

**Artículo** 

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# Building Quality Culture at Vietnamese Private Universities

Construyendo una Cultura de Calidad en Universidades Privadas Vietnamitas

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#### **ABSTRACT**

Quality Culture has a decisive role in maintaining and improving the quality of Vietnamese private universities to best meet the demand of customers. However, there is no private universities in Vietnam that has built quality culture based on a feasible and practical study. Therefore, this study is first implemented in Vietnam to address that situation of private universities. Based on theoretical and practical study, this study aims to give six solutions for building of Quality Culture to improve the quality of training and education, scientific research, and public service of Vietnamese private universities.

**Keywords:** building, Quality Culture, private universities, Vietnam, solutions.

#### **RESUMEN**

La Cultura de Calidad tiene un papel decisivo en el mantenimiento y la mejora de la calidad de las universidades privadas vietnamitas, con el fin de satisfacer mejor la demanda de los clientes. Sin embargo, no hay universidades privadas en Vietnam que hayan construido una cultura de calidad sobre la base de un estudio factible y práctico. Por ello, este estudio se implementa por primera vez en Vietnam para abordar esa situación de las universidades privadas. Basado en estudios teóricos y prácticos, este estudio tiene como objetivo proponer soluciones para la construcción de la Cultura de Calidad con el fin de mejorar la calidad de la formación y la educación, la investigación científica y el servicio público de las universidades privadas vietnamitas.

Palabras clave: construcción, cultura de calidad, universidades privadas, Vietnam, soluciones.

## Introduction

Vietnam has 60 private universities (PUs), accounting for more than 25.50% of the total number of higher education institutions (HEIs) – 235 HEIs; the training scale of PUs in the entire HE system (excluding those universities of defense and security) is 16.67%, 13%, and 2% for Bachelor level, Master, and Ph.D. respectively; Vietnamese Private Universities (VPUs) have experienced a quarter century of establishment and development, making significant contributions to the Vietnamese HE system (Van Hung, 2020). However, the quality of training, scientific research, and public service of VPUs is weaker than being required (Vietnam. The Central Committee, 2013; Vietnam. Ministry of Education and Training, 2017). As a reason, Quality Culture (QC) - a type of culture that is emphasized by many national and international reliable researchers and educational research organizations to keep a decisive role in maintaining and improving of quality to meet the demand of customers at best- has not been built. For many years, studies on the building of QC at universities have been carried out in Europe, America and some Asian countries which own a developed HE system, in which some universities have successfully built QC. However, in Vietnam, there are only few research, doctoral dissertations and scientific articles mentioning some aspects of QC building at university, but there is no research on building of QC at PUs; in particular, there

hasn't been any VPU that builds QC on the basis of a feasible and practical study.

# Methology

We applied six key groups of research methods including:

Applying group of theoretical research methods (It is used for studying, analyzing, evaluating and documenting; for generalizing and identifying research topics; for studying objects by building model of research object);

Using group of practical research methods (this group is used to collect related practical information in order to set up practical basis of the study);

Utilizing statistic method (statistic formulations of mathematics applied in educational science study are used to process collected data in quantitative way, to compare and draw results of the study);

Making a survey on current situation of QC (N°1 of Table 1) and its development (N°2 of Table 1) at 10 PUs those have been established for at least 10 years in the 3 national regions.

Probing the necessity and the feasibility of the suggested solutions (N°3 of Table 1: 10 specialists in HE management and 320 persons at 10 PUs those have been established for at least 10 years in the 3 national regions);

Table 1.

Description of Population and Sample

| N° | Type of questionnaires                     | No of questionnaires<br>delivered | No of questionnaires collected | Area                              |
|----|--|-----------------------------------|--------------------------------|-----------------------------------|
| 1  | Managers, Teachers and Staff               | 1875                              | 1484                           | 10 PUs in 3 regions               |
| 2  | Directory board and leaders                | 195                               | 180                            | 10 PUs in 3 regions               |
|    | Specialists in higher education management |                                   | 10                             | 2 educational research institutes |
| 3  | Directory board                            |                                   | 20                             | 10 PUs in 3 regions               |
|    | Managers                                   |                                   | 100                            | 10 PUs in 3 regions               |
|    | Teachers and Staff                         |                                   | 200                            | 10 PUs in 3 regions               |

#### Experimenting one solution

Scope of study: Duy Tan University in Da Nang city.

