



# Competitiveness of Higher Education Institutions in Hong Kong: The Mediating Effect of Student Satisfaction, School Image and Student Loyalty

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## Authors' contributions

*This work was carried out in collaboration between all three authors. All authors read and approved the final manuscript.*

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## ABSTRACT

A rapid expansion of higher education in last ten year in Hong Kong, especially in the development of self-financed programmes, it is necessary to address the issue of the quality of education, student satisfaction and image of institutions. Despite extensive studies in the areas of school image, student satisfaction and student loyalty respectively, an integrated model of these variables with mediating effects of school image, student satisfaction and loyalty is still lacking. To carry out the investigation, full-time students from higher education institutions were randomly selected as the targeted participants in this research. The questionnaire survey elicited a response from 297 students from 320 self-financed higher education institutions, which gave a response rate of 92.8%. The research found that student satisfaction has full mediating effect on the relationship between teaching quality and the respective school image, school reputation and

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student loyalty. Further, both student loyalty and school image have a partial mediating effect on the relationship between student satisfaction and school reputation.

*Keywords: Mediating effect; student satisfaction; school image; student loyalty.*

## 1. INTRODUCTION

The educational services industry is composed of establishments that provide education and training across a wide variety of subjects in various educational services sectors, including public, not-for-profit or for-profit sectors [1]. Its objectives are to develop Hong Kong as a regional education hub, to boost Hong Kong's competitiveness, and to facilitate Hong Kong's long term development [2]. Thus, educational institutions in Hong Kong need to develop management strategies for schools such that they can build competitive advantages that will lead them to success. Facing the challenges of liberation, globalization, commercialization, privatization and massification of higher education in Hong Kong [3-5], the management of self-financed higher education institutions needs to rethink the marketing strategies for sustaining its competitive power. It has been suggested that service marketing should be applied to higher education institutions with the objective of allowing students to receive benefits and satisfaction from the school setting rather than from tangible assets [6]. As the intangible nature of educational service, positive word-of-mouth communications and maintenance of good relationship with existing students, alumni, and other stakeholders are crucial to enhance competitiveness in the education market.

School reputation is an intangible asset used by self-financed higher education institutions for evaluating the level of productivity and financial performance. Studies in service and marketing management literature have concluded that reputation of an organization influences customers' choice [7], attitudes over products and services provided, trust and purchase intentions [8]. Studies on the determinants of corporate reputation in the education market, found that teaching quality, student satisfaction, school image and student loyalty are essential to market competitiveness and favorable customer perception [9-11]. However, since these studies were in a business setting, a comprehensive examination of all these influences on reputation management is still lacking in an educational setting. With reference to [11] model, the focus of this research is the influences of teaching quality,

student satisfaction, school image and student loyalty on school reputation of self-financed higher education institutions in Hong Kong. This research fills the gaps that exist in the present literature by developing an empirical research framework to investigate five hypotheses by means of a quantitative research approach using questionnaire survey. This research sheds light on how self-financed higher education institutions are able to compete and enhance their competitiveness in both local and international education markets.

## 2. LITERATURE REVIEW

### 2.1 Vidaver-Cohen's Model [11]

There is an oversupply of self-financed programmes in Hong Kong that has created excessive competition in the market [12]. It is time for Hong Kong's higher education to shift the focus from quantity to quality. So this research proposes a new measurement model for considering management of reputation in self-financed higher education institutions in Hong Kong. This research replicates and extends the model by [11] and add three mediating variables.

Vidaver-Cohen D [11] suggested and developed a conceptual model of about reputation of business school which was based on the RepTrak model that was developed by the Reputation Institute. The dependent outcome "reputation" is reflectively operationalized by assessing the level of trust, admiration, good feeling and perceived public esteem. The independent variables are organizational performance, product quality or service quality, leadership practices, governance procedures, workplace climate, citizenship activities and approach to innovation. [11] argued that it is significant and crucial to identify differences in stakeholders' expectations for business school performance in order to assess the reputation of a business school. Since either the independent variable or the dependents variables in [11] study are similar and nearly the same to this research and their purpose of studies are similar, this research proposed to replicate [11] model of reputation by adding three mediators; they are student satisfaction, student loyalty and school

image in order to investigate those impacts on school reputation of self-financed higher institutions in Hong Kong.

## 2.2 Quality of Teaching

Kim et al. [13] identified several indicators of teaching quality, such as communication skills, attitude toward the students, knowledge of the subject, organizational skills, enthusiasm, fairness, flexibility, and encouragement of students, whilst [14] determined that instructor delivery of course information, instructor-student interaction, and regulation of students' learning are positively related to teaching quality. [15] suggested four factors, namely, learning, instruction, organization, and workload as effective teaching indicators. [16] argued that the key measures of teaching effectiveness include knowledge and performance in teaching, grading, overview of the course, requirements/efforts, and course outcomes. [17] found that lecturer personality, extent of learning, type of course, experience of lecturer and grades awarded are strongly related to teaching quality. From the literature of teaching quality, it can be concluded that knowledge and organization, clarity, grading and evaluation, teaching methods and skills, interaction with students, and passion and enthusiasm are important factors [18-20].

