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# The Mediating Effects of School Reputation and School Image on the Relationship between Quality of Teaching Staff and Student Satisfaction in Higher Education in Hong Kong

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## **Authors' contributions**

*Authors JWYW and CT conceptualized the study and organized the Literature. Author JWYW performed the statistical analysis. Author AW checked the design of the whole study and statistical analysis, and also prepared and managed the draft of manuscript. Author CT read and approved the final manuscript.*

**Original Research Article**

**Received 9<sup>th</sup> May 2014**  
**Accepted 28<sup>th</sup> June 2014**  
**Published 20<sup>th</sup> July 2014**

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## **ABSTRACT**

**Aims:** With the rapid expansion of Hong Kong's higher education sector since the evolution of its knowledge-based economy in the 1980's, the size and number of government-funded and self-funded higher education institutions in Hong Kong has increased substantially. With the launch of the Qualifications Framework (QF) in 2008 by the Hong Kong's Education Bureau, the quality of qualifications in the vocational and academic sectors has become ever more explicit. In order to help maintain high academic standards and promote a healthy competitive market, the question of how students perceive post-secondary learning institutions is an important issue for stakeholders.

**Study Design:** This study employed cross-sectional and quantitative study.

**Methodology:** A quantitative research framework was developed to empirically test seven hypotheses by adopting a cross-sectional approach and employing a questionnaire survey. The research was taken in Hong Kong between 2012 and 2013 of Higher Education Institutes. As the primary customers of higher education, full-time students enrolled in post-

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secondary programmes offered by government-funded and self-funded higher education institutes in Hong Kong, were randomly selected as the targeted participants. Two thousands students were sent the questionnaires of this research and 1,170 valid responses were received, which represented a response rate of 58.5%. The collected data was analysed using a number of statistical methods.

**Results:** Results of the analysis show that the quality of teaching staff has a positive and significant influence on student satisfaction, school reputation and school image; that school reputation and school image have direct influence on student satisfaction; that school reputation and school image play a mediating role in the relationship between quality of teaching staff and student satisfaction, and also form a subordinate variable termed 'school branding'.

**Conclusion:** The research contributes to the higher education debate and provides unique student-perceived insights into student satisfaction and the quality of teaching in Hong Kong's higher education sector. It also provides suggestions for future research to improve service quality and competitiveness in higher education markets.

*Keywords: School reputation; school image; quality of teaching; student satisfaction; higher education.*

## **1. INTRODUCTION**

It is clear that as a result of Hong Kong's higher education sector rapidly expanding, the question of how students see their learning institutions is assuming an increasing significance for stakeholders. The aim of this research was to find out through student perception, the mediating effect of school reputation and image on the relationship between quality of teaching staff and student satisfaction in Hong Kong's higher education sector.

Accordingly, the research investigated the respective influences of quality of teaching staff, school reputation and school image on student satisfaction; and examined possible mediating effects of school reputation and image on the relationship between the quality of teaching staff and student satisfaction.

Full-time students of higher education institutions and universities in Hong Kong were selected as the targeted participants in this research because, according to [1,2] they are the primary customers of higher education in today's competitive consumerist society.

### **1.1 Background of the Study**

Quality assurance (QA) in higher education is receiving an increasing attention in many parts of the world as a result of the rapid expansion of this sector and subsequent to recent education reforms, incurring thereby a need for the sector to respond to these changes as well as to the trend of globalization, in order to meet the expectations of communities as they develop into knowledge-based societies. It is almost a universal consensus that, in the concept of quality in the context of higher education is multifaceted, value laden and stakeholder-relative [3]. The nature of quality and its assurance has been taken up recently in the academic and professional literature, and new interpretations proposed [4,5] with various approaches to QA, such as total quality management [6,7], external quality monitoring (EQM) [8] and performance indicator [9,10] even practiced. A recent review of these approaches conducted by [1] has indicated that as one moves from the higher levels

towards the lower levels, quality indicators that are of importance change and have a tendency to get softer, signifying that they are much more subjective than the quality indicators at the higher levels, such as students' attrition rates, and are more related to student experience, such as the quality of teaching and learning and student satisfaction with their various experiences.

## **1.2 The Higher Education in Hong Kong**

Like many other jurisdictions, Hong Kong has been undergoing various education reforms, especially in the past five years, to respond to the trend of internationalization and globalization [11]. With the launch of the Qualifications Framework (QF) in 2008 by the Education Bureau in Hong Kong, the concern about the quality of different qualifications in the vocational and academic sectors is becoming even more explicit. Furthermore, the number of self-financing degree-awarding tertiary institutions in Hong Kong has increased to six, providing a total of over 13,000 places. With the rapid expansion of post-secondary education in Hong Kong, it has become necessary to address the question of quality of the academic provisions concerned [12]. The volume and diversity of the student body inevitably imposes different challenges on educational institutions.

Hong Kong's higher education institutions, particularly the publicly funded ones, are increasingly under public pressure to demonstrate and account for their educational quality unambiguously and distinctly. However, the QA practices as currently adopted are more included towards an accountability-led view rather than an improvement-led view. Therefore, resources and efforts in many institutions have typically been committed more to the institutional aspects of the quality issues. Consequently, insufficient attention is paid to the student aspects, in particular students' experiences of various facets of their academic lives, which should be of paramount concern in the recent education reform of most countries, notably for the post-secondary sector in which a substantial expansion of student participation has been taking place. In the course of debates over various quality issues for higher education, a major focus of this research is the centrality of the student perception. This research is therefore conducted with the aim of finding out the mediating effects of school reputation and image on the relationship between quality of teaching staff and student satisfaction from the students' perspectives.

## **2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

The following provides an overview of the literature concerning the higher education sector in Hong Kong and investigates the roles of and relationships among different marketing concepts, in particular the concepts of quality, reputation, image and satisfaction in higher education provisions.

### **2.1 The Higher Education Market in Hong Kong**

The Chief Executive of the Hong Kong Special Administrative Region (HKSAR) pledged in his 2009-2010 Policy Address to invest in "education services...to enhance Hong Kong's status as a regional education hub" [13]. The objective was to strengthen the competitiveness of Hong Kong's education sector, enabling it to better capture the opportunities spawned by the enormous global demand for higher education [11].

