.

H7: Campus environment and teaching quality has influence on International environment and campus condition.

H8: International opportunity and the output after graduation for students has influence on International environment and campus condition.

H9: Faculty’s competence and attitude has influence on International environment and campus condition.

H10: Campus environment and teaching quality has influence on Reputation, facility and activities in University.

H11: Campus environment and teaching quality has influence on Public information on website and diverse curriculum.

H12: International opportunity and the output after graduation for students has influence on Public information on website and diverse curriculum.

H13: International opportunity and the output after graduation for students has influence on Reputatation, facility and activities in University.

H14: Faculty’s competence and attitude has influence on Reputation, facility and activities in University.

H15: Faculty’s competence and attitude has influence on Public information on website and diverse curriculum.

This study uses the quantitative method to analyze the educational quality of universities in Northern Vietnam. In addition, a qualitative method is applied to discover and explain the causes behind the findings of quantitative analysis [5]. The purpose of a qualitative analysis is to check a phenomenon or relationship that is happening at a specific time and places [6]. Based on the analysis of key variables, we discover the demands of customers, and then we use it to measure satisfaction level of them. Due to limit of time, questionnaire was delivered to respondents via internet. An online survey was conducted to collect the data from customers of education. The respondents of
the study are teachers, students, students’ parents, staff, government officers and industrial employees, etc in five universities which train one same major that is Business administration [7].

The samples from the Universities are as Table 2.

**Data analysis and Results**

Among the respondents 50.63 % were male while 49.38% were female and mainly at the age from 18 to 24 years old (72.50%). The majority of customers who responded to the questionnaire were students (68.75%), while the rest 16.88% and 14.38% participants are teachers and others respectively. Most of the students answering this survey were full-time undergraduate students (92.78%). In the Table 3, we can see that 32.50% responses were from TUEBA, 21.25% from PTIT, 13.75% from HVU, 16.88% from VCU and 15.63% from TNUT [8] (Table 3).

**Rotated component matrix**

KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) is acceptable. KMO of Q1-44 (For all) and Q1-13 (For students) is higher than 0.9, which means marvelous, while the others such as Q1-Q23 and Q1-8 are miserable. In terms of the Bartlett’s Test, it reflects the significance of this study. For this situation, the Bartlett’s Test of Sphericity is less than 0.05. This result meets the requirement. Thus, this research is significant. Rotated Component Matrix is used to read the statistic in an easier way compared with Component Matrix [9]. We use rotated component matrix to confirm the dimensions or variables proposed in the framework (Table 4).

As seen in the table, we find the variables (42, 44, 43, 21, 30, 11, 16, 10, 14, 23, 20, 41, 15, 26, 24, and 17) strongly correlated with each other in the 1st component that we call ”dimension 1”. Similarly, dimension 2 includes variables 37, 34, 28, 36, 40, 38, 39, 35 and 31. The variables which are the explanatory variables to dimension 3 are 2, 5, 3, 6, 7 and 1.

Based on the similarities (expressed overall) of variables in the same dimension, we name these dimensions.

Dimension 1: Campus environment and teaching quality (X1)

Dimension 2: International opportunity and the output after graduation for students (X2)

Dimension 3: Faculty’s competence and attitude (X3)

We use this method to confirm the factor analysis. After naming dimensions, we have the dimensions which fit the factors in the literature review.

We use this method to confirm the factor analysis [10]. After naming dimensions, we have the dimensions which fit the factors in the literature review.

**Dimensions**

**Y1 (satisfaction of faculty)**

Dimension 1: Technical system and social system, and management system (for clear recruiting, nurturing and developing faculty and staff, Budget priorities, and clear evaluation and control system) (Y1a).

Dimension 2: Management system for goals, vision, mission, leadership, organization design and clear policies (Y1b).

**Y2 (satisfaction of student)**

Dimension 1: International environment and campus condition (Y2).

**Y3 (satisfaction of others)**

Dimension 1: Reputation, facility and activities in University (Y3a).

Dimension 2: Public information on website and diverse curriculum (Y3b).

**Regression Analysis**

SPSS is used to examine the connections between dependent variables and independent variables. This study analyzes multiple regressions of each connection to investigate the effect of metric independent variables on each single metric dependent variable [11]. In the data, we consider three main contents which are model summary table to check R-squared, ANOVA to examine the significance, and coefficients to check standardized beta and significance (Table 5 and Figure 2).
In the first model: Check the relationship among variables with Y1a and Y1b With Y1a

After running multiple regression analysis, we achieve the result as above which demonstrates the relationships among variables. The statistics show that Adjusted R square ($R^2=0.431$), which means that these variables explains 43.1% of the total variance of Y1a, and $p<0.05$, showing that the model is significant.