## 2.3 Student Satisfaction

McQuitty [21] argued that satisfaction level is a result of the difference between expected and perceived performance, whereas a performance delivering a worse than expected result is dissatisfaction and creates negative disconfirmation; this is the so-called expectancy disconfirmation theory [22]. Hence, organizations must pay particular attention to identifying and meeting the expectations and needs of customers [23]. Some researchers further argued that the overall perceptions of an organization generated by various stakeholders is based on associations and information cues as signals of quality [24,25]. According to [23], student satisfaction is defined as the student's positive subjective evaluation of the outcomes and experiences associated with the education provided, and such satisfaction is continually reinforced by the repeated experiences in school life. [26] defined student satisfaction as students' own perceived value regarding their university experience, and anticipated significance of the education that they received from university. Similarly, [27] claimed that student satisfaction is

the student's fulfilment response to products and services provided by education institution. Hence, student satisfaction occurs if the perceived performance delivered by his/her education institution is higher than the expected performance as contrary to [22] expectancy disconfirmation theory.

## 2.4 Student Loyalty

There is growing interest in investigating student loyalty in the higher education sector [28,29]. According to [30] study, student loyalty consists of attitudinal and behavioural components and both are interrelated with each other. Student loyalty is not only confined to the period during which students are enrolled, it is also important in their prior education institution by providing positive word-of-mouth to friends and relatives and by considering returning to study other courses in the same higher education institution [10,28]. Thus, loyalty helps education institution attract potential candidates and retain existing students [28,31], and also to maintain a competitive edge in the global education sector [32,33]. Researchers such as [34,35] contended that loyalty is a "philosophy of leaders" whereby the management looks for mutual benefits between the organization (educational institution) and the stakeholders (students, parents and the public etc.). The management of education institutions thus views the achievement of student loyalty as part of their short and long-term plans.

## 2.5 School Image

The study of image mainly concentrates on the fields of commercial and public relations. Less image research has been conducted on service industries, with the study of university or school images only having been undertaken since the 1990s when the importance of image management began to be appreciated [36,37]. From this time, the corporate image of universities or institutions became an area of study for marketing management. [38] claimed that a good university or school image can improve competitive advantages in attracting students, in recruiting academic staff with high quality, and in finding new sources of funds. Especially in light of the global competitiveness of the higher education sector, actively maintaining a positive image is a key for success [39] Thus, it can be inferred that it is worthwhile for educational institutions to study ways in which to enhance their image in order to increase their

recruitment rate [40,41]. [42] suggested that school image provides an attractive value to educational institutions as they become customer-focused.

## 2.6 School Reputation

Just the same as in a business environment, the reputation of a higher education institution plays an important role in strategic relationship management [43]. A report entitled American Freshman: National Norms Fall in 2013 suggests that a strong academic reputation is one of the top factors affecting students' choice of university to enrol in. Prior studies in service and marketing management literature have found that reputation of an organization influences customers' choice [7], attitudes over products and services provided [44], trust [8], and purchase intentions [45]. From a financial perspective, a good reputation means that external parties, such as students in the case of self-financed higher education institutions, are prepared to pay a premium for the organization's product or service [46]. Education institutions with a good reputation can charge a premium school fee because they are signaling superior quality, sustainability, and reduced risk [47,48]. [49] argued that image and reputation of some higher education institutions are treated as more important factors than actual teaching quality. Students may judge whether a higher education institution is good or bad by inferring its reputation under the impact of information asymmetry [50,51]. Therefore, it can be argued that a university's reputation is a function of how well it performs in meeting students' needs and expectations and is the outcome of being effective as the education institution [52].

## 2.7 Mediating Roles of Student Satisfaction, Student Loyalty and School Image

Mediation effect is the influence of a given independent variable on a given dependent variable that goes through one or more third variables [53,54,55,56]. These variables are called mediator or intervening variables. In terms of path analysis, mediation implies an indirect effect of an independent variable on a dependent variable through one or more mediator variables [56]. Thus, mediation occurs if the coefficient of the direct path between the independent variable and the dependent variable is decreased while the indirect effect through the mediator is postulated in the model [57]. This research

recognizes student satisfaction, student loyalty, and school image as simple mediators that influence the effects of various variables separately.

### 2.7.1 Mediating role of student satisfaction on teaching quality and school image

Few studies have been conducted for examining the relationship between the mediating relationship between customer satisfaction, service quality and image. The findings of [58] revealed that customer satisfaction partially mediated the relationship between image and quality in the context of food experiences in tourist destinations. The model of [59] found that customers tend to have high satisfaction and retain their relationship with the organization if the organization provides high quality service and produces a good corporate image. It was also found that the relationship between service quality and corporate brand image are indirectly influenced by the mediating variables of customer satisfaction and repurchase intention (loyalty). Similar findings from [60] confirm that customer satisfaction and customer retention are affected by service quality through the mediating effect of an organization's perceived value (image), which is consistent with the results of [61]. Referring to the above arguments in the literature, it can be concluded that there is no universal agreement on the mediating variable 'customer satisfaction' between service quality and corporate image. Based on the findings of [58] and [59], it is expected that the mediating effect of student satisfaction on the relationship between teaching quality and school image occurs in the Hong Kong context. It was therefore hypothesized in this research that:

Hypothesis H1: Student satisfaction mediates the relationship between teaching quality and school image in Hong Kong's self-financed higher education institutions.

### 2.7.2 Mediating role of student satisfaction on teaching quality and school reputation

Few empirical studies have been conducted on the mediating effect of student satisfaction on the relationship between teaching quality and school reputation. [62] highlighted the mediating role of customer satisfaction in the relationship between the quality of goods and services and organizational reputation. Based on the findings of [62], a similar relationship is expected to occur

in the Hong Kong context. It was therefore hypothesized in this research that:

Hypothesis H2: Student satisfaction mediates the relationship between teaching quality and school reputation in Hong Kong's self-financed higher education institutions.

