

Investigating the Effects Amongst Quality Dimensions in Higher Education

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Abstract

Competition within the education industry has been steadily increasing as a result of social changes and trends. With a lesser supply of students and the same amount of academic institutions, marketing has become increasingly aggressive. This, when coupled with the rapid changes and shifts within the job sphere, has changed the workings of those in the education industry. Furthermore, higher education academic institutions no longer compete only in their domestic level, they compete at least regionally. The higher ranked higher education academic institutions however, compete on a global level.

With the many dynamic changes and the different standards in each region, it is only a matter of time before an international standard certification is enforced. Similar to that in the manufacturing industry where ISO certifications for areas in Total Quality Management (TQM) are in place—the education industry too needs a form of TQM standardization. Thereby, the purpose of this research study is to be able to use pre-determined TQM quality dimensions and study the effect of each of these quality dimensions in relation to "Students' Satisfaction".

This research study is performed in Bangkok, Thailand with a distribution of a Likert Scale questionnaire that yielded 204 respondents. The results of this research study show that quality dimensions of "Customer Feedback and Improvement", followed by "Department's Commitment" and "Campus Facilities" show significant effects towards "Students' Satisfaction".

Keywords: High education, Total quality management, Bangkok, Thailand and quality dimensions

1. Introduction

As our world continues its advancement and evolution, the countless paradigm-like shifts taking place globally has adversely affected the future generations. According to numerous studies, an "aging population" is no longer a risk for the future but for today. This will lead to significant transitions in infinite areas like that of healthcare, education and the workforce. In accordance to data "from World Population Prospects: the 2017 Revision, the number of older persons—those aged 60 years or over, is expected to more than double by 2050 and to more than triple by 2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. Global population aged 60 or over is growing faster than all younger age groups" (United Nations, Department of Economic and Social Affairs, Population Division, 2017).

The implications from a social issue like that of the aging population have also impacted the education sector greatly. Academic institutions are the foundation in which individuals that participate in society partake in. However, an aging population can also indicate that the supply of academic institutions will subsequently exceed the demand of current students and potential students for the future. That could also possibly result into an increased level of competitiveness from academic institutions as the potential group of their future revenue decreases. For example, a consequence of globalization that has affected the competitiveness of an individual in the workplace and changing government policies in the UK and Australia have also influenced Higher Education Academic Institutions. This has resulted into "competition at the institutional level will intensify for potential students, a market which is now declining as far as the main age cohort is concerned." That is the basis of why "the marketing of higher education is receiving more attention." and why it is also increasingly difficult for potential students to judge as to which Higher Education Academic Institute would be suitable for them (Tonks & Farr, 1995).

Another equally significant issue is the change that higher education and those relevant to higher education have had to face. With major changes within this sector, offering relevant skills that can prepare



students for their place in the workforce in the future is also a cause for concern. This stems from "the combination of globalization, internationalization as well as better psychological and sociological understanding or learning processes have changed our stable playground" (Taatila, 2017). Developed countries like that of the UK, Australia and Finland no longer subsidize for higher education like they had in the past when the governmental policies included the percentage increase of higher education graduates. Fast forward to the present and "costs are not seen as a national investment anymore", and "the constantly rising student fees" have yielded consequences of "side-tracked by "student as a customer pays" centered and "competition between institutions" based approaches" (Taatila, 2017). Aside from increased competition that may potentially occur as a result of the aging population, a clear factor that has already "increased competition through e-enhanced globalization". In addition, higher education academic institutions have also had to tackle "requirements to produce a higher level of competence, [and] shorten the implementation periods" (Taatila, 2017). With time limitations and the drastic shifts in skills that the higher education Institutions would have to adapt and offer to potential students in preparation for their future—complex issues may arise.