The statistic found for H1 ($\beta=0.451$, $p<0.01$) suggests that X1 (Campus environment and teaching quality) has influence on Y1a (Technical system and social system, and management system (for clear recruiting, nurturing and developing faculty and staff, budget priorities, and clear evaluation and control system)) [12]. The result for H3 ($\beta=0.481$, $p>0.05$) shows that there is no relationship between X3 (International opportunity and the output after graduation for students) and Y1a (Management system for goals, vision, mission, leadership, organization design and clear policies) [13]. The result for H5 ($\beta=0.481$, $p>0.05$) shows that there is no relationship between X3 (Campus environment and teaching quality) and Y1a (Management system). Of the three variables, X2 has the strongest positive influence on Y1a, with $\beta=0.481$.

With Y1b

The statistics show that Adjusted R square ($R^2=0.364$), which means that these variables explains 36.4 % of the total variance of Y1b, and $p<0.05$, showing that the model is significant.

The result for H2 ($\beta=0.229$, $p>0.05$) shows that there is no relationship between X1 (Campus environment and teaching quality) and Y1b (Management system for goals, vision, mission, leadership, organization design and clear policies). The result for H4 ($\beta=0.096$, $p>0.05$) shows that there is no relationship between X2 (International opportunity and the output after graduation for students) and Y1b (Management system for goals, vision, mission, leadership, organization design and clear policies) [14]. The statistic found for H6 ($\beta=0.622$, $p<0.001$) suggests that X3 (Faculty’s competence and attitude, facility) has influence on Y1b (Management system for goals, vision, mission, leadership, organization design and clear policies). Of

### Table 4: Rotated Component Matrices.

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others (42. Campus is beautiful)</td>
<td>.833</td>
<td>.242</td>
<td>.068</td>
</tr>
<tr>
<td>Others (44. Lots of activities, such as clubs and competition)</td>
<td>.769</td>
<td>.294</td>
<td>.217</td>
</tr>
<tr>
<td>Others (43. Living in school is convenient, friendly and safe)</td>
<td>.765</td>
<td>.297</td>
<td>.244</td>
</tr>
<tr>
<td>Delivery (21. Orderly environment is important/benefit for learning)</td>
<td>.757</td>
<td>.265</td>
<td>.365</td>
</tr>
<tr>
<td>Others (30. Location and transportation system is convenient)</td>
<td>.744</td>
<td>.203</td>
<td>.323</td>
</tr>
<tr>
<td>Content (11. The learning approach is adequate)</td>
<td>.737</td>
<td>.213</td>
<td>.452</td>
</tr>
<tr>
<td>Delivery (16. The classroom management is effective)</td>
<td>.729</td>
<td>.317</td>
<td>.347</td>
</tr>
<tr>
<td>Attitude (10. The teaching or learning activity in classroom is cooperative and collegial)</td>
<td>.713</td>
<td>.249</td>
<td>.432</td>
</tr>
<tr>
<td>Content (14. Offering cross disciplinary courses)</td>
<td>.666</td>
<td>.492</td>
<td>.250</td>
</tr>
<tr>
<td>Delivery (15. It is easy to contact/access to teachers and administrative staff)</td>
<td>.663</td>
<td>.366</td>
<td>.322</td>
</tr>
<tr>
<td>Reliability (26. Adherence to course objectives)</td>
<td>.655</td>
<td>.260</td>
<td>.412</td>
</tr>
<tr>
<td>Reliability (24. The policies/guidelines are clearly specified)</td>
<td>.644</td>
<td>.296</td>
<td>.398</td>
</tr>
<tr>
<td>Delivery (17. The teaching approach is adequate and appropriate)</td>
<td>.631</td>
<td>.394</td>
<td>.423</td>
</tr>
<tr>
<td>Others (37. Overseas study opportunity for student)</td>
<td>.267</td>
<td>.821</td>
<td>.275</td>
</tr>
<tr>
<td>Others (34. Attractive scholarship for student)</td>
<td>.311</td>
<td>.803</td>
<td>.219</td>
</tr>
<tr>
<td>Others (28. The ability of to find job after graduation (For students))</td>
<td>.129</td>
<td>.796</td>
<td>.241</td>
</tr>
<tr>
<td>Others (36. Internship opportunity for student)</td>
<td>.172</td>
<td>.795</td>
<td>.308</td>
</tr>
<tr>
<td>Others (40. International environment (English environment with lots of international students))</td>
<td>.301</td>
<td>.789</td>
<td>.099</td>
</tr>
<tr>
<td>Others (38. Exchange and dual degree opportunity for student)</td>
<td>.267</td>
<td>.785</td>
<td>.255</td>
</tr>
<tr>
<td>Others (39. Education for acquiring certificate)</td>
<td>.348</td>
<td>.680</td>
<td>.134</td>
</tr>
<tr>
<td>Others (35. TA or RA opportunity for student)</td>
<td>.360</td>
<td>.676</td>
<td>.338</td>
</tr>
<tr>
<td>Others (31. Reasonable tuition or attractive salary)</td>
<td>.410</td>
<td>.662</td>
<td>.192</td>
</tr>
<tr>
<td>Competence (2. Faculty’s expertise meets the standard of excellence)</td>
<td>.325</td>
<td>.302</td>
<td>.743</td>
</tr>
<tr>
<td>Attitude (5. The problem solving of faculty andamp; staff is efficient and effective)</td>
<td>.425</td>
<td>.336</td>
<td>.670</td>
</tr>
<tr>
<td>Competence (3. Faculty’s teaching ability and skills satisfy the students’ requirement)</td>
<td>.373</td>
<td>.411</td>
<td>.645</td>
</tr>
<tr>
<td>Attitude (8. Strong orientation towards achievement of student)</td>
<td>.390</td>
<td>.213</td>
<td>.639</td>
</tr>
<tr>
<td>Attitude (7. The working or learning atmosphere in classroom is competitive and dynamic)</td>
<td>.423</td>
<td>.252</td>
<td>.637</td>
</tr>
<tr>
<td>Competence (1. The physical facilities/infrastructure is appropriate)</td>
<td>.460</td>
<td>.416</td>
<td>.571</td>
</tr>
</tbody>
</table>