### **2.7.3 Mediating role of student satisfaction on teaching quality and student loyalty**

Many researchers have examined the relationship between service quality, customer satisfaction and loyalty [63,64]. [65] found that service quality not only affects loyalty directly but also indirectly through satisfaction. [66] confirmed the mediating role of customer satisfaction in the effects of service quality on service loyalty in banks in Iran. The aforementioned findings are supported by the results of empirical studies by [67,68,69,70] also tested the mediating effect of patient satisfaction in the relationship between healthcare quality and patient trust (loyalty) and confirmed that there is a significant indirect impact of healthcare quality on patient trust through patient satisfaction, which is consistent with the findings of [71] and in accordance with [56] model. [72] found that service quality has a positive influence on customer loyalty through the mediating variable 'customer satisfaction' in China's telecommunication industry. [73] found that satisfaction significantly influences the relationship between service quality and students' word-of-mouth behavioral intention (loyalty) in the university education setting. Although most studies support the mediating effect of customer satisfaction on service quality towards customer loyalty, the findings of [74] indicate that service quality directly causes customer satisfaction but it does not create customer loyalty through customer satisfaction.

The literature review suggests that the mediating effect of satisfaction on quality and loyalty will likely occur in the Hong Kong context. It was therefore hypothesized in this research that:

Hypothesis H3: Student satisfaction mediates the relationship between teaching quality and student loyalty in Hong Kong's self-financed higher education institutions.

### **2.7.4 Mediating role of student loyalty on student satisfaction and school reputation**

Rust and Zahorik [75] found that customer loyalty significantly mediates the relationship between

customer satisfaction and an organization's financial performance (reputation). [76] found that customer loyalty to a financial institution mediates the relationship between corporate image (reputation) and customers' overall satisfaction in financial institutions in Malaysia. Since few studies have been conducted on the mediating effect of customer loyalty on customer satisfaction towards corporate reputation, such a relationship is expected to occur in the Hong Kong context. It was therefore hypothesized in this research that:

Hypothesis H4: Student loyalty mediates the relationship between student satisfaction and school reputation in Hong Kong's self-financed higher education institutions.

### **2.7.5 Mediating role of school image on student satisfaction and school reputation**

In the literature on the mediating effect of corporate image, one study focused on the relationship between service quality and customer satisfaction [77], one between customer satisfaction and customer loyalty [78], one between service quality and customer loyalty [79] and one between patrons' dining experience and relationship quality in achieving customer loyalty [80]. In a study of higher education in Hong Kong by [63] also shows the significant mediating effect of school image to the relationships between teaching quality and student satisfaction. Although there appears to have been no empirical studies regarding the mediating effect of school image on student satisfaction and school reputation, it was nevertheless expected that such a relationship would occur in the Hong Kong context. Accordingly, it was hypothesized in this research that:

Hypothesis H5: School image mediates the relationship between student satisfaction and school reputation in Hong Kong's self-financed higher education institutions.

## **2.8 Research Model**

The research has five constructs and the research model is shown in Fig. 1. The first construct is teaching quality which serves as the independent variable, its direct effect on other three constructs; school image, student loyalty and school reputation are proposed in the research model. The last construct is student satisfaction, its direct effect to school image and

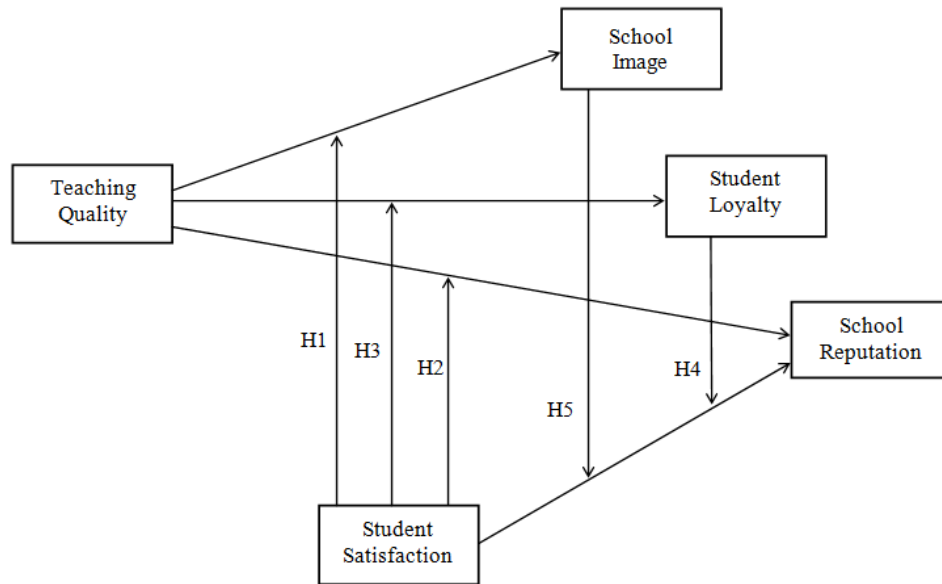


Fig. 1. Research model of this research

mediating effect between teaching quality to school image, student loyalty and school reputation are proposed. In addition, the mediation effect of school image and student loyalty between student satisfaction and school reputation are proposed.

### 3. METHODOLOGY

#### 3.1 Sampling and Data Collection Method

A survey database was developed to include the names of all the institutions in Hong Kong offering self-financed sub-degree and degree (including top-up degree) programmes. Potential contacts were randomly selected from the file by a computer programme. An anonymous questionnaire together with a letter of invitation and a Survey Information Sheet were sent directly to the selected institutions to obtain their consent for their students to participate in the survey. A total of four self-financed institutions were approached and institutional contact persons administered 320 copies of the questionnaire. An anonymous self-administered questionnaire survey was used to collect data for this research and students were invited to complete the questionnaire on the spot. Ethical issues in relation to the questionnaire survey, including confidentiality, data storage, and data access, were properly addressed. 297 respondents were received which account for 92.8% response rate.