To the existing institutions of higher learning, these initiatives hold both opportunities and challenges. Enrollment is expected to soar as lifelong learning and increased intake of non-local students allow the institutions to widen their net and at the same time to expand beyond their home market. However, the government's policy to encourage greater private sector involvement in higher education implies that the status quo will be destroyed and the existing institutions will be put into direct competition with both new and established education providers from home and abroad [11].

Sitting on this cusp of tremendous change, it seems obvious that no institutions of higher learning can now extricate itself from participating in market competition. To operate as market competitors, higher education institutions have to do more than just produce glossy brochures and stage expensive advertising campaigns. They, like any marketers in a competitive market, are required to consider what their customers need and perceive as good [14]. Although a multitude of factors have been found to contribute to student satisfaction subject to the specific segments of the higher education market under study, quality of teaching staff, school image, and reputation are the three most prominent drivers [15,16].

## **2.2 Quality Assurance in the Higher Education in Hong Kong**

From quality as a process emerges the concept of quality assurance (QA), which is a process-oriented system to ensure that the pre-defined standards of an organization are met and best practices or procedures are complied with [17,18,19]. It has become a trend in higher education provision across the world that QA initiatives be advocated and followed through to ensure quality of activities and continuous improvement [20]. In Hong Kong, QA is gaining prominence in the higher education sector due to, inter alia, the reform and rapid expansion of the education service in recent years, the urgent need to respond to the challenges of globalization, and the rising expectations of stakeholders [21,22].

The underlying principle for implementing QA in the education sector is to ensure that the main actors at the forefront of teaching and learning (school administration, teachers, students, parents and governing bodies) are committed to improving education performance and at the same time are given the means to see that the educational improvement objectives are implemented and fulfilled effectively [23,24].

## **2.3 Quality of Teaching Staff**

Research reveals that students value good teaching and that teaching quality is directly related to students' perception of the quality of the high order learning provided [25,26]. However, quality of teaching, like quality in general, is an elusive abstraction. Though different techniques and tools have been proposed to evaluate teaching quality, it remains challenging to identify all the traits of quality teaching, let alone assess the quality of an individual's teaching [25,26].

As [27] argued, to maintain or improve the quality of teaching, the teaching staff needs to develop and excel in these capabilities. [28] pointed out that there are four essential traits of good teaching: positive classroom climate, interest in learning, lesson organization, and clarity. The literature underlines the importance of knowledge, teaching skills, teacher sensitivity to student level and progress, clear teaching goals, fair assessment, and encouragement of independent thinking. And, in addition to pedagogical skills, good teachers

need to have passion and demonstrate strong enthusiasm for their students, for the subject they teach and for teaching itself [29].

## **2.4 Student Satisfaction**

One of the leading indicators of competitiveness in higher education provisions is the level of satisfaction of a student with regard to his/her experience from a particular institution [30]. Prior studies have given some slightly different definitions to the concept of student satisfaction. For example, [31] define student satisfaction as a “student’s perceived value of his or her educational experiences at an educational institution”. [32] define student satisfaction as “an evaluative summary of direct educational experience, based on the discrepancy between prior expectation and the performance perceived after passing through the educational cycle”. [33] defined student satisfaction “as emotional or cognitive response or reaction to the learning experience”. Although the definitions vary slightly from one to another, the common focus is on measuring a student’s ex post evaluation of educational experiences. In this sense, these definitions can be regarded as rooted in the earlier definition of satisfaction developed by [34].

According to [35], student satisfaction is a perceived value. This perceived value is the outcome, the difference between expectation and perception, of the student’s scrutiny of the value delivered by an educational institution. According to the expectancy disconfirmation theory [34,36], feelings of satisfaction or dissatisfaction arise when one compares his or her expectations before a transaction with his or her perceptions after the transaction. In the context of higher education, if a student’s perceptions exceed his or her expectations (a positive disconfirmation), student satisfaction may arise. On the contrary, if a student’s perceptions fall short of meeting his or her expectations (a negative disconfirmation), student dissatisfaction may arise [34,37].

### **2.4.1 Quality of teaching staff on student satisfaction**

In marketing, service quality and satisfaction are two discrete but highly interrelated concepts [38]. While a plethora of research has highlighted the importance of product/service quality in driving customer satisfaction [14,34,39], some scholars argue that satisfaction is the antecedent of quality [40]. Nevertheless, empirical findings conclude service quality causes satisfaction [41]. Service marketing tenets indicate the difficulties in delivering consistent quality of service in order to satisfy customers [42,43,44,45]. The inconsistency due to its innate characteristics of inseparability, heterogeneity, intangibility, and perishability are applicable in relation to the quality of teaching at educational institutions. The inseparability of the delivery from consumption of the service is apparent in teaching as more than just the teaching material provided to the students; the style of delivery and explanation of the content is essential to a student’s understanding. It is evident that teaching style differs from teacher to teacher, as does the style, the material provided, the knowledge delivered, and even body language differs. Total satisfaction can be a challenge to achieve as the acceptance of delivery style by one student can differ from another. However, in examining the teaching quality and student satisfaction linkage in a Canadian university, [46] used two separate sets of student samples (70 undergraduate students and 94 MBA students) to investigate the influence of a six teaching quality dimensions on student satisfaction in terms of course offerings and instructors. The results indicate that teaching quality strongly influences student satisfaction by showing that the quality dimensions explained 74% of student satisfaction with the course and 67% of student satisfaction with the instructors. It is expected that a similar causality may exist in Hong Kong’s higher education sector. Therefore,

it is hypothesized that:

Hypothesis 1. The quality of teaching staff as perceived by students positively affects student satisfaction.

## **2.5 School Reputation in Higher Education**

In the higher education environment, students may form a perception about their institution and the specific course offerings. Similar to reputation in the business setting, an institution's reputation hinges on deeds done in the past. If the institution "repeatedly succeeds in fulfilling its promises, it should have a favourable reputation, and inversely its expressed intentions may create a negative reputation" [47]. A positive and long-standing school reputation is also a strong indication of its high levels of quality and competence. [47] posited that "Institutional reputation may be viewed as a mirror of the organization's history that serves to communicate to its target groups the quality of its products or services in comparison with those of its competitors". This quality may be reflected in the school's capacity in meeting the expectations of the students, including their expectations for teaching staff of high professional caliber and for teachers who demonstrate characteristics of good pedagogical practice.