Hence, with the considerations mentioned above, potential students may have a need other than rankings to adhere to and to use as a tool in their decision making. When "the customer of higher education is surely both the student and society", there will be immense "difficulties of meeting differing expectations" (Varey, 1993). It is therefore crucial for the research and study to answer what "exactly constitutes quality in higher education", especially in a time where "the adoption of a service quality concept from industry and commerce in educational provision has received much criticism" (Varey, 1993). Specifically, it will be insightful to examine the total quality management that higher education Institutions utilize in a market like Bangkok as the amount of "international students to Thailand increased from 4,343 in 2002 to 19,052 by 2009". Since then the number of International Students have slowed in growth with other ASEAN countries in competition, and countries like Hong Kong, China and South Korea are "positioning itself to be an educational center" (Jaroensubphayanont, 2014).

2. Objectives

Total Quality Management has been used in organizations worldwide in order to ensure that business processes, operations and related human resources continuously improve. The main reason is attributed to the value creation by the organization in light of a competitive and dynamic environment. Total Quality Management Certifications allows consumers to compare the organizations even in different markets. This study aims to apply Total Quality Management with Higher Education Academic Institutions that are also considered as organizations and is increasingly becoming more competitive in the dynamic environment. Furthermore, it is the objective of the study to see what TQM dimensions are relevant for higher education academic institutions within the Thai market.

3. Material and Methods

3.1 Total Quality Management

"Feigenbaum believes that "quality of education" is the key factor in "invisible" competition between countries since the quality of products and services is determined by the way that "managers, teachers, workers, engineers, and economists think, and make decisions about quality". "Education, and in particular higher education itself, is also being driven towards commercial competition imposed by economic forces." This can allow consideration of TQM to be "the latest in a series of fads urged on higher education." TQM here can be effectively utilized as "according to Lewis and Smith the perception of "quality of education" by many academics is increasingly becoming a problem" (Owlia & Aspinwall, 1997).

TQM and its application within the higher education field have seen a rise of different types of issues. This could stem from how the "higher education institutions differ in their approach to applying TQM." There are also different TQM critical factors that are used to be measured. Therefore it is in the best interest for higher education academic institutions with different levels of diversity that there could possibly be a standardized criterion in terms of quality that different Higher Education Institutions globally can abide

with (Owlia & Aspinwall, 1997).

"Sakthivel (2017) stated the definition of a TQM model as "an integrated system of principles, methods and best practices that will provide a framework or organizations to strive for excellence in everything they do." "Based upon "the 5C TQM Model of Academic Excellence (Sakthival *et al.*, 2005)" incorporates "five dimensions" of the following: the "Faculty Commitment", "Course Delivery", "Campus Facilities", "Courtesy" and "Customer feedback and Improvement" (Ardi, Hidayatno & Zagloel, 2012). As this TQM model focuses directly on "Academic Excellence", it will provide a solid foundation to better understand TQM in Thai higher education.

3.2 Faculty Commitment

This variable "can be construed as the commitment given by the faculty and experienced by the students. This is because "leaderships [are] the predecessor of process improvement (Flumerfelt & Banachowski, 2011)". In order for TQM implementation to be entirely successful, the effectiveness is strongly correlated with the "continuous support of the top management (Sakthivel and Raju, 2006)". In addition, if "all hierarchical segments in Higher Education share the same vision of excellence to achieve effectiveness (Sakthivel, 2007)", that will include "the hierarchy in the Higher Education management include[ing] faculty feel and department [al] level" (Srikanthan & Dalrymple, 2003). As "effective implementation of strong leadership has come from the top of the organization" (Rowley, 2997; Ardi, Hidayatno & Zagloel, 2012).

3.3 Courtesy

This can be illustrated as "determinants of service quality that involve some attitudes, i.e. politeness, respect, consideration and friendliness." and "defined as "an emotive and positive attitude towards students" (Sakthivel et al., 2005)". "Furthermore, while the existence of TQM involves "positive changes in the attitudes and capabilities of staff members in problem solving, the better use of human resources", this has also resulted in clear positive outcomes that have increased in student satisfaction (Owlia & Aspinwall, 1997).