#### 3.2 Measurement Items

The questionnaire was designed in measuring five constructs: quality of teaching staff, school reputation, school image, student satisfaction and student loyalty.

##### 3.2.1 Quality of teaching staff

There is evidence that the quality of teaching staff can be ensured through student feedback on teaching effectiveness, consultation, interpretation guides, and other arrangements for staff development [81]. This also serves as a part of the teaching and learning development for improvement of teaching quality [82]. Table 1 lists the measuring items for quality of teaching staff by adapting research by [83].

##### 3.2.2 School reputation

Wartick [84,85] argued that school reputation is the aggregation of every single stakeholder's impression of how well the school responses are meeting the wants and demands of various stakeholders. Reputation can be formed over time based on educational institution's credible actions [86]. School reputation is used for investigating the services provided, student satisfaction and student loyalty [87,88] through the investigation of three constructs: (i) impression, (ii) reputation, and (iii) comparative advantage. Table 2 lists the measuring items for school reputation by adapting research by [89].

**Table 1. Measuring items for quality of teaching staff**

Quality of teaching staff	Measurement items
Tq1	The teaching staff of my institution has appropriate academic credentials.
Tq2	The teaching staff of my institution is incorporating appropriate use of technology to teach.
Tq3	The teaching staff of my institution conducts lectures effectively.
Tq4	The teaching staff of my institution is aware of my learning needs and provides help to students.
Tq5	The teaching staff of my institution treats students with respect and as mature individuals.
Tq6	The teaching staff is sympathetic and supportive to the needs of students.

*Adapted from [83]*

**Table 2. Measuring items for school reputation**

School reputation	Measurement items
Rq1	My institution fulfils the promises it makes to its students. (honoring promise)
Rq2	My institution has a good reputation. (good reputation)
Rq3	My institution is better than other institutions. (better reputation than others)

*Adapted from [89]*

### **3.2.3 School image**

School image is the students' perceptions of the image of institution. It refers to the feelings that are derived from individual experiences with a school and from the processing of information on the attributes that form functional indicators of image [89]. School image is thus the consequence of an aggregate process by which the students compares and contrasts the different attributes of the school [89]. As different students have different types of experience with their schools, the perceptions and impressions between different students will be different [90,91,92]. The measurement items of school image were adapted from [89], which are listed in Table 3.

### **3.2.4 Student satisfaction**

Oliver [31] defined satisfaction as a perception of pleasurable fulfilment of a service. Subject to its abstract concept and no universal measurement available for satisfaction, this research adapted three items from the study by [93,94] to measure student satisfaction by asking questions related to their perceptions of their own institution. The measurement items are listed in Table 4.

### **3.2.5 Student loyalty**

The measurement of student loyalty was adapted from the study by [93], which used the following three measures (Table 5) developed and validated by [10]: (i) chances of recommending

the university to friends or acquaintances, (ii) attending the same university if starting from fresh, and (iii) the chance of returning to the same university for new programmes and further education [31,95].

## **3.3 Data Analysis**

Collected data were analysed using statistical package for conducting factor analysis and Structural Equation Modelling (SEM) for testing mediating effects of the constructs. The validity of the measures was tested using confirmatory factor analysis (CFA) while reliability test was tested using Cronbach's alpha with the value greater than 0.8 as the satisfactory requirement for management research [96]. Structural Equation Modelling (SEM) technique was used to verify the research model fit [97,98,99] and to identify the presence of the mediating effect through the pre-requirement conditions and procedures for relationship testing [56].

## **3.4 RepTrak Model**

The research replicates and extends [11] model that was based on the RepTrak model by adding three mediating variables: student satisfaction, school image and student loyalty. The RepTrak model was developed by the Reputation Institute. This model is a simplified emotion-based measure of corporate reputation, which can untangle the drivers of organizational reputation from the measurement of the constructs.

**Table 3. Measuring items for school image**

School image	Measurement items
lq1	I have a good impression of my institution.
lq2	My institution has a good image in the minds of its students.
lq3	My institution is better than other institutions.
lq4	My institution has good course programmes when compared with other institutions.

*Adapted from [89]*

**Table 4. Measuring items for student satisfaction**

Student satisfaction	Measurement items
Sq1	I am satisfied with my institution in general.
Sq2	I am satisfied with my institution when compared with my initial expectations.
Sq3	I am satisfied with my institution when compared with an institution that is considered ideal.

*Adapted from [93,94]*

**Table 5. Measuring items for student loyalty**

Student loyalty	Measurement items
Lq1	I will recommend my institution to friends or acquaintances.
Lq2	I will maintain a relationship with my institution after I graduate.
Lq3	If I had the chance to enroll in an institution for study again, I would enroll in this institution.

*Adapted from [93,94]*

## 4. RESULTS AND ANALYSIS

### 4.1 Sample Characteristics

Table 6 shows the demographic profile of the respondents.

### 4.2 Reliability and Validity Tests

Measurement analysis was carried out to ensure there is validity and reliability in the collected data. Validity test was carried out using exploratory factor analysis (EFA) in SPSS and confirmatory factor analysis (CFA) in structural equation modelling (SEM). The primary reason for EFA was to ensure the nonexistence of common method bias, meanwhile CFA was carried out using a measurement model comprising of both exogenous and endogenous variables to ensure validity.