In addition, in the business sector, a good corporate reputation reduces customers' uncertainty in making buying decisions, boosts demand and helps a reputable firm to sell more to achieve its ultimate goal of profit maximization [48]. In higher education, a good school reputation also enhances the prestige of an institution and mitigates students' uncertainty in making enrollment decisions. However, contrary to workings in the business world, high levels of school reputation often lead to minimal sales. College aspirants will flood the most prestigious institutions with applications, but the majority of them will likely be disappointed since the supply of programmes is highly inelastic. In business transactions, customer satisfaction may turn into dissatisfaction and hurt the reputation of an institution if student demands cannot be adequately met for a long time [49]. Consequently, education institutions have to work hard to maintain their reputation and credibility. However, in the educational setting, the stricter the admission criteria and the tougher the competition, the stronger will be students' desire to be admitted and the higher will be the school reputation [50].

### **2.5.1 Quality of teaching staff and school reputation**

Though the link between quality of service and reputation of the service providers is well established in various sectors of the service industry [51,52,53], it is still unclear whether a similar positive association exists between quality of teaching staff and school reputation. In the higher education arena, there is a growing production of perceptual ratings or league table rankings of higher education institutions [54]. To gain a deeper understanding of the interplay between the constructs of teaching quality and reputation in higher education, the present research attempts to establish by empirical analysis whether there is a direct relationship between the two constructs in the higher education setting in Hong Kong. School reputation is measured by a 3-item scale developed by [47] to assess the perceived competence of an institution in delivering what it has promised, and the respondents' overall perception of school reputation and school competitiveness. It is therefore hypothesized that:

Hypothesis 2. The quality of teaching staff as perceived by students positively affects their perception of school reputation.

## **2.6 School Image in Higher Education**

Image and reputation are two closely intertwined concepts. There has been much debate in the literature about the relationship between the two.[55]pointed out that there is disagreement among scholars on how the two concepts be defined and distinguished from one another. Some scholars, for example, [56] suggested that image should be subsumed within reputation, arguing that image is just one of the many components of reputation [55]. Despite the different arguments, there appears to be a general agreement among scholars participating in the debate that image is distinguished from reputation in that the former is influenced by the everyday encounters between an organization and an outsider. It is concerned with the outsider's impression of an organization and is likely to be influenced by things such as the name, logo, building, or even the uniform or dressing styles of the staff members of a particular organization [57]. Reputation, on the contrary, is forged out of the more fundamental values of leadership, competitiveness, expertise, product and service philosophy, culture, and ethics which take a long time to cultivate and grow.

In the higher education setting, it is clear that school image is becoming increasingly important. To attract good students in the globalized higher education market and in order to maintain their profile and competitiveness, institutions across the world have taken a proactive attitude towards image building [58]. Despite this, school image remains an unclear concept and the definitional dispute is often resolved by drawing strength from the established conceptions and theories in business marketing [49]. Following this line of thinking, the present research defines school image as the ideal impression that a higher education institution would like others to see. The image of an institution is measured by a 3-item scale developed by [47] to assess the respondents' general perception, their estimation of the perception of their peers, and the perceived image of their own institution relative to other institutions.

### **2.6.1 Quality of teaching staff and school image**

Prior studies on product or service marketing have confirmed the positive role that image plays on product/service advantage and competitiveness [59]. Moreover, the above-mentioned inherent characteristics of service present more challenges to build and sustain school image [42,43,44]. The intangibility, perishability, heterogeneity and inseparability of service make its image more vulnerable to variance in teaching quality, as image takes time to establish and consistency is one of image's most important requirements [43,60].Research on corporate image has established that product/service quality is one of the key determinants of good image [61]. It is expected that a similar causality may also exist in the higher education sector as quality of teaching has a lot to do with building up a favourable impression in the minds of the students. Therefore, it is hypothesized that:

Hypothesis 3. The quality of teaching staff as perceived by students positively affects their perception of school image.

## **2.7 School Reputation and Student Satisfaction**

Firm reputation, customer satisfaction and the link between these two constructs is a relatively well-researched domain in management studies [62,63]. There is an abundance of empirical research, primarily from the perspective of marketing, which demonstrates the casual link between the two concepts [64,65]. While prior studies on non-education service

settings report a positive influence of customer satisfaction on firm reputation [65], some other studies demonstrate that the casual relationship is reserved [64,66,67]. The contrary findings have led some scholars to conclude that the two concepts are in fact interrelated and mutually interdependent [63,68].

The relationship between school reputation and student satisfaction in the higher education market is a relatively understudied area of research, as treating students as customers is, after all, relatively new and controversial [69]. Besides, the student-institution relationship is growing in complexity due to massification and globalization of higher education [49]. Nevertheless, as more college aspirants are given access to more choices of institutions nowadays, school reputation is becoming an increasingly important factor in their enrollment decisions. For those who have made it to the best schools, the satisfaction is beyond words. Therefore, it is hypothesized that:

Hypothesis 4. The reputation of a higher education institution as perceived by students positively affects student satisfaction.

## **2.8 School Image and Student Satisfaction**

Some prior studies have found that brand image exerts a positive influence on customer satisfaction [39,70]. Other studies, however, claim that no such link exists. For example, in their study of the image and satisfaction link in the banking industry, [71] found that there is no direct influence of brand image on customer satisfaction. [72] conducted a three-year longitudinal study on various service sectors and confirmed the positive influence of image on customer satisfaction. They found that the influence of image on customer satisfaction increased over the three-year time span. In other words, the lack of influence of image on customer satisfaction as revealed by previous studies might simply be due to time lag or the existence of other factors mediating the relationship.

Although prior research has given moderate support to the influence of image on customer satisfaction in various service settings, this research proposes to extend the research scope to explore whether there is any positive influence of school image on student satisfaction. Therefore, it is hypothesized that:

Hypothesis 5. The image of a higher education institution as perceived by students positively affects student satisfaction.