**Table 5:** The result of hypotheses.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>p</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>p&lt;0.01</td>
<td>Positive</td>
</tr>
<tr>
<td>H2</td>
<td>p&gt;0.05</td>
<td>Negative</td>
</tr>
<tr>
<td>H3</td>
<td>p&lt;0.01</td>
<td>Positive</td>
</tr>
<tr>
<td>H4</td>
<td>p&gt;0.05</td>
<td>Negative</td>
</tr>
<tr>
<td>H5</td>
<td>p&gt;0.05</td>
<td>Negative</td>
</tr>
<tr>
<td>H6</td>
<td>p&lt;0.001</td>
<td>Positive</td>
</tr>
<tr>
<td>H7</td>
<td>p&lt;0.001</td>
<td>Positive</td>
</tr>
<tr>
<td>H8</td>
<td>p&lt;0.001</td>
<td>Positive</td>
</tr>
<tr>
<td>H9</td>
<td>p&lt;0.001</td>
<td>Positive</td>
</tr>
<tr>
<td>H10</td>
<td>p&lt;0.01</td>
<td>Positive</td>
</tr>
<tr>
<td>H11</td>
<td>p&lt;0.05</td>
<td>Negative</td>
</tr>
<tr>
<td>H12</td>
<td>p&lt;0.05</td>
<td>Negative</td>
</tr>
<tr>
<td>H13</td>
<td>p&lt;0.05</td>
<td>Positive</td>
</tr>
<tr>
<td>H14</td>
<td>p&lt;0.05</td>
<td>Negative</td>
</tr>
<tr>
<td>H15</td>
<td>p&lt;0.05</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Note: $p>0.05$: Negative; $p<0.05$: Positive ($p<0.05$: *; $p<0.01$: **; $p<0.001$: ***).
In the third model: Check the relationship among variables with Y3a and Y3b with Y3a

After running multiple regression analysis, we achieve the result as above which demonstrates the relationships among variables. The statistics show that Adjusted R square (R²=0.387), which means that these variables explain 38.7% of the total variance of Y3a, and p<0.05, showing that the model is significant.