#### 4.2.1 Exploratory Factor Analysis (EFA)

Firstly, the sampling adequacy assumption was tested using the Keiser-Meyer-Olkin (KMO) test. Table 7 shows that KMO = 0.94, indicating excellent sampling. Bartlett's test of Sphericity tested the identity matrix of measures. Table 7

shows that Chi square ( $\chi^2$ ) = 4184.15, degrees of freedom (df) = 136, and p-value = 0.0001. As p-value < 0.05 which means that identity matrix does not exist between the items used to measure the constructs in the research model. Finally, the assumption  $n/k = 297/17 = 17$  satisfies the decision rule  $n/k > 5$ , allowing the validity assessment to be carried out. With these assumptions met, EFA test was carried out with principal component analysis requiring eigen value more than one (1) to load. The test used Varimax rotation, suppressing loading below 0.5, resulting in rotated component matrix as in Table 8.

Table 8 shows items loading into 5 components that were renamed as teaching quality (Tq), school image (lq), student loyalty (Lq), student satisfaction (Sq) and school reputation (Rq). The factor loading of the six items that represented Tq loaded highly in component 1 and all four items representing lq loaded highly as component 2. Component 3 was loaded by two items that represented Lq, with the item "Lq2: I will maintain my relationship with my institution after I graduate" removed. All three items for Sq loaded highly as component 4, while items for Rq loaded in component 5 with 2 items. The item



“Rq3: My institution is better than other institutions” was removed, thus allowing convergent and determinant validity of items measuring the five constructs in the present research.

The EFA further shows that the five constructs in total explained 80.68% of the variation in responses as shown in Table 9. Teaching quality explained 57.76% of the variation, school image explained 8.44%, student loyalty explained 6.40%, while 4.59% of the variation was explained by student satisfaction and 3.49% by school reputation. This statistic generally shows more of the validity concerns of the items used to measure the constructs in the research as (100 – 80.68) % or 19.32%) of the variations could be explained by other variables, which were not considered in this research. This validity provided further confirmation of the non-existence of common method bias in the data collected for this research.

**4.2.2 Confirmatory Factor Analysis (CFA)**

The measurement assessment was further confirmed with the final CFA’s measurement

model, as presented in Fig. 2, analysing the inter-relationship of the five constructs hypothesised for the present research (the reduction in items representing the student loyalty and school reputation constructs increased the validity of the model). As some studies advocate that the satisfaction of four of these statistics are sufficient to make a decision on the model fit [97,98,100], the measures were retained as valid to represent the respective constructs [98,99,101,102]. With CMIN = 557.91, df = 110, and p-value = 0.0001 (p-value = 0.05), there is an indication that the model is not entirely adequate. However, with CMIN/df < 5 the model is fit [101,102], CFI = 0.91 is > 0.9 satisfying for model fit; and PCFI = 0.72 is greater than 0.7 showing that the model is fit. Also, although NFI = 0.87, PNFI = 0.71 is greater than 0.7 showing that the model fit. One of the most common statistics used as an indicator to recognise model fit is GFI [100,101]. In this case GFI = 0.8 is > 0.8, while AGFI = 0.9 is ≥ 0.8 indicating model fit and with that, measurement validity is satisfied [97,101,102,103]. These indicators confirm the validity of the items used for measuring the relationship of the latent variables in this research.

**Table 6. Demographic profile of respondents**

Demographics	Frequency	Percentage (%)
<b>Gender</b>		
Male	150	50.5
Female	147	49.5
<b>Age</b>		
18-25	292	98.3
>25	5	1.7
<b>Division of study</b>		
Business	265	89.2
Science and technology	13	4.4
Communication and social science	13	4.4
Others	6	2.0
<b>Course of study</b>		
Associate degree	144	48.5
Higher diploma	5	1.7
Undergraduate degree	148	49.8

**Table 7. Assumption: KMO and bartlett's test outcome**

Kaiser-meyer-olkin measure of sampling adequacy		.937
Bartlett's Test of Sphericity	Approx. Chi-Square	4184.146
	df	136
	Sig.	.000

**Table 8. Rotated component matrix**

Items	Component				
	Tq(1)	Iq(2)	Lq(3)	Sq(4)	Rq(5)
Teaching staff effectively conduct lectures	.796				
Teaching staff have appropriate academic credentials	.754				
Teaching staff treat students with respect	.731				
Teaching staff are aware of students' learning needs and provide helps	.694				
Teaching staff are sympathetic and supportive	.682				
Teaching staff appropriately use technology to teach	.667				
Institution is better image than others		.822			
Institution has a good image in minds of students		.636			
Institution has good course programs than others		.612			
Students have a good impression of institution		.588			
Students will enrol in institution again if have chance to study again			.893		
Students recommend institution to friends			.872		
Students are satisfied with institution in general				.900	
Students are satisfied with institution as compared with initial expectation				.625	
Students are satisfied with institution as compared with ideal one				.613	
Institution has a good reputation					.743
Institution fulfils the promises it makes to students					.603

**Table 9. Total variance explained**

Components	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
Teaching quality (Tq)	9.819	57.758	57.758	9.819	57.758	57.758
School image (Iq)	1.435	8.442	66.200	1.435	8.442	66.200
Student loyalty (Lq)	1.089	6.404	72.604	1.089	6.404	72.604
Student satisfaction (Sq)	.781	4.591	77.195	.781	4.591	77.195
School reputation (Rq)	.593	3.486	80.681	.593	3.486	80.681

**4.2.3 Reliability test**

Table 10 shows items loading highly into their respective constructs, further validating the support for those items used to measure the constructs as shown in the validity test above. Following this, Table 11 shows Cronbach alpha's [104] reliability test outcome where all five latent variables result in alpha ( $\alpha$ ) > 0.8. This satisfies [96] reliability requirement for management research.