3.4 Campus Facilities

This refers to some items like that of "infrastructure (Sayeda et al., 2010), learning facilities (Ndirangu & Udoto, 2011) and facilities" (Sirvanci, 2004). The basics of the "campus facilities are" necessary and a "prerequisite for any educational institution to carry out its various activities in a smooth fashion" (Sayeda et al., 2010). However, this variable may possibly be adversely affected by the commitment of upper level management (Ardi, Hidayatno & Zagloel, 2012).

3.5 Course Delivery

This can be defined as the "teaching standard (Thakkar et al., 2006), educational quality (Duque & Weeks, 2010)" and "course organization" (Nguyen & Nguyen, 2010). This is one of the more crucial dimensions in play as "customer orientation is a more problematic principle of TQM when applied to universities" "because of the special nature of many academics whose motivation for work is often independent of market issues." This could result—or has already resulted into—a "disregarding [of] the market" that "has the danger of ignoring the real needs of consumers". Hence, this dimension and variable will indicate a large part of the quality before standardizing becomes a key issue (Owlia & Aspinwall, 1997).

3.6 Customer Feedback and Improvement

This dimension and variable helps to both wrap up and to continue the ongoing quality standardization process of TQM in higher education institutions. In fact, "the importance of this dimension has been promoted in several studies (Reid, 2010; Law & Meyer, 2011). In addition, "the works of Aldridge and Rowley (1998), Joseph et al., (1999) and Lagrosen et al. (2004)" also reinforce the significance of this dimension (Ardi, Hidayatno & Zagloel, 2012).



3.7 Students' Satisfaction

As potential students are now viewed by numerous institutions as potential customers, "student satisfaction has become an extremely important issue for universities and their management" (Douglas et al., 2006). "Higher Education's institution[s] now try to capture the students' opinion about all of [the] Higher Education's aspects in order to measure how satisfied the students are (Douglas *et al*, 2006). Customer satisfaction, which in this case is the satisfaction from the students have been shown to reduce costs with "considerable savings in time, materials, and money" when they are achieved (Owlia & Aspinwall, 1997).

This research is conducted through the distribution of 204 questionnaires that investigates the level of significant effects of quality dimensions in higher education. The quality dimensions that are investigated include ten questions for "Faculty's Commitment", ten questions for "Department's Commitment", eight questions for "Course Delivery", seven questions for "Campus Facilities", five questions for "Courtesy", five questions for "Customer Feedback and Improvement" and five questions for "Students' Satisfaction". These questionnaires were distributed in Bangkok at Assumption University's Hua Mak and City Campuses or as an online questionnaire through Google Forms to Assumption University students from October 10th, 2018 to November 10th, 2018. All questionnaires distributed to respondents were chosen at random.

A quantitative approach is taken to analyze this study with 55 questions. The first portion of the questionnaire consists of 5 screening questions, and the purpose is to understand what demographics the respondents fall under, and if they belong to the group this research is studying. It is imperative that the respondents have had prior experience in a higher education institute or are currently enrolled in one. The second portion of the questionnaire measures the different quality dimensions and the effects of the independent variables. This is a total of 50 questions that utilizes the Likert scale from Strongly Disagree at a scale of "1" to Strongly Agree at a scale of "5".

4. Research Conceptual Framework and Hypotheses

The following hypotheses will be examined in Bangkok, Thailand through a quantitative questionnaire:

- H1: "Faculty's Commitment" has a significant effect on Student's Satisfaction.
- H2: "Department's Commitment" has a significant effect on Student's Satisfaction.
- H3: "Courtesy" has a significant effect on Student's Satisfaction.
- H4: "Course Delivery" has a significant effect on Student's Satisfaction.
- H5: "Campus Facilities" has a significant effect on Student's Satisfaction.
- H6: "Customer Feedback and Improvement" has a significant effect on Student's Satisfaction.