Aims and Objectives: To evaluate the efficiency of the solution "Enhancing awareness of managers, teachers and the staff of the PU on the Quality" – This solution is determined as both a prerequisite and a parallel condition to successfully implement the other solutions.

Hypothesis: The awareness on the Quality of managers, teachers and the staff of the PU will be enhanced if the solution "Enhancing awareness of managers, teachers and the staff of the PU on the Quality" is implemented.

Subjects: Managers, teachers, and the staff.

Implementation way of experiment: To be implemented 01 time with the same target group as follows in table 2:

Table 2. Experimental design

| Examination  |              | Examination  |
|--------------|--------------|--------------|
| before       | Interference | after        |
| interference |              | interference |
| O1           | X            | O2           |

If (O2 – O1)>0, we can come to conclusion that the selected solution brings back a good effective to enhancement of Quality awareness of managers, teachers and the staff at the PU.

Time of experiment: 1 school year.

Sample of experiment: 240 managers, teachers and the staff.

# **Development**

International researches emphasize the role of QC at universities: QC helps universities improve the quality of education - the decisive

factor for the success of competition in the context of declining public budgets for HE and the number of students is decreasing (Bendermacher et al., 2017); QC will create the basis to comprehensively understand the quality of HE, not only the quality standards, the quality process but also takes into account other factors affecting the quality such as attitudes and skills of teachers, learner's competencies and motives, organizational background (Ehlers, 2009); QC encourages creativity and action, self-criticism, developing innovative initiatives and implementing them, QC is interested in partnerships and cooperation, sharing experiences and teamwork (Harvey and Stensaker, 2008); QC helps the university become a world-class - the university has the highest quality of education and scientific research (Lanarès, 2011).

Until now, there are many different concepts and terminologies about QC as well QC at universities. QC and QC at universities in this study are defined as follows:

QC is a kind of organization culture consisting of a system of values, philosophy, beliefs, approaches, actions and decision makings relating to quality sharing inside the organization that provides a favorable environment for continuous development and improvement of the quality so that the organization can meet all demands of customers at best as well as can develop itself in a sustainable way.

QC at universities is a characteristic type of school culture (QC ⊆ school culture). It includes a system of philosophy, viewpoints, standards, tradition, policies and mechanism relating to the quality that is accepted by members of that university and showed at the members' attitude and behavior as well as material form of the university in the tendency of meeting at best the de-

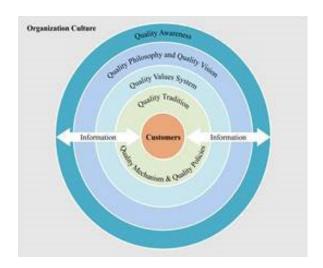
mands of customers for a better competition and a more sustainable development of the university under the context of HE globalization.

There are 5 main approaches in research to build QC in HEIs: Organizational culture approach (Ehlers, 2009; Ehlers & Schneckenberg, 2010; Lanarès, 2009; Yorke, 2000); Quality management approach (Ali & Musah, 2012; Kruger & Ramdass, 2011; Milisiunaite et al., 2009); Quality assurance approach (EUA, 2006, 2007, 2010, 2012; Koul & Kanwar, 2006; Muresan et al., 2003) and Value system approach (Lanagès, 2009; Venera, 2007)

In addition, there are several studies according to general approach (including the above approaches), typically the research works "..." (Berings et al., 2010).

Based on the above theory and the specificity of Vietnam's HE in general, and VPUs, we have proposed the building of QC at VPUs according to the integrated approach. Accordingly, the building of QC is an influencing process with clear purpose, plan and scientific basis from subjects to objects in order to form a QC following a determined model (Figure 1).

Figure 1.
Model of QC at VPUs



#### Elements of Quality Culture at VPUs

Awareness on quality by members of PUs

Proper and correct awareness on quality means to perceive nature and rule of quality matter sufficiently, correctly and accurately for appropriate attitude and behavior in order to enhance the quality. This is a guiding element - a decisive factor for the success of the building of QC.

Philosophy on Quality of PUs

Philosophy on Quality is thoughts and viewpoints on the quality that have decisive impact on Quality Vision, Quality Value System, policies, and mechanism on quality, etc. It confirms reasons for existence of the university, it never changes by time, guides all efforts on quality as well as inspires all the members.