With removal of the school reputation item and the student loyalty item, the Cronbach's alpha for teaching quality with 6 items showed the highest reliability at 0.921 with a mean of 29.40 and standard deviation of 6.29. The Cronbach's alpha for student loyalty recorded the second highest reliability with 0.905, mean of 0.943 and standard

deviation of 2.55. Student satisfaction with 3 items recorded a Cronbach's alpha of 0.878, with mean of 14.62 and standard deviation of 3.37. Meanwhile, school image scored a Cronbach's alpha of 0.854 with 4 items, mean of 19.32 and standard deviation of 3.94. Lastly, school reputation had a Cronbach's alpha of 0.800, with 2 items representing it and a mean of 9.53 with a standard deviation of 2.37.

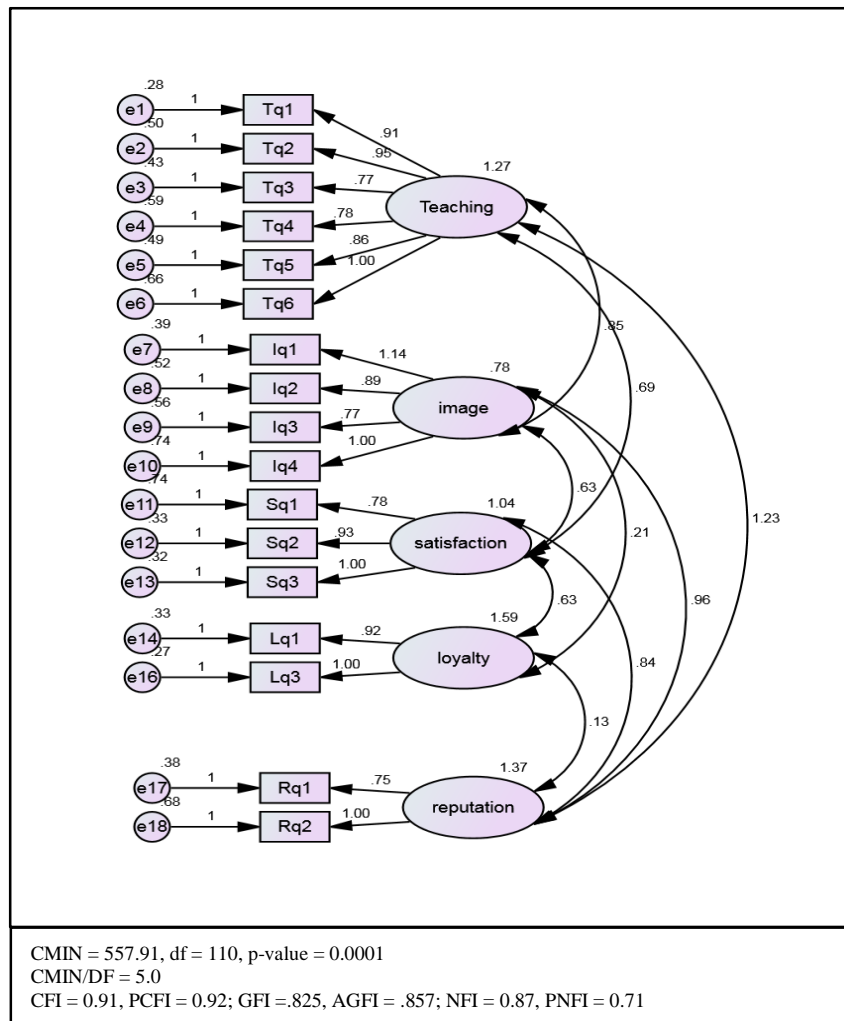
**4.3 Significance Testing of Mediating Relationships**

Table 12 indicates the effects of student satisfaction, student loyalty and school image with the comparison of values in standardised total effect, standardised direct, and standardised indirect outcomes. Table 13 has been developed to provide easy reference, the indirect effect of

teaching quality on school image is IE (indirect effect) = 0.730 (> 0.085) and IE (0.730), which is much greater than direct effect (DE=0.000), demonstrating that student satisfaction is a full mediator in the relationship between teaching quality and school image and thereby providing support for H1.

Table 12 shows the indirect effect of the relationship between teaching quality and school reputation, IE = 0.757(> 0.085) and IE (0.757) is much greater than DE (0.000), indicating that student satisfaction is a full mediator in the relationship. Hence, H2 is supported. The IE for the relationship between teaching quality and student loyalty shows IE = 0.610 (> 0.085) and IE (0.610) is much greater than DE (0.000).

Therefore student satisfaction is a full mediator in the relationship between teaching quality and student loyalty, demonstrating that H3 is supported. Table 12 also shows IE = 0.488 (> 0.085) for the relationship between student satisfaction and school reputation. Moreover, IE (0.488) < DE (25.222), therefore student loyalty is a partial mediator in the relationship between student satisfaction and school reputation [99,101,105]. This shows that H4 is partially supported. The indirect effect for student image on the relationship between student satisfaction and school reputation is shown in Table 12, and IE = 0.488 (> 0.085) and IE (0.488) < DE (25.222). This indicates that school image is a partial mediator, which partially supports H5.