## **2.9 Mediating Roles of School Reputation and Image**

School reputation and image are presented as mediators, as it is postulated that the direct relationship between QTS and student satisfaction is intervened by these variables. Mediation is the effect of an independent variable on a dependent variable that goes through one or more third variables [73,74,75,76]. The effect of mediation was recognized as early as 1928 but in recent years various tests have been introduced to identify the exact nature of the mediation impact [73,75,76,77]. These interventions are recognized in the literature based on well-rooted theoretical and logical arguments. This research recognizes reputation and image as simple mediators that intervene the effect of OTS on SS separately [63,68,71,78].

Students' perception of school reputation is the first mediator proposed in the present research. As discussed above, quality of teaching staff is hypothesized to have a positive



influence on student perception of school reputation as well as image, and student perception of school reputation and image positively influence student satisfaction. Therefore, it is hypothesized that:

Hypothesis 6. Student perception of the reputation of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

Student perception of school image is the second mediator proposed in the present research. As discussed above, quality of teaching staff is hypothesized to have a positive influence on student perception of school reputation, and student perception of school image is also hypothesized to have a positive influence on student satisfaction. Therefore, it is hypothesized that:

Hypothesis 7. Student perception of the image of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

## 2.10 Research Model

Seven hypotheses have been developed based on the literature on the marketing concepts of quality, satisfaction, reputation and image, and the corresponding concepts in the higher education market. Based upon the seven hypotheses developed, a research model (Fig. 1) was devised by adapting the following sets of constructs from prior studies.

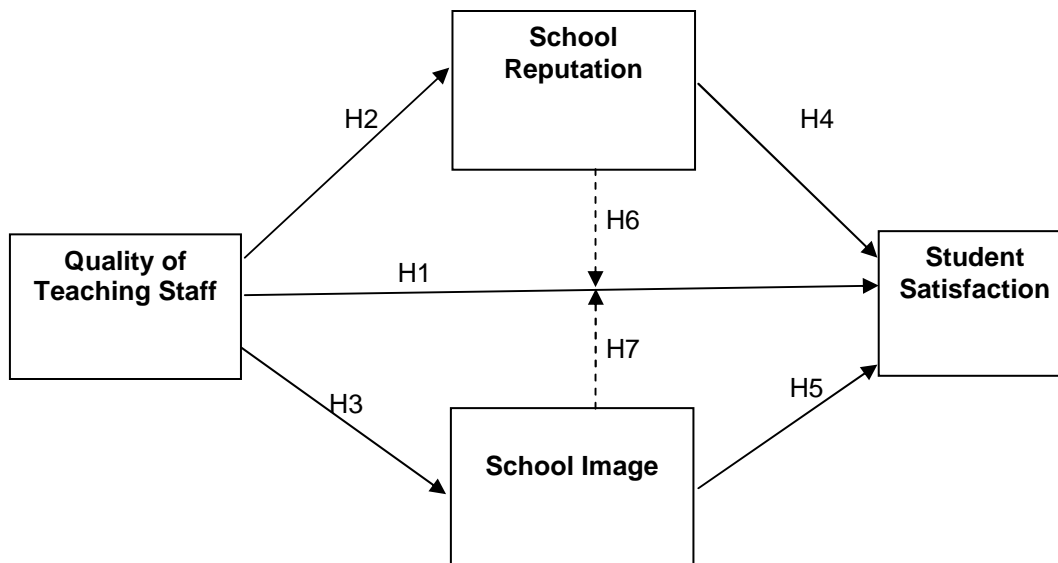


Fig. 1. Research model

The research framework shown above consists of four constructs, with one dependent variable named student satisfaction, two independent variables (which also act as two mediating variables) named school reputation and school image respectively and one independent variable named quality of teaching staff.

### **3. METHODOLOGY**

#### **3.1 Sample**

Full-time students enrolling in diploma or degree programmes at various levels in all institutions offering post-secondary programmes in Hong Kong were selected as the target population. This population served the purpose of the research, which was to explore the perception of full-time students of higher education on the mediating effects of school reputation and school image on the relationship between quality of teaching staff and student satisfaction. This research adopted a probability sampling technique in which samples were acquired by random selection so that each individual within the population has an equal opportunity to be selected. In this research, the researcher drew sample data of a database extracted from two major public domain directories of higher education institutions in Hong Kong: The University Grants Committee and the Education Bureau, in which consist of the point of contact at every post-secondary institutes in Hong Kong. A total of 2,000 copies of the questionnaire were sent to nine institutions of higher education in Hong Kong. By the end of the survey period, 1,170 responses had been received, representing a response rate of 58.5%. Of the 1,170 responses received, 32 were invalid due to missing data, giving a total of 1,138 valid responses.

#### **3.2 Research Instruments**

From the literature review, the following four constructs were identified for this research: Quality of Teaching Staff as the independent variable mediated by the constructs of School Reputation and School Image as mediating variables affecting the construct of Student Satisfaction as the dependent variable.

##### **3.2.1 Quality of teaching staff**

There is evidence that teaching quality of staff can be further enhanced through student feedback with additional consultation, interpretation guides on result and other relevant arrangement. This can also form part of the staff development for improvement [79,80,81]. The following measuring items are used according to [34,82,83]. The measuring items for Quality of Teaching Staff are shown in Table 1.

##### **3.2.2 School reputation and school image**

According to [84], institutional reputation is a sum total of a single stakeholder's perception of how well organizational responses are meeting the demands and expectations of many organizational stakeholders. The reputation of an organization is built through its credible actions [85]. School reputation and school image were therefore intended to measure the reflection of quality and services by studying the following three constructs: (a) impression, (b) reputation, and (c) comparative advantage. The measuring items for School Reputation and School Image are shown in Table 2 and Table 3.

##### **3.2.3 Student satisfaction**

The measuring items for Student Satisfaction are adopted from Bennett and Rundle-Thiele, 2004; Oliver, 1980 and are listed in Table 4.