Vision on Quality of PUs

Quality Vision is a statement on quality prospect, expressing dream and ambition on the position of the university in the future. Quality Vision consists of 2 components: a long-term quality target for a period of over 10 years and a specific description on the picture of the university in the future when that long term target is achieved.

Quality Value System of PUs

Quality Value System is a foundation of QC at PUs, composed of a group of core quality values with a dialectical relation among them. Quality Value System shows quality standard and the willingness for reaching target on quality, has orientation or guiding role and makes adjustment on quality behaviors of the members as well as the overall quality management system of the university, creates the difference of the university. An emerging feature of the Quality Value System is its independency and invariability even

when there is a change in the environment or the position of leaders.

Working Environment for Quality of PUs

Working Environment for Quality is an expression on quality attitude and behavior in a positive way of all members of a university. It comprises of 02 main elements: Tradition on quality and Mechanism & Policies on quality. It motivates each member to work effectively.

# Elements influencing the building of QC at VPUs.

The influencing elements need to be considered when building QC at VPUs for their important influences: the interest of the Party and the Government on building of PUs; the cultural, socio-economic elements; the current situation of VPUs. At the same time, other elements of managers on psychology, emotion, behavior and especially objection also need to be attention to.

#### Current situation of QC at VPUs:

Current situation of elements forming QC at VPUs is ranked from high to low as follows (Table 3):

Table 3.
General data on the elements forming QC at VPUs.

| N° | Content               | General value<br>on average |
|----|-----------------------|-----------------------------|
| 1  | Awareness on Quality  | 2.09                        |
| 2  | Tradition on Quality  | 2.55                        |
| 3  | Philosophy on Quality | 2.71                        |
| 4  | Mechanism on Quality  | 2.75                        |

| Nº | Content              | General value |  |  |  |  |
|----|----------------------|---------------|--|--|--|--|
| 11 | Content              | on average    |  |  |  |  |
| 5  | Policy on Quality    | 2.88          |  |  |  |  |
| 6  | Quality Value System | 3.17          |  |  |  |  |
| 7  | Vision on Quality    | 3.51          |  |  |  |  |
|    |                      | 2.81          |  |  |  |  |

(Note: 1 = good; 2 = rather; 3 = average; 4 = unqualified

Strengths: awareness of managers, teachers and staff on the role of quality, quality activities towards learners, and promotion and dissemination of achievements on the quality of the university by each stage.

Constraints and inadequacies: VPUs have not declared on Quality Philosophy and Vision as well as formed Quality Value System; knowledge of quality of managers, teachers and staff is still low; managers, teachers and staff as well as learners have not had a clear orientation of quality of the University; Quality Values are not able to guide and control Quality Behavior of the members; working environment at PUs has not been able to create strong motivation and interest to the members because Quality Tradition has not been clearly shaped, Mechanisms on Quality are still operated following traditional management mechanism and Policies on Quality are still not comprehensive and effective.

Current situation on building of QC at VPUs (Table 4)

Table 4. Implemented activities relating to the building of QC.

|   | Degree    |      |                       |      |                     |      |  |  |  |
|---|-----------|------|-----------------------|------|---------------------|------|--|--|--|
| Activity  | Implement |      | Implemente very succe |      | Not implemented yet |      |  |  |  |
|   | Quantity  | 0/0  | Quantity              | 0/0  | Quantity            | 0/0  |  |  |  |
| Communicating roles of quality to members   | 81        | 45.0 | 84                    | 46.7 | 15                  | 8.3  |  |  |  |
| Training members to enhance knowledge of and skills in quality                                  | 36        | 20.0 | 53                    | 29.4 | 91                  | 50.6 |  |  |  |
| Declaring Quality Principles of the University  | 43        | 23.9 | 68                    | 37.8 | 69                  | 38.3 |  |  |  |
| Positioning Quality in the future of the University   | 18        | 10.0 | 33                    | 18.3 | 129                 | 71.7 |  |  |  |
| Declaring Values related to Quality of the University   | 27        | 15.0 | 36                    | 20.0 | 117                 | 65.0 |  |  |  |
| Communicating and promoting emergent view-<br>points and behaviors on Quality of the University | 34        | 18.9 | 69                    | 38.3 | 77                  | 42.8 |  |  |  |
| Planning for Quality of training activities and scientific research                             | 20        | 11.1 | 47                    | 26.1 | 113                 | 62.8 |  |  |  |
| Innovating organization structure in process tendency   | 21        | 11.7 | 49                    | 27.2 | 110                 | 61.1 |  |  |  |
| Building model of team working  | 33        | 18.3 | 48                    | 26.7 | 99                  | 55.0 |  |  |  |