**Fig. 2. Latent variables in the measurement model**

Latent variables: Teaching quality (Tq), school image (Iq), student loyalty (Lq), student satisfaction (Sq), school reputation (Rq)

**Table 10. Direct effects (Group number 1 - Default model)**

	Reputation	Loyalty	Satisfaction	Image	Teaching
Rq1	.751	.000	.000	.000	.000
Rq2	1.000	.000	.000	.000	.000
Lq1	.000	.925	.000	.000	.000
Lq3	.000	1.000	.000	.000	.000
Sq1	.000	.000	.784	.000	.000
Sq2	.000	.000	.929	.000	.000
Sq3	.000	.000	1.000	.000	.000
lq1	.000	.000	.000	1.144	.000
lq2	.000	.000	.000	.894	.000
lq3	.000	.000	.000	.772	.000
lq4	.000	.000	.000	1.000	.000
Tq1	.000	.000	.000	.000	.913
Tq2	.000	.000	.000	.000	.948
Tq3	.000	.000	.000	.000	.766
Tq4	.000	.000	.000	.000	.781
Tq5	.000	.000	.000	.000	.864
Tq6	.000	.000	.000	.000	1.000

**Table 11. Cronbach's alpha results for constructs**

Constructs	Cronbach's alpha	No. of items	Mean	Standard deviation
Teaching quality (Tq)	.921	6	29.40	6.185
School reputation (Rq)	.800	2	9.53	2.365
School image (lq)	.854	4	19.32	3.937
Student satisfaction (Sq)	.878	3	14.62	3.374
Student loyalty (Lq)	.905	2	9.43	2.551

**Table 12. Standardized effects (Group number 1 - Default model)**

Standard effects	Latent variables	Teaching quality	Satisfaction	Image	Loyalty	Reputation
Std. total effects	satisfaction	.884	.000	.000	.000	.000
	image	.855	.967	.000	.000	.000
	loyalty	.883	.999	.000	.000	.000
	reputation	.891	1.008	-1.178	-23.087	.000
Std. Direct effects	satisfaction	.884	.000	.000	.000	.000
	image	.000	.967	.000	.000	.000
	loyalty	.000	.999	.000	.000	.000
Std. Indirect effects	reputation	.000	25.222	-1.178	-23.087	.000
	satisfaction	.000	.000	.000	.000	.000
	image	.730	.000	.000	.000	.000
	loyalty	.610	.000	.000	.000	.000
	reputation	.757	.488	.000	.000	.000

The tests summarised in Table 13, assessed the mediating role of student satisfaction, student loyalty, and school reputation. Student satisfaction is a full mediator in the relationship between teaching quality and school reputation, the relationship between teaching quality and school loyalty, and finally between teaching

quality and student satisfaction. Student loyalty also plays a partial mediating role in the relationship between student satisfaction and school reputation. Similarly, school image is a partial mediator in the relationship between student satisfaction and school reputation.

**Table 13. Standardised effects for all endogenous and exogenous mediating variables**

		Std total effect			Std direct effect			Std indirect effect		
Hypothesis	H1	Tq	Sq	lq	Tq	Sq	lq	Tq	Sq	lq
Mediator	Satisfaction (Sq)	.884	.000	.000	.884	.000	.000	.000	.000	.000
Endogenous	Image (lq)	.855	.967	.000	.000	.967	.000	.730	.000	.000
Hypothesis	H2	Tq	Sq	Rq	Tq	Sq	Rq	Tq	Sq	Rq
Mediator	Satisfaction (Sq)	.884	.000	.000	.884	.000	.000	.000	.000	.000
Endogenous	Reputation (Rq)	.891	1.008	.000	.000	25.222	.000	.757	.488	.000
Hypothesis	H3	Tq	Sq	Lq	Tq	Sq	Lq	Tq	Sq	Lq
Mediator	Satisfaction (Sq)	.884	.000	.000	.884	.000	.000	.000	.000	.000
Endogenous	Loyalty (Lq)	.883	.999	.000	.000	.999	.000	.610	.000	.000
Hypothesis	H4	Sq	Lq	Rq	Sq	Lq	Rq	Sq	Lq	Rq
Mediator	Loyalty (Lq)	.999	.000	.000	.999	.000	.000	.000	.000	.000
Endogenous	Reputation (Rq)	1.008	-23.087	.000	25.222	-23.087	.000	.488	.000	.000
Hypothesis	H5	Sq	lq	Rq	Sq	lq	Rq	Sq	lq	Rq
Mediator	Image (lq)	.967	.000	.000	.967	.000	.000	.000	.000	.000
Endogenous	Reputation (Rq)	1.008	-1.178	.000	25.222	-1.178	.000	.488	.000	.000

## 5. DISCUSSION

According to the mediation rule of thumb adapted from [97], H1, H2 and H3 are supported with evidence showing the full mediation of student satisfaction on the relationship between teaching quality and school Image, school reputation and student loyalty respectively. On the other hand, the evidence of H4 and H5 reveals that student loyalty and school image respectively has a partial mediating effect on the relationship between student satisfaction and school reputation. This means that H4 and H5 are partially supported.

The result of H1 supports the findings of [58] and [59], although the latter study only supported a partial mediating effect of customer satisfaction. The result of H2 supports [62] empirical finding on the mediating role of customer satisfaction on the relationship between quality and reputation. The finding of H3 supports prior empirical studies by [66,67,68,69,72,73]. The findings of H1, H2, and H3 support student satisfaction acting as a significant mediator and heavily influencing school image, school reputation and student loyalty in relation to good teaching quality. Management of self-financed higher education institutions should therefore pay more attention to improving teaching quality and enhancing student satisfaction.