**Table 1. Measuring items for quality of teaching staff (Adapted from [82])**

<b>ID</b>	<b>Questions (Constituent variables)</b>
TS01	The teaching staff of my institution have appropriate academic credentials. (Academic Credentials)
TS02	The teaching staff of my institution are incorporating appropriate use of technology to teach. (Appropriate Use of Technology)
TS03	The teaching staff of my institution are effective communicators in the process of lecturing. (Aware of Learning Needs)
TS04	The teaching staff of my institution are aware of my learning needs and I can seek assistance from them. (Approachable and Friendly)
TS05	The teaching staff of my institution are approachable and display a friendly manner. (Approachable and Friendly)
TS06	The teaching staff of my institution treat students with respect. (Respect Students)
TS07	The teaching staff of my institution display positive attitudes to students and do their best to help. (Positive Attitude)
TS08	The teaching staff of my institution display empathy when I have difficulty in understanding a concept. (Display Empathy)

**Table 2. Measuring Items for school reputation(Adapted from [47])**

<b>ID</b>	<b>Questions (Constituent variables)</b>
SR1	In general, I believe that my institution always fulfils the promises it makes to its students. (Honouring Promise)
SR2	My institution has a good reputation. (Good Reputation)
SR3	I believe that the reputation of my institution is better than other institutions. (Better Reputation than Others)

**Table 3. Measuring items for school image(Adapted from [47])**

<b>ID</b>	<b>Questions (Constituent variables)</b>
SI1	I have always had a good impression of my institution. (Good Impression)
SI2	In my opinion, my institution has a good image in the minds of its students. (Good Image)
SI3	I believe that my institution has a better image than other institutions. (Better Image than Others)

**Table 4. Measuring items for student satisfaction(Adapted from [34,83])**

<b>ID</b>	<b>Questions (Constituent variables)</b>
SS1	I am satisfied with my decision to attend this institution. (Satisfied with Decision)
SS2	If I had a chance to do it all over again, I would still enrol in this institution. (Convicted in Decision Made)
SS3	My choice to enrol in this institution was a wise one. (Wise Choice)
SS4	I am happy with my decision to enrol in this institution. (Happy with Decision)
SS5	I did this right decision when I decided to enrol in this institution. (Right Decision)
SS6	I am happy that I enrolled in this institution. (Happy on the Course)

### **3.3 Data Analysis**

The collected data were analyzed by the following quantitative methods.

#### **3.3.1 Measurement assessment**

The validity and reliability tests were used to evaluate the quality of the data that collected for assessment of the constructs for further analysis. Cronbach's coefficient alpha ( $\alpha$ ) was adopted to assess the internal consistency reliability in order to determine if the homogeneity of the items in the instrument are highly correlated and support the construct. Cronbach's coefficient alpha ( $\alpha$ ) has a maximum value of 1.0. Therefore, the higher the coefficient approaches 1.0, the more reliable are the measures. [86] suggested that the minimum requirement of Cronbach's coefficient alpha ( $\alpha$ ) is 0.6.

#### **3.3.2 Factor analysis**

Exploratory Factor Analysis (EFA) is used in this research as the factor analysis technique to explore the underlying structure of a collection of observed variables. Although the constructs of this research adapted from previous studies with satisfactory level of reliability, EFA is conducted in order to ensure the appropriateness of the measurement constructs for the collected data.

#### **3.3.3 Hypotheses testing**

In this research, linear and multiple regression analysis were conducted to test both direct and indirect influences of the independent variable of quality of teaching staff, and the two mediators: school reputation and school image, on the dependent variable of student satisfaction. Linear regression was used to test the direct influence of quality of teaching staff, school reputation and school image on student satisfaction. Each of the eight quality of teaching staff dimensions was also tested independently using regression analysis to ascertain their respective influences on student satisfaction. A mediator influences the strength and direction of an independent variable on a dependent variable. The effects of the two mediators in this research, school reputation and school image, were tested with multiple regression analysis and a mediating effect was considered existent if the multiplicative term, school reputation times quality of teaching staff or quality of teaching staff times school image, was statistically significant [76].

## **4. FINDINGS**

### **4.1 Characteristics of the Sample**

Table 5 below shows the characteristics of respondents in respect of gender, marital status, age, and education level. Each of these characteristics are benchmarked and compared with the characteristics of Hong Kong's adult population.

**Table 5. Demographic profile of valid respondents (n = 1138)**

		Respondents	
		Frequency	Percentage (%)
Gender	Male	431	37.9%
	Female	707	62.1%
Age	18 – 21	854	75.0%
	22 – 25	269	23.6%
	26 – 29	15	1.3%
Level of Study	Associate Degree	448	39.4%
	Higher Diploma	409	35.9%
	Undergraduate	262	23.0%
	Others	19	1.7%
Years of Study	1 year or less	377	33.1%
	2 years	394	34.6%
	3 years	280	24.6%
	4 years or above	87	7.6%

## 4.2 Validity and Reliability Test

Factor analysis and Cronbach's alpha are generally recognized as the most popular validity and reliability approaches to test the quality of the collected data [87,88]. In this research, exploratory factor analysis was used to extract the underlying variables [88,89] and Cronbach's alpha test was conducted to verify the internal consistency of the questionnaire items loaded into each underlying variable extracted [89,90]. In line with [89], questionnaire items of an underlying variable with a Cronbach's alpha value of 0.7 or higher suggest high reliability, while those with a Cronbach's alpha value not less than 0.6 are acceptable for statistical testing.

### 4.2.1 Exploratory factor analysis

As all the measuring scales for each of the hypothesized variables in this research were adapted from prior studies published in peer reviewed journals, it was considered reasonable to assume that the validity of the measuring scales were established by the researchers concerned and the reviewers prior to publication. However, given that the wording was fine-tuned to suit the special needs of this study, in order to ensure that the touch-up would not affect the quality of the measuring scales; exploratory factor analysis was performed to confirm the validity of the questionnaire [89,91].

Table 6 below shows KMO and that Bartlett's test outcome to ensure the data collected meets the assumptions for EFA. The KMO measure of sampling adequacy is 0.955 which is roughly the same of the minimum acceptable level of 0.96 [88,89], indicating excellent sampling adequacy. Meanwhile, Chi-square value of 15751.725,  $df=190$  and  $p\text{-value} = 0.0001$  ( $p < 0.05$ ), shows identity matrix does not exist in the data collected for this research. Finally, the number of items used in total is  $k = 20$  and the sample size  $n=1,138$ , thus  $n/k = 1,138/20=57$ ; which is greater than 5.