|  | Degree    |      |                                  |      |                     |      |  |  |  |
|--|-----------|------|----------------------------------|------|---------------------|------|--|--|--|
| Activity   | Implement |      | Implemented, not very successful |      | Not implemented yet |      |  |  |  |
|  | Quantity  | 0/0  | Quantity                         | 0/0  | Quantity            | 0/0  |  |  |  |
| Implementing decentralization to staff                         | 52        | 28.9 | 55                               | 30.6 | 73                  | 40.6 |  |  |  |
| Providing more staff to Quality Assurance Unit                 | 70        | 38.9 | 92                               | 51.1 | 18                  | 10.0 |  |  |  |
| Developing procedure of management                             | 72        | 40.0 | 81                               | 45.0 | 27                  | 15.0 |  |  |  |
| Carrying out Quality Control by process                        | 26        | 14.4 | 45                               | 25.0 | 109                 | 60.6 |  |  |  |
| Continuously improving quality                                 | 22        | 12.2 | 41                               | 22.8 | 117                 | 65.0 |  |  |  |
| Establishing a comprehensive information management system     | 81        | 45.0 | 83                               | 46.1 | 16                  | 8.9  |  |  |  |
| Issuing policy on designation of management staff              | 57        | 31.7 | 75                               | 41.7 | 48                  | 26.7 |  |  |  |
| Issuing policy on training for staff                           | 47        | 26.1 | 94                               | 52.2 | 39                  | 21.7 |  |  |  |
| Issuing policy on salary suitable with development stages      | 66        | 36.7 | 114                              | 63.3 | 00                  | 0.0  |  |  |  |
| Issuing policy on bonus suitable with development stages       | 49        | 27.2 | 81                               | 45.0 | 50                  | 27.8 |  |  |  |
| Organizing competition movements                               | 38        | 21.1 | 142                              | 78.9 | 00                  | 0.0  |  |  |  |
| Establishing a democracy working environment at the University | 15        | 8.3  | 37                               | 20.6 | 128                 | 71.1 |  |  |  |
| Providing infrastructure for activities of Quality Assurance   | 79        | 43.9 | 101                              | 56.1 | 00                  | 0.0  |  |  |  |
| $\overline{X}$   | 45        | 24.9 | 69                               | 38.6 | 66                  | 36.5 |  |  |  |

# Assessment on the current situation of building of QC at VPUs

#### Strengths:

Although most of VPUs have not declared to build QC, some forming elements of QC and some activities related to building of QC have been carried out. This is strength of PUs:

Concerning forming elements of QC, managers, teachers and the staff have proper awareness on the role of quality; elements related to Quality Philosophy, Quality Tradition, Quality Policy and Mechanism are focused on learners.

Concerning activities, the following activities have been carried out and achieved some initial results such as communicating in the role of quality, setting up long term target on quality, promoting the achievements of the University on quality, creating some activities aiming at forming a Working Environment for Quality and development of Information Management System.

#### Weaknesses:

Forming elements of QC: managers, teachers and the staff have inadequate knowledge of quality. They have not been oriented and provided a strong motivation and belief on Quality Vision,

Quality Value System, Quality Tradition and Policy and Mechanism on Quality of the University.

Activities: PUs have not yet established and declared their Quality Philosophy and Vision, Quality Value System; PUs have not yet set up a Working Environment for Quality because Quality Tradition has not been developed, and Policy and Mechanism on Quality have not been set up in a comprehensive and appropriate way.

#### Solutions for building of QC at VPUs.

Solutions for building of QC at VPUs are suggested based on principles: to ensure target oriented, practice, comprehensibility, feasibility, and effectiveness.

Enhancing awareness of managers, teachers, and the staff of the PUs on the Quality

It helps managers, teachers and the staff of the universities understand sufficiently and properly about the quality. To enhance awareness for them, it is necessary to increase communication on quality through different channels, in which focuses on the channel with modern technology, to provide knowledge of and skill in comprehensive quality through seminars, conferences, workshops, training courses, to create management impacts in order to develop self-cognition about quality.