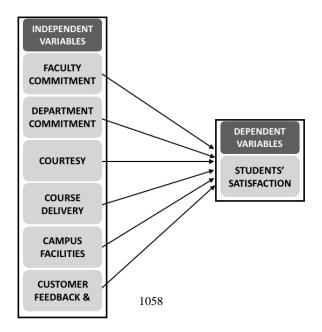




Figure 1: Conceptual Framework

5. Results and Discussion

As the locations of the distributed questionnaires were in institutions where there are higher education programs available, all 204 respondents are either currently enrolled or have graduated from a higher education academic institution in the past year. There is an equal distribution of male and female respondents with each gender making up half (50%) of the total respondents. In terms of age groups, the biggest age group interviewed is aged 23-26 years old, amounting to 39.2%. This is followed by the group aged 27-30 amounting to 32.8%. The last two aged groups are 31 and above at 19.7% and aged 18-22 at 8.3%. Of those, 55.9% have recently graduated from a Bachelor's Degree Program. This is followed by 24.5% that have recently graduated from a Master's Degree Program. Students that have graduated in the past year from a Pigh School Diploma program totals to 9.3%. Out of the same respondents, 63.2% are either currently enrolled or have recently graduated from a Bachelor's Degree. For those that are currently enrolled or have recently graduated must to 15.7%. This indicates that there is a distribution amongst all higher degree levels with the majority of the respondents having recently or are currently enrolled in a Master's degree program and aged 23-26 years old.

The reliability was measured with Cronbach's Alpha for each quality dimension. If the quality dimension shows α score ≥ 0.7 , it will indicate good reliability. The Cronbach's Alpha reliability test on the quality dimensions resulted in values that range from 0.728 to 0.876 thereby concluding that this research is reliable.

QUALITY DIMENSIONS	NUMBER OF ITEMS	α
Faculty's Commitment	10	0.821
Department's Commitment	10	0.876
Couse Delivery	8	0.797
Campus Facilities	7	0.78
Courtesy	5	0.746
Customer Feedback and Improvement	5	0.728
Students' Satisfaction	5	0.819

Table 1 Reliability test with Cronbach's alpha

After performing the Cronbach's Alpha to determine the reliability of this research study, Multiple Linear Regression was used to analyze the data from the respondents with the results shown in Table 2-4.

Table 2 R square impact on the quality dimensions

		MODEL SUMMARY		
Model	R	R Square	Adjusted R Square	Std. Error of the
		-		Estimate
1	0.878*	0.771	0.764	0.34376
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*. Predictors: (Constant), Department's Commitment, Customer Feedback & Improvement, Campus Facilities, Courtesy, Course Delivery, Faculty's Commitment

Furthermore, the R Square as seen in Table 2 is generated from the analysis of Multiple Linear Regression is at 0.771. This means that 77% of the 6 quality dimensions that are independent variables have a significant effect upon the dependent variable of Students' Satisfaction.



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Table 3 Result of the quality dimensions MLR to students' satisfaction

		Unstandardized Standardized Coefficients Coefficients		t	Sig.	
Model		В	Std. Error	Beta	-	
1	(Constant)	-0.498	0.187		-2.669	0.00
	Faculty's Commitment					8
	Course Delivery	0.249	0.115	0.244	2.169	0.03
	Campus Facilties					1
	Courtesy	0.112	0.077	0.091	1.448	0.14
	Customer Feedback & Improvement					9
	Department's Commitment	0.225	0.063	0.206	3.556	0.0
						0
		0.204	0.059	0.194	3.453	0.00
						1
		0.335	0.055	0.304	6.107	0.0
						0
		-0.013	0.137	-0.011	-0.097	0.92
						3

*Dependent Variable: Students' Satisfaction

The results from Table 3 shows that Customer Feedback and Improvement ($\beta = 0.304$, Significance <0.05) has the most significant variable with a positive effect towards Students' Satisfaction. Faculty's Commitment ($\beta = 0.244$, Significance <0.05), Campus Facilities ($\beta = 0.206$, Significance <0.05) and Courtesy ($\beta = 0.194$, Significance <0.05), are also significant variables that have a positive effect towards Students' Satisfaction. The remainder quality dimensions that are proven not to be significant variables that have a positive effect towards Students' Satisfaction are Course Delivery ($\beta = 0.091$, Significance <0.05) and Department's Commitment ($\beta = -0.11$, Significance <0.05). Therefore H1, H3, H5 and H6 are supported. Whereas, H2 and H4 are rejected.