The statistic found for H10 (β=0.645, p<0.01) suggests that X1 (Campus environment and teaching quality) influences Y3a (Reputation, facility and activities). The result for H12 (β=0.148, p>0.05) shows that there is no relationship between X2 (International opportunity and the output after graduation for students) and Y3a (Reputation, facility and activities). The result for H14 (β=0.25, p>0.05) shows that there is no relationship between X3 (Faculty’s competence and attitude, facility) and Y3a (Reputation, facility and activities). Of the three variables, there is only X1 which has positive influence on Y3a with β=0.645.

With Y3b

After running multiple regression analysis, we achieve the result
as above which demonstrates the relationships among variables. The statistics show that Adjusted R square ($R^2=0.397$), which means that these variables explains 39.7% of the total variance of Y3b, and $p<0.5$, showing that the model is significant.

The result for H11 ($\beta=0.264$, $p>0.05$) shows that there is no relationship between X1 (Campus environment and teaching quality) and Y3b (Public information on website and diverse curriculum). The statistic found for H13 ($\beta=0.480$, $p<0.05$) suggests that X2 (International opportunity and the output after graduation for students) has influence on Y3b (Public information on website and diverse curriculum). The statistic found for H15 ($\beta=0.404$, $p<0.05$) suggests that (Faculty’s competence and attitude, facility) has influence on Y3b (Public information on website and diverse curriculum). Of the three variables, X2 has the strongest positive influence on Y3b with $\beta=0.480$.

Conclusions and Recommendations

Campus environment and teaching quality have influence on technical system, social system and management system (for clear recruiting, nurturing and developing faculty and staff, budget priorities, and clear evaluation and control system).

There is no relationship between campus environment and teaching quality and management system for goals, vision, mission, leadership, organization design and clear policies. International opportunity and the output after graduation affect technical system, social system and management system (for clear recruiting, nurturing and developing faculty and staff, budget priorities, and clear evaluation and control system).

International opportunity and the output do not influence on management system for goals, vision, mission, leadership, organization design and clear policies. Faculty’s competence and attitude does not have influence on technical system, social system and management system (for clear recruiting, nurturing and developing faculty and staff, budget priorities, and clear evaluation and control system).

There is a relationship between faculty’s competence and attitude and management system for goals, vision, mission, leadership, organization design and clear policies.

Campus environment and teaching quality affect international environment and campus condition. International opportunity and the output affect international environment and campus condition. Faculty’s competence and attitude has influence on international environment and campus condition. Campus environment and teaching quality have influence on reputation, facility and activities. Campus environment and teaching quality do not affect public information on website and diverse curriculum. International opportunity and the output do not affect reputation, facility and activities.

International opportunity and the output affect public information on website and diverse curriculum. Faculty’s competence and attitude does not have influence on reputation, facility and activities. Faculty’s competence and attitude has influence on public information on website and diverse curriculum.

Suggestions for students

Students have to understand that they play the most important role in educational quality. Thus, they have to contribute to learning quality. The students should study in a positive way to catch up with the latest knowledge. They need to improve their English level to get international opportunities in international conferences, exchange study or overseas. Additionally, students should take part in important competitions for students about knowledge, skills as Olympic, festivals and others in order to get good results. Specifically, students have to share their opinions, comments or suggestions about their study process and learning environment in a more serious and responsible way. Finally, students need to find the internship opportunities by themselves to gain the experience.

Suggestions for teachers

Teachers need to consider the students as the center of education. From that point of view, they have to improve their knowledge and skill to train their students in the best way. Changing new teaching methods and updating modern technology are necessary in teaching activities. They ought to take the chances of studying abroad and business trips. In addition, they should encourage students to enter competitions or internships. They have to be a good example for the students to follow. In Vietnam, the distance between the teacher and the student is still quite far because of their culture, so teachers ought to make that distance closer to understand students’ real needs.

Suggestions for parents

In Vietnam, parents give their children advice to choose a suitable university. However, in the study process of students, the connection between the university and the parents is a loose relationship. They do not have parents’ committees, which mean that no organization or group can represent the parents to hear their opinions, or ideals. The first solution is that they have to care about their children more even though their children are students in universities. A parents’ committee or group should be established. Secondly, the parents should support the development of university in activities, facilities, and educational quality plans.

Suggestions for other stakeholders as governmental officers or industrial employees

They are the people who have the macro impact on higher education. They should update the strengths and weaknesses of the universities. Business visits are necessary to keep updated with the practical situation. They should help the universities in management, evaluation and internship.

Acknowledgment

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