Establishing and declaring Quality Philosophy and Quality Vision of the PUs

A declaration on Quality Philosophy and Quality Vision can guide the efforts in quality of the university. In other words, develop and declare Quality Philosophy and Quality Vision is to ensure that activities in quality will be clearly ori-

ented, to inspire and to create motivation and belief among members, to help PUs position themselves and create trust to the society, to attract participation of members inside and outside the university.

Giving instruction to determine and establish Quality Value System at the PUs

This solution aims at forming a Quality Value System that is invariant by time, guiding and influencing quality attitude and behavior, creating motivation for members of the university, and giving QC of each University specific features.

Quality Value System originated from interior belief that elements relating to quality should be maintained and developed; Quality Values can sustain themselves by time (*invariant*), ensure navigability and connection of quality attitude and behavior of every member.

Establishing a procedure for building of QC at the PUs

It is necessary to form a procedure for building of QC that is suitable with characteristics of PUs, which helps Rector of PUs having more favorable conditions but also ensures principles in building of QC, helps members of the Universities, especially the ones who are new in building of QC to work in a favorable way.

Setting up a Working Environment for Quality at the PUs

This solution aims at setting up the most favorable working environment that can create inspiration and motivation at best for each of members, ensuring efficiency and sustainability of QC and overcoming deviants in establishment of working environment at some PUs. Accordingly, it is necessary to develop a Tradition on Quality of the university, to renovate Quality Mechanism and Quality Policies.

#### Evaluating QC at the PUs

Successful level of development of QC and its impact on the development of PUs need to be evaluated. Accordingly, it is necessary to develop a framework and criteria for assessment of QC that can fully reflect all elements that form the QC at VPUs.

# Survey on necessity and feasibility of the solutions for building of QC at VPUs.

Results of the survey are integrated in the Table 5 & 6.

Table 5. Evaluation results on the necessity of the suggested solutions

|  | Necessity levels of the solutions |                |       |       |               |      |              |     |  |  |
|--|-----------------------------------|----------------|-------|-------|---------------|------|--------------|-----|--|--|
| Content of the solutions   | High ne                           | High necessity |       | ssity | Low necessity |      | No necessity |     |  |  |
|  | Quant                             | %              | Quant | %     | Quant         | %    | Quant        | %   |  |  |
| Enhancing awareness of managers, teachers, and the staff of the PUs on the Quality | 163                               | 49.4           | 142   | 43.0  | 25            | 7.6  | 00           | 0.0 |  |  |
| Establishing and declaring Quality Philosophy and Vision of the PUs                | 137                               | 41.5           | 157   | 47.6  | 36            | 10.9 | 00           | 0.0 |  |  |
| Giving instruction to determine and establish Quality Value System of the PUs      | 145                               | 43.9           | 164   | 49.7  | 21            | 6.4  | 00           | 0.0 |  |  |
| Establishing a procedure for building of QC at the PUs                             | 110                               | 33.3           | 170   | 51.5  | 50            | 15.2 | 00           | 00  |  |  |
| Setting up Working Environment for Quality at the PUs                              | 161                               | 48.8           | 136   | 41.2  | 33            | 10.0 | 00           | 0.0 |  |  |
| Evaluating QC at the PUs   | 118                               | 35.8           | 166   | 50.3  | 46            | 13.9 | 00           | 0.0 |  |  |
| $\overline{X}$   | 139                               | 42.1           | 156   | 47.2  | 35            | 10.7 | 00           | 0.0 |  |  |

Table 6. Evaluation results on the feasibility of the suggested solutions

|  | Feasibility levels of the solutions |                  |       |             |       |                 |       |                |  |
|--|-------------------------------------|------------------|-------|-------------|-------|-----------------|-------|----------------|--|
| Content of the solutions   | High fea                            | High feasibility |       | Feasibility |       | Low feasibility |       | No feasibility |  |
|  | Quant                               | %                | Quant | %           | Quant | %               | Quant | %              |  |
| Enhancing awareness of managers, teachers, and the staff of the PUs on the Quality |                                     | 45.2             | 158   | 47.9        | 23    | 7.0             | 00    | 0.0            |  |
| Establishing and declaring<br>Quality Philosophy and Vi-<br>sion of the PUs        |                                     | 43.6             | 121   | 36.7        | 51    | 15.5            | 14    | 4.2            |  |