	<u> </u>	<u>OEFFICIENTS*</u> Unstandardized Standardized Coefficients Coefficients		t	Sig.	
		В	Std. Error	Beta		
1	(Constant)	-0.417	0.148		-2.824	0.005
	Faculty's Commitment	0.270	0.050	0.264	5.395	0.000
	Campus Facilities	0.262	0.058	0.239	4.509	0.000
	Customer Feedback & Improvement	0.350	0.054	0.318	6.488	0.000
	Courtesy	0.216	0.059	0.205	3.686	0.000

*Dependent variable: Students' satisfaction

After re-running the multiple linear regression to reflect only the significant quality dimensions, it can be seen that the quality dimensions that have a significant effect also have increased slightly. The results from Table 4 show that Customer Feedback and Improvement ($\beta = 0.318$, Significance <0.05) has the most significant variable with a positive effect towards Students' Satisfaction. Faculty's Commitment ($\beta = 0.264$, Significance <0.05), Campus Facilities ($\beta = 0.239$, Significance <0.05) and Courtesy ($\beta = 0.205$, Significance <0.05).



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Table 5: Results of hypotheses			
Hypotheses	Beta	Significance	Results
H1: "Faculty's Commitment" has a significant effect on	0.244	0.031	Supported
Students' Satisfaction.			
H2: "Department's Commitment" has a significant effect	-0.011	0.923	Rejected
on Student's Satisfaction.			
H3: "Courtesy" has a significant effect on Student's	0.194	0.001	Supported
Satisfaction.			
H4: "Course Delivery" has a significant effect on Student's	0.091	0.149	Rejected
Satisfaction.			
H5: "Campus Facilities" has a significant effect on	0.206	0.000	Supported
Student's Satisfaction.			
H6: "Customer Feedback& Improvement" has a significant	0.304	0.000	Supported
effect on Student's Satisfaction.			

Table 5 exhibits the final results of the hypotheses in which H1, H3, H4, H5 are supported and H2, H4 are rejected with a lack of significance on Students' Satisfaction.

7. Discussion

Through the analysis of the Multiple Linear Regression on the sample of 204 respondents, an empirical analysis of the positive effect on the 6 Quality Dimensions to Students' Satisfaction was determined. There are a total of 6 hypotheses that correspond directly with each of the quality dimensions. These include "Faculty's Commitment", "Department's Commitment", "Courtesy", "Course Delivery", "Campus Facilities" and "Customer Feedback & Improvement". Out of these 6 quality dimensions, only "Department's Commitment" and "Course Delivery" are rejected with a lack of significance and positive effect to "Students' Satisfaction". The remainder hypotheses that pertain to the quality dimensions of "Faculty's Commitment", "Courtesy", "Campus Facilities" and "Customer Feedback and Improvement" are all supported, although the degree of the significance and positive effects are varied.

Although the findings of the previous research that took place in the engineering faculty in Indonesia also had respondents from a university campus, there is only one similarity in terms of the quality dimension that had a significant effect on Students' satisfaction. This particular quality dimension is "Customer Feedback and Improvement", and can be viewed to be important to the health of any organization. "Faculty's Commitment" was also another quality dimension that proved to be supported in the findings to have a significant effect upon "Students' Satisfaction". The only differing quality dimension is that instead of the quality of "Course Delivery" that was determined to have a significant effect on "Students' Satisfaction". The significant effects on "Students' Satisfaction".

