

## Research Article

# Validation of a Research Instrument to Measure Generation Y Parents' Perception of Service Quality and Effect on Satisfaction and Word of Mouth in International Schools

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Received 14 June 2022; Revised 26 July 2022; Accepted 4 August 2022; Published 30 August 2022

Academic Editor: Jiafu Su

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This quantitative research aimed to (1) validate an adapted instrument used for measuring service quality in private hospitals to measure the perceived service quality of K-12 international schools and (2) implement the instrument to assess service quality's impact on word of mouth and satisfaction. It was necessary to contextualize the scale items through item objective congruence test using industry experts. Scale items were adjusted to reflect the service provided by teachers, staff, and leadership of the school. The resulting 27 scale items for service quality were shown to be contextually valid and internally reliable. The instrument was then implemented to measure parental service quality's effect satisfaction and word of mouth. The survey was piloted by 33 parents and verified for internal consistency before being administered to 422 Generation Y parents. The results showed that the modified instrument was reliable and valid. The results showed that service quality had a direct and positive effect on both satisfaction and word of mouth but it had a greater effect on satisfaction.

## 1. Introduction

Schools are good at assessing the academic achievement of their students. Evaluating academic achievement is essential for schools. However, as a service industry, schools must also ensure that the quality of their service meets the expectations of parents and students. Schools will routinely monitor the satisfaction level of staff, parents, and students. Higher education institutes often measure the quality of the service they deliver by asking their students [1–5]. However, K-12 schools face the challenge that their students are not their direct customers; parents are the ones paying the tuition. As such, there is often a gap in measuring the service quality as perceived by their parents. Yet, satisfaction and perceived service quality are essential for service industries to be successful in an ever-increasing competitive market [6, 7].

As a result, schools must seek to understand the needs of their parents and students allowing them to adapt and improve so that they can not only meet but also even exceed their expectations. Therefore, there exists a need for K-12 schools to develop an instrument for measuring the perceived service quality of their parents.

This study sought to develop and validate an existing service quality instrument to make it contextually relevant and statistically reliable for use with parents of K-12 international schools.

Objectives for this research were, first, to develop and validate the service quality instrument according to the specific context of Generation Y parents in The International School of Macao, and second, to use a reliable modified instrument to measure Generation Y parents' perception of service quality and the effect on parent satisfaction and word of mouth.