|   | Feasibility levels of the solutions |                  |       |             |       |                 |       |                |  |  |
|---|-------------------------------------|------------------|-------|-------------|-------|-----------------|-------|----------------|--|--|
| Content of the solutions  | High fea                            | High feasibility |       | Feasibility |       | Low feasibility |       | No feasibility |  |  |
|   | Quant                               | %                | Quant | %           | Quant | %               | Quant | %              |  |  |
| Giving instruction to determine and establish Quality Value System of the PUs | 128                                 | 38.8             | 133   | 40.3        | 69    | 20.9            | 00    | 0.0            |  |  |
| Establishing a procedure for building of QC at the PUs                        | 139                                 | 42.1             | 142   | 43.0        | 40    | 12.1            | 09    | 2.7            |  |  |
| Setting up working environ-<br>ment for Quality at the PUs                    | 130                                 | 39.4             | 144   | 43.6        | 46    | 13.9            | 10    | 3.0            |  |  |
| Evaluating QC at the PUs  | 120                                 | 36.4             | 115   | 34.8        | 76    | 23.0            | 19    | 5.8            |  |  |
| $\overline{X}$  | 135                                 | 40.9             | 136   | 41.1        | 51    | 15.4            | 8.7   | 2.6            |  |  |

The above results show that the suggested solutions are very necessary and feasible.

### Analysing experiment's results

Analysing input data

The results of the initial survey on Quality knowledge of the experiment's objects and the control group are shown at the Table 7.

Table 7.
Results of the initial survey on Quality knowledge of managers, teachers and the staff

|           | Knowledge degree |       |       |       |       |       |       |  |  |  |
|-----------|------------------|-------|-------|-------|-------|-------|-------|--|--|--|
| Excellent |                  | Good  |       | Med   | lium  | Bad   |       |  |  |  |
| Quant     | %                | Quant | %     | Quant | %     | Quant | %     |  |  |  |
| 36        | 15.0%            | 57    | 23.8% | 98    | 40.8% | 49    | 20.4% |  |  |  |

The above results show that Quality knowledge of managers, teachers and the staff is fairly poor. The Specific results of the input data are shown at the Table 8.

 $\label{eq:table 8.} \mbox{Table on } F \mbox{ frequency on the number of managers, teachers and the staff who reach } X_i$ 

| Quantity |   |   |    |    | Poin | ts |    |    |    | $\overline{X}$ |
|----------|---|---|----|----|------|----|----|----|----|----------------|
| ~ /      | 2 | 3 | 4  | 5  | 6    | 7  | 8  | 9  | 10 |                |
| 240      | 2 | 8 | 39 | 59 | 39   | 40 | 17 | 25 | 11 | 6.1            |

Analysis of the experiment's results in quantitative

Table 9. Table on F frequency on the number of managers, teachers and the staff who reach  $X_i$  after experiment.

| Quantity | Points |   |    |    |    |    |    |    |    |     |  |
|----------|--------|---|----|----|----|----|----|----|----|-----|--|
| ~ ,      | 2      | 3 | 4  | 5  | 6  | 7  | 8  | 9  | 10 |     |  |
| 240      | 0      | 0 | 11 | 20 | 43 | 51 | 42 | 51 | 22 | 7.4 |  |

From Table 8 and Table 9, we can form Table 10.

Table 10.

Table on the frequency of the input data and the experiment's results on Quality Knowledge of managers, teachers and the staff.

| Time of measurement | Quant | Parameters |          |                    |                     |  |  |
|---------------------|-------|------------|----------|--------------------|---------------------|--|--|
|                     |       | Average    | Variance | Original deviation | Variant coefficient |  |  |
| Before experiment   | 240   | 6.1        | 3.5      | 1.9                | 30.5%               |  |  |
| After experiment    | 240   | 7.4        | 2.6      | 1.6                | 22.0%               |  |  |

From the results at Table 10, we can form the Table 11 on the distribution frequency  $f_i$ , the cumulative frequency  $f_i \not \$  and can draw diagrams

presenting the cumulative frequency  $f_i \square$  as well as the distribution frequency  $f_i$  .

Table 11.