**Table 6. KMO and Bartlett's test**

<b>Kaiser-Meyer-Olkin measure of sampling adequacy</b>		<b>.955</b>
Bartlett's Test of Sphericity	Approx. Chi-Square	15751.725
	Df	190
	Sig.	.000

Table 7 shows a pattern matrix that shows all the items are in their corresponding components. Thus, all items used to measure the constructs for this research were validated as satisfying the convergent and discriminant validity.

**Table 7. Exploratory factor analysis on the constructs (n = 1138)**

<b>Questionnaire Items</b>	<b>Component</b>			
	<b>1 (SS)</b>	<b>2 (QTS)</b>	<b>3(SI)</b>	<b>4(SR)</b>
<b>Student Satisfaction</b>				
SS1	0.924			
SS2	0.883			
SS3	0.882			
SS4	0.879			
SS5	0.843			
SS6	.731			
<b>Quality of Teaching Staff</b>				
TS1		0.826		
TS2		0.818		
TS3		0.810		
TS4		0.799		
TS5		0.795		
TS6		0.704		
TS7		0.685		
TS8		0.675		
<b>School Image</b>				
SI1			0.859	
SI2			0.853	
SI3			0.687	
<b>School Reputation</b>				
SR1				0.863
SR2				0.769
SR3				0.684

Table 8 below shows a total of 71.08% of variance in responses to the items posted in the questionnaire. Amongst this, 47.32% of variance was explained by component 1 or student satisfaction, 13.34% explained by component 2 or quality of teaching staff, 6.70% explained by component 3 or school image, and 3.72% explained by school reputation. The balance of 28.92% of information that measures the constructs was lost during the data collection effort.

**Table 8. Total variance explained by QTS, SS, SR and SI**

Component	Initial Eigenvalues		Extraction sums of squared loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
SS	9.465	47.323	47.323	9.465	47.323	47.323
QTS	2.667	13.336	60.660	2.667	13.336	60.660
SI	1.341	6.704	67.364	1.341	6.704	67.364
SR	.743	3.716	71.080	.743	3.716	71.080

**4.2.2 Cronbach’s alpha for reliability testing**

Cronbach’s alpha tests were conducted to measure the level of internal consistency among the items in each of the four variables of QTS, SS, SI and SR [89]. Table 9 below shows the Cronbach’s alpha value for these constructs with range from 0.860 to 0.940, indicating that the measuring scales are reliable and the data have good internal consistency for further analysis [89].

**Table 9. Cronbach’s alpha values of variables**

Variable	Cronbach’s alpha	Number of items
QTS	0.906	8
SS	0.940	6
SR	0.804	3
SI	0.860	3

The measurement scales in the questionnaire were reliable and the data collected from the nine institutions of higher education had sufficient reliability and validity for hypothesis testing and further investigation. Prior to hypotheses testing, the scores of the four underlying variables of QTS, SS, SR and SI, were summated [88,89].

**4.3 Hypothesis testing**

The seven hypotheses developed were tested using simple and multiple regression analysis.

**4.3.1 Direct relationships**

As hypotheses H1 to H5 are based on simple linear regression (SLR) analysis and are essential in determining the eligibility of mediating constructs, these were tested as follows.

H1: The quality of teaching staff as perceived by students positively affects student satisfaction.

**Table 10. Coefficient table for the relationship SS – QTS**

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	$\beta$	Std. error	Beta		
(Constant)	8.713	.962		9.057	.000
QTS	.486	.023	.524	20.751	.000

a. Dependent Variable: SS

Table 10 above shows  $t=20.75$ ,  $p\text{-value}=0.0001$  ( $p\text{-value}<0.05$ ), indicating the significant influence of QTS on SS. The  $\beta=0.49$ , a positive value, specifying the direction of QTS and SS are the same. Thus, H1 is supported.

H2: The quality of teaching staff as perceived by students positively affects their perception of school reputation.

**Table 11. Coefficient table for the relationship SR – QTS**

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	$\beta$	Std. error	Beta		
(Constant)	5.022	.500		10.053	.000
QTS	.205	.012	.447	16.854	.000

a. Dependent variable: SR

Table 11 above shows  $t=16.85$ ,  $p\text{-value}=0.0001$  ( $p\text{-value}<0.05$ ), indicating the significant influence of QTS on SR. The  $\beta=0.205$ , a positive value, specifying the direction of QTS and SR are the same. Thus, H2 is supported.

H3: The quality of teaching staff as perceived by students positively affects their perception of school image.

**Table 12. Coefficient table for the relationship SI – QTS**

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	$\beta$	Std. error	Beta		
(Constant)	5.517	.516		10.702	.000
QTS	.197	.013	.421	15.663	.000

a. Dependent variable: SI

Table 12 above shows  $t=15.66$ ,  $p\text{-value}=0.0001$  ( $p\text{-value}<0.05$ ), indicating the significant influence of QTS on SI. The  $\beta=0.197$ , a positive value, specifying the direction of QTS and SI are the same. Thus, H3 is supported.

H4: The reputation of a higher education institution as perceived by students positively affects student satisfaction.

**Table 13. Coefficient table for the relationship SS - SR**

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	$\beta$	Std. error	Beta		
(Constant)	11.398	.637		17.886	.000
SR	1.276	.047	.631	27.401	.000

a. Dependent variable: SS

Table 13 above shows  $t=27.40$ ,  $p\text{-value} 0.0001$  ( $p\text{-value}<0.05$ ), thus SR is a significant construct influencing SS, The  $\beta=1.276$ , a positive value, specifying the direction of SR and SS are the same. Thus, H4 is supported.

H5: The image of a higher education institution as perceived by students positively affects student satisfaction.