H4 is partially supported and its findings contribute to prior studies of the partial mediating effect of customer loyalty on the relationship between customer satisfaction and corporate reputation [99,101,105]. This partial mediation shows that the effect of student satisfaction towards school reputation reduces though remains significant with the addition of student loyalty in the relationship. That is, if school reputation was to be achieved using only student satisfaction, the effect will not be as much as if the intention of improving student satisfaction is to encourage student loyalty. There are few studies examining the mediating effect of student loyalty on the relationship between student satisfaction and school reputation, therefore the findings of this research not only contribute by shedding light on this aspect of higher education but also by raising awareness of the issue for further investigation. According to the result of H5, the contribution of student satisfaction may be taken lightly by institutes of higher education as a contributor to school reputation. This research shows school image working as a mediator to increase school reputation, and that

student satisfaction ought to translate into school image. This is also supported the findings by [63] about the mediating effect of school image. Thus, management of self-financed higher education institutions should improve student satisfaction and school image by building a positive relationship with various stakeholders, such as with parents and the wider community, in order to achieve a better school reputation.

In addition, student satisfaction has a direct and significant mediating effect on the relationship of teaching quality to school image, school reputation and student loyalty in this research. Thus, self-financed higher education institutions need to realize that school image and reputation with student loyalty may not achieved, even providing good teaching quality, without achieving a considerable level of student satisfaction. The findings contribute to prior empirical studies in this area. Student loyalty is found to have a partial mediating effect but significant moderating impact on the relationship between student satisfaction and school reputation. This suggests that the good reputation of a self-financed higher education institution may not be solely due to student satisfaction but that student loyalty also plays an important part in establishing the reputation. Furthermore, school image was also found to have a partial mediating effect but a significant moderating impact on the relationship between student satisfaction and school reputation. This suggests that the good reputation of a self-financed higher education institution may not be solely due to student satisfaction, but that school image may have also played an important part in establishing the school's reputation.

This research contributes to the body of knowledge in the relevant area of study by validating the theories and concepts of relationships between constructs - service quality, customer satisfaction, corporate image, customer loyalty, and corporate reputation. This knowledge may be applicable to other areas of studies such as relationship marketing, service marketing, corporate reputation and reputation management. Despite many studies having confirmed the influence of teaching quality on student satisfaction, student loyalty, and school image, the findings of this research provides more in-depth evidences of teaching quality as a significant factor on student satisfaction and, in turn, student satisfaction strongly affects student loyalty and school image. Therefore, this research sends an important message to self-

financed higher education institutions that if they want to improve their institutions' reputation, enhancement of student satisfaction is a top priority and teaching quality is a key important asset for achieving student satisfaction. The research also verifies the theoretically-founded mediating and moderating effects of student loyalty and school image on the direct relationship between student satisfaction and school reputation. The findings of this research provide evidence of the significance of such impacts and further stresses the importance of student satisfaction on school reputation [76,89,106]. In other words, through the mediating and moderating effects of customer satisfaction and corporate reputation, self-financed higher education institutions need to address the importance of turning satisfied customers into loyal customers and the development of corporate image in order to improve their reputation in the self-financed education sector.

## 6. RECOMMENDATIONS

Although the literature on corporate reputation in business settings has been well-documented, its impact on educational institutions is still under development. Current research also provided inconsistent findings on the relationship between corporate reputation and organizational performance. This research is a preliminary attempt to apply reputation management concepts in the self-financed higher education context in Hong Kong, and also addresses the problem that reputation measures fail to articulate whether reputation is treated as awareness, assessment or an asset [107]. However, the limitations of the study need to be addressed. The research used a quantitative research methodology to investigate the interrelationship among teaching quality, student satisfaction, school image, student loyalty, and school reputation. Using other constructs may also find the influence of moderation and mediation effects in such interrelationships.

Although this research replicated the RepTrak model, there are other measurement models for assessing corporate reputation. Future research could use other such corporate reputation measurement models. As suggested by [11], other factors such as third party judgments, institutional forces, and reputational capital could be examined in a future study. This research validated that the mediator of student loyalty and school image respectively, partially and fully

affect the direct relationship between student satisfaction and school reputation, as well as one mediator of student satisfaction fully affecting the direct relationship between teaching quality and the constructs of school image, school reputation, and student loyalty. The results show that the correlations among the constructs concerned might be more complicated than originally hypothesized. It is suggested that a qualitative study be conducted in order to explore other issues, the findings from which could provide a basis for a more comprehensive literature review that may reveal more research questions in order to generate a more wide-reaching research model. Thus, an all-inclusive quantitative empirical study may be carried out to gather data from a more extensive population with different age group, level of study, and different disciplines and then verify the study qualitatively. In addition, as this research was applied to full-time self-financed higher education students in general, the framework may be applied to a future study of students studying UGC-funded programmes or self-financed programmes in a part-time mode in Hong Kong or other jurisdiction.

## 7. CONCLUSION

The results of this research found that student satisfaction has a mediating influence on the relationship between teaching quality and school image, between teaching quality and school reputation, and between teaching quality and student loyalty, whereas student loyalty and school image respectively partially mediates the relationship between student satisfaction and school reputation. In order to achieve a high recruitment rate in self-financed institutions in Hong Kong that facing high competition, higher education institutions need to focus on enhancing student satisfaction, student loyalty and school image which were found a significant mediator in promoting the relationships between quality of teaching staff to school reputation and image and also student satisfaction and loyalty respectively [89,106]. The current research achieved similar evidence of school reputation and gave support to prior relevant research.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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