7.1 Implications of "Faculty's Commitment"

There is a possibility that "Faculty's Commitment" had a significant effect on "Students' Satisfaction" where and when "Department's Commitment" could have been due to a lack of understanding as to what fell under the responsibilities of Faculty or Department. As students have direct exposure to teachers, it is a possibility that there is a direct association to the level of commitment by teachers that students can observe and form an opinion about. However, students may not know what a department in an academic institute constitutes of, thereby causing the level of significance to be nonexistent. Even though "administrators of academic departments are considered by many experts to be indispensable to the effectiveness of post-secondary institutions" and are also "in a position to affect the professional quality-of-life of faculty, the learning environment of students, and the institution's continuity", it is possible they seldom have student and department staff interactions. In fact, "deans and faculty tended to see faculty-related activities of department heads as more important than did department heads", therefore it is possible that an aligned faculty and department may contribute to a better understanding of the department's commitment from students (Jones & Holdaway, 1996). Furthermore, additions of definitions for each of the quality dimension may further clarify this to the students during the questionnaire phase and may



consequently lead to a clearer understanding of their true opinion in terms of "Department's Commitment". 7.2 Implications of "Customer Feedback and Improvement"

Numerous businesses perform questionnaires and surveys on their customers in order to gain feedback and improve on their business operations and processes. This leads to "the idea of the customer experience" that has "resonated with practitioners and academics alike and many managers and service researchers now talk about the customer experience". This is important because "providing a good experience" "affects customer satisfaction". It also "provide[s] new means of competition" especially for those that are competing in an increasingly competitive education industry. A further examination of the "two perspectives on service, the service provided from the operation's point-of-view and the service received from the customer's point-of-view" can help to drive improvement on all fronts. This quality dimension may prove to be even more important in the future as services like those provided in the education sector can be ";co-created; or 'co-produced' along with the customer". The possibilities of the value that is created for the customer could be endless, and could possibly aid the academic institutions in gauging and distinguishing what type of new courses and training they should provide for their students (Johnston & Kong, 2011).

7.3 Implications of "Courtesy"

This quality dimension could possibly pertain to that of what students' view as service quality. "Consumers generally assign quality ratings to services" and that includes "attributes of the "human contact" aspect of the service encounter, such as courtesy and friendliness" that all "contribute to perceptions of service quality". As educational course delivery can possibly constitute as a service, this is where it is significant and thus has an effect on "Students' Satisfaction". Staff at academic institutions may not view themselves as staff in direct service organizations like that of restaurants, and may therefore be possibly lacking in this front. Academic institutions may need to re-evaluate the relationship between administrative staff and students as well as further training in service attributes and attitudes by the administrative staff (Goodwin & Smith, 1990).

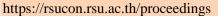
7.4 Implications of "Campus Facilities"

In higher education academic institutions, campus facilities may be part of the customer experienced that is experienced by students. Hence, this may be possibly why the "Campus Facilities" quality dimension shows to have a significant effect. For instance, when customers "assign quality ratings to services", they do so "on the basis of such tangible attributes as on-time performance, and clean surroundings". That implies that enhancement of quality and satisfaction has to do with surroundings (Goodwin & Smith, 1990).

In addition, "student satisfaction consists of factors related to comfortable learning environment, where public spaces and campus accessibility play vital roles." There are other "factors related to the research and teaching spaces [that] have the greatest impacts". This could mean that if the campus facilities are subpar, this will compromise customer experience and hence hindering "Students' Satisfaction" as well.

6. Conclusions

As the education sector becomes increasingly competitive, quality standardization must also be used to ensure that the quality is not compromised. Due to the structure and the needs of the education industry however, it may be crucial for education related Total Quality Management standards to be created. More research and study has to be done across regions, to cover the full spectrum of possible quality dimensions that may affect the quality management of the institutions. Academic institutions also possibly need to dwell further into quality dimensions that they had not needed before. Previously, the reputation of the academic institution or faculty members alone may be sufficient to guarantee student customers as well as students' satisfaction. Present day and in the near future may require a further emphasis on quality dimensions like that of "Courtesy" and like that of "Campus Facilities". Further studies into the quality dimensions can also contribute to the accuracy of the study and determine accurately the quality dimensions needed to improve higher education academic institutions.





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