**Table 14. Coefficient table for the relationship SS - SI**

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	$\beta$	Std. error	Beta		
(Constant)	10.930	.619		17.656	.000
SI	1.296	.045	.652	28.993	.000

a. Dependent Variable: SS

Table 14 above shows  $t=28.99$ ,  $p$ -value 0.0001 ( $p$ -value $<0.05$ ), thus SI is a significant construct influencing SS, The  $\beta = 1.296$ , a positive value, specifying the direction of SS and SI are the same. Thus, H5 is supported.

#### **4.3.2 Mediating effects**

Multiple linear regression was used to test the mediating effect of school reputation (SR) on the relationship between QTS on SS met, Hypothesis 6 was tested using the following equations.

H6: Students' perception of the reputation of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

Table 17 shows  $t=20.751$ ,  $p$ -value 0.0001 ( $p$ -value $<0.05$ ), thus QTS is a significant construct influencing SS; and Table 15 confirms the model fit as  $F = 430.59$ ,  $df = 1, 1136$ ,  $p$ -value = 0.0001 ( $p$ -value  $< 0.05$ ).

In Table 16 indicates,  $F = 505.712$ ,  $df = 2, 1135$ ,  $p$ -value=0.0001 ( $p$ -value $<0.05$ ) whilst Table 18 shows that QTS:  $t = 12.54$ ,  $p$ -value = 0.0001 ( $p$ -value $<0.05$ ), thus, QTS positively and significantly influences SS. SR:  $t=20.53$ ,  $p$ -value=0.0001 ( $p$ -value $<0.05$ ), thus SR positively and significantly influences SS.

In testing H6, the following equations were compared:

$$SS = 8.71 + 0.49 (QTS) + e_1$$

$$SS = 3.68 + 0.28 (QTS) + 1.00 (SR) + e_2$$

By using Baron and Kenny's interpretation for testing mediating effects, as in Table 18,  $\beta = 1.00$  or SR is a significant variable, hence it is a mediator. In addition,  $\beta = 0.28$  (Table 18) is smaller than  $\beta = 0.486$  (Table 17), indicating the reduced effect of the independent construct (QTS). As Table 17 shows  $\beta = 0.28$ , so QTS is significant, the mediating effect of SR is deemed to be partial. Thus, H6 is partially supported.

H7: Students' perception of the image of a higher education institution mediates the relationship between quality of teaching staff and student satisfaction.

Table 19 indicates that  $F=569.62$ ,  $df=2, 1135$ ,  $p$ -value=0.0001 ( $p$ -value $<0.05$ ) whilst Table 20 shows that QTS:  $t=13.12$ ,  $p$ -value=0.0001 ( $p$ -value $<0.05$ ), thus, QTS positively and significantly influences SS in this relationship. Table 20 also shows that SI:  $t = 22.675$ ,  $p$ -value=0.0001 ( $p$ -value $<0.05$ ), thus SI positively and significantly influences SS in this relationship.

In testing H7, the following equations were compared:

$$SS = 8.71 + 0.49 (QTS) + e_3$$

$$SS = 2.96 + 0.28 (QTS) + 1.04 (SR) + e_4$$

By using Baron and Kenny's interpretation, Table 20 shows that  $\beta = 1.042$  or SI is a significant variable, hence it is a mediator. In addition,  $\beta = 0.28$  (Table 20) which is smaller than  $\beta = 0.486$  (Table 17), indicating the reduced effect of the independent construct (QTS). As Table 20 shows  $\beta = 0.28$ , so QTS is significant, the mediating effect of SI is deemed as partial mediator. Thus, H7 is partially supported.

**Table 15. Model fit for relationship of SS – QTS**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	12434.838	1	12434.838	430.588	.000 <sup>b</sup>
Residual	32806.242	1136	28.879		
Total	45241.080	1137			

a. Dependent variable: SS, b. Predictors: (Constant), QTS

**Table 16. Model fit for relationship of SS - SR – QTS**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	21318.212	2	10659.106	505.712	.000
Residual	23922.867	1135	21.077		
Total	45241.080	1137			

a. Dependent variable: SS, b. Predictors: (Constant), SR, QTS

**Table 17. Coefficient table for the relationship SS – QTS**

	Unstandardized coefficients		Standardized coefficients	t	Sig.
	$\beta$	Std. error	Beta		
(Constant)	8.713	.962		9.057	.000
QTS Model	.486	.023	.524	20.751	.000

a. Dependent variable: SS

**Table 18. Coefficient table for the relationship SS - SR – QTS**

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	$\beta$	Std. error	Beta			Tolerance	VIF
(Constant)	3.680	.858		4.291	.000		
QTS	.280	.022	.303	12.542	.000	.800	1.250
SR	1.002	.049	.495	20.530	.000	.800	1.250

a. Dependent variable: SS

**Table 19. Model fit for relationship of SS - SI – QTS**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	22662.682	2	11331.341	569.618	.000
Residual	22578.398	1135	19.893		
Total	45241.080	1137			

a. Dependent variable: SS, b. Predictors: (Constant), SI, QTS

**Table 20. Coefficient table for the relationship SS - SI - QTS**

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	$\beta$	Std. error	Beta			Tolerance	VIF
(Constant)	2.964	.838		3.538	.000		
QTS	.281	.021	.303	13.117	.000	.822	1.216
SI	1.042	.046	.524	22.675	.000	.822	1.216

a. Dependent variable: SS

## 5. DISCUSSION

This research has theoretical importance as it contributes to various features of quality with a research model that describes and predicts the effects of quality of teaching staff, school reputation and school image on student satisfaction. While preceding readings of quality have mainly emphasized on the direct influences of different magnitudes of quality of teaching staff on student satisfaction, this research investigated the complicated relationship among constructs. One of the major results is the different degrees of influence that the quality of teaching staff has on student satisfaction and the interface of these two with the hypothesized mediators. School reputation was found to have a mediating effect on the positive side of quality of staff but the effect was only partially significant. This suggests that institutions with a good reputation may not be solely due to the quality of teaching staff. However, institutions with a poor reputation can be expected to be due to the quality of its teaching staff.