The distribution frequency  $f_i$  and the cumulative frequency  $f_i$  on the knowledge of managers, teachers and the staff before and after experiment

| Xi | Before experiment (n=240) |         |              | After experiment (n=240) |         |         |
|----|---------------------------|---------|--------------|--------------------------|---------|---------|
|    | Fi                        | $f_{i}$ | $f_{iigaph}$ | Fi                       | $f_{i}$ | $f_{i}$ |
| 0  |                           |         | 0.000        |                          |         | 0.000   |
| 2  | 2                         | 0.008   | 1.000        | 0                        | 0.000   | 0.000   |
| 3  | 8                         | 0.033   | 0.992        | 0                        | 0.000   | 0.000   |
| 4  | 39                        | 0.163   | 0.958        | 11                       | 0.046   | 1.000   |
| 5  | 59                        | 0.246   | 0.796        | 20                       | 0.083   | 0.954   |
| 6  | 39                        | 0.163   | 0.550        | 43                       | 0.179   | 0.871   |
| 7  | 40                        | 0.167   | 0.388        | 51                       | 0.213   | 0.692   |

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| Xi   | Before | Before experiment (n=240) |         |     | After experiment (n=240) |         |  |
|------|--------|---------------------------|---------|-----|--------------------------|---------|--|
|      | Fi     | $f_{i}$                   | $f_{i}$ | Fi  | $f_{i}$                  | $f_{i}$ |  |
| 8    | 17     | 0.071                     | 0.221   | 42  | 0.175                    | 0.479   |  |
| 9    | 25     | 0.104                     | 0.150   | 51  | 0.213                    | 0.304   |  |
| 10   | 11     | 0.046                     | 0.046   | 22  | 0.092                    | 0.092   |  |
| Sum: | 240    | 1.000                     |         | 240 | 1.000                    |         |  |

Diagram 1.

The distribution frequency  $f_i$  on the knowledge of managers, teachers and the staff before and after experiment

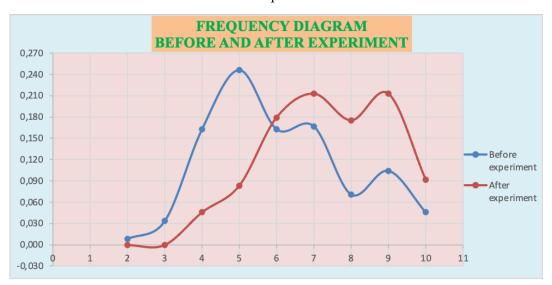
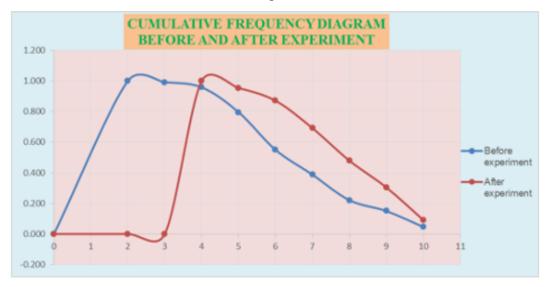


Diagram 2.

The cumulative frequency  $f_i \uparrow$  on the knowledge of managers, teachers and the staff before and after experiment



Evaluation on the results: the average point gained from experiment is 1.3 points more than the average point before experiment; the variant coefficient from experiment is lower than the one before experiment; the diagram lines of the frequency and the aggregated frequency are higher and moving to the right side as compared to the ones before experiment. Thus, we can come to conclusion that the Quality Knowledge of managers, teachers and the staff is higher after experiment.

Analysis on the results of the study in quantitative

The result of the study conducted at the University of Duy Tan show that the enhancement on the Quality Knowledge of managers, teachers and the staff has made a positive impact on working effectiveness of the University in general, and every member in particular; enhanced Quality Knowledge of the staff is clearly presented through carrying out of Quality Objectives that becomes faster and more favourable; knowledge limitation of the staff on QC is improved by awareness enhancement as analyzed in the Table 2 by the author.

## Conclusion

Building of QC at VPUs isobligatory. To a highly developed stage of QC, QC will become a school culture of PU, which means Quality Philosophy and Quality Vision, Quality Objectives, Quality Value System, Quality Tradition, Mechanisms and Policies on Quality are also the philosophy, vision, goals, value system, tradition, mechanisms and policies of PU; In other words, building of QC at VPUs means building VPUs for quality. Accordingly, the process of building a QC is a continuous development process of PUs and the

pinnacle of that development is reaching the regional and world class PUs.

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