This research also confirms that the quality of teaching staff influences student satisfaction. The impact of quality on some general business settings has been widely analyzed in the literature, but no particular research work has been put on how it can be applied in a pragmatic educational setting. This finding has practical significance for policy setters and administrators of higher education in Hong Kong, because for the last thirty years the higher education in Hong Kong has been dominated by government-funded universities leaving self-funded post-secondary institutions to struggle for their market share of quality students. One way is for self-funded post-secondary institutions to improve the quality of teaching staff so as to attract more students to enrol in the school. Institutions should take heed that the path to successful education is to go back to the basics of good teaching, using this aspect to build better reputation and image.

The findings of this research confirmed the positive effects of school reputation and school image on student satisfaction. It is also a norm that the majority of secondary school graduates in Hong Kong choose universities or post-secondary institutions based on their brand name and reputation. Self-funded institutions that are less reputable try to attract potential candidates by emphasizing the quality of their teaching and attempt to satisfy students by other means. With this information, higher education administrators may wish to

build up the reputation and image of their institution by analyzing potential students' needs and match those needs with programme development and resource capabilities.

Educators need to concern over the quality of the programme, quality of teaching staff, and learning resources caused by the over-enrolment were expressed by stakeholders, including students, staff and alumni in late 2012, which resulted in a University inquiry into the operation of the College and the Institute [92]. Since the incident had attracted public attention and received wide media coverage, the University's reputation and image were seriously affected. The Inquiry Panel made twenty-nine recommendations, eleven of which were related to students' perception of their teaching, learning and resources, seven to the University's governance and image, five to student admission and further studies, and five to the quality of teaching staff. According to the Inquiry Panel, the majority of the teaching staff was part-timers with insufficient experience or administrative support and with a heavy workload. This could have been avoided if management had taken timely action in staff recruitment and had provided adequate administrative support.

The Lingnan incident also lends support to the findings of this research that the quality of teaching staff significantly affects student satisfaction, and that in turn student satisfaction has a highly significant effect on school reputation and school image. Just as [85] opined, while a positive reputation leads to perceived credibility a tarnished reputation suggests a lack of credibility. As a consequence of the incident, Lingnan University had to change its senior management, including the Dean of the College, in order to re-establish its brand name and regain credibility in the eyes of the public.

The measurement scales for this research met the reliability and validity tests and were borrowed and modified to empirically substantiate the influence of school reputation and school image on quality of teaching staff and student satisfaction by using linear regression techniques. The constructs were based on deeply rooted theory and Cronbach's alpha tests on all constructs met the minimum level of 0.7 as recommended by [89] for highly reliable academic research. Furthermore KMO analysis showed that the samples were more than adequate for this study. Validity tests were based on factor loadings of 0.6167 to 0.791 for most constructs, except for student satisfaction that loaded at 0.700 to 0.828. The latter could be due to the large variances amongst the six questionnaire items on student satisfaction and the fact that it was the only dependent variable of the research.

There are situations in Hong Kong that some universities have to accept less capable students when there are many universities offering undergraduate places to high-school leavers. It will be a challenge to maintain the quality of student intake and some schools need to deploy extra resources to help less capable students reach an acceptable post-secondary education standard. These findings should prompt educators in management roles to give thoughtful considerations to ways in which they can enable students to achieve satisfaction in their post-secondary studies, as the quality of graduating students may be another way of gaining a good reputation and image for post-secondary institutions.

## **6. LIMITATIONS AND FUTURE RESEARCH**

The first limitation of this research is the quantitative research methodology and tools used to examine the relationships among the study's four constructs: school reputation, school image, quality of teaching staff, and student satisfaction. It is highly likely some other constructs may exist that influence or mediate the hypothesized relationships. The relationship of influences displayed by different variables may shed further light on the mediating effects.

The second limitation of the research is that its findings may not be generalizable. Although data were collected from 1,170 respondents, a number that undoubtedly enhanced the quality of the study, the findings were substantially based on the perceptions of students studying sub-degree programmes in Hong Kong. The sub-degree sample may affect the applicability of the findings to other senior year students in undergraduate studies. Future studies could be conducted to determine how generalizable the findings of this research are to students studying other post-secondary programmes in Hong Kong or in other educational jurisdictions.

The third limitation of the research is associated to the finding that the two mediators, school reputation and school image partially influence the relationship between quality of teaching staff and student satisfaction. This finding suggests that the correlations concerned might be more complex than originally hypothesized. It is therefore suggested that a qualitative case study could be used as a primary tool to see how the different issues relate in a dynamic situation.

Based on the findings of this research, a number of recommendations are made for further related research. Firstly, as this research was applied to full-time higher education students in general, it may be useful for future research to concentrate on students of a specific discipline or on part-time students since the majority of post-secondary full time programmes are also offered in a part-time mode. In addition, the research findings revealed that a positive relationship exists between the quality of teaching staff and student satisfaction and confirmed the mediating effect of school reputation and school image. And, since results of the exploratory factor analysis found that school reputation and school image form an underlying 'school branding' superordinate variable, more research is needed to fully explore this new variable and its relationship to the independent and dependent variables.

## **7. CONCLUSION**

In order to attract high quality students in the globalized higher education market and remain competitive, educational institutions across the world are taking a proactive attitude towards image building [58]. This research supports the findings of a longitudinal study by [72] confirming the positive influence of image on customer satisfaction, which increased over the three-year time span of their research. It arrived at a similar finding of image with respect to student satisfaction but over a much shorter duration. This research also provides empirical evidence to show educators and administrators of higher education how important it is to enhance reputation and image through student satisfaction with teaching and learning. Under such circumstances, it is extremely important to cultivate an image-culture based on quality of teaching and not totally on branding parallel with organizational vision and structure, technical infrastructure, collaborative environment, and appropriate training [93]. This research provides help with building an image by having studied the constructs of impression, reputation, and comparative advantage, and confirming the causal relationship between satisfaction and reputation and that the two concepts are interrelated and mutually interdependent. This research also confirmed that satisfaction is the antecedent of quality [40] and that a long-standing and positive school reputation is also a strong indicator of its high levels of quality and competence [47].

The findings provide help with building an image by having studied the constructs of impression, reputation, and comparative advantage, and confirming the causal relationship between satisfaction and reputation and that the two concepts are interrelated and mutually interdependent. However, since this research was carried out exclusively in Hong Kong,

further research is required in other jurisdictions to verify the adaptability of the findings.

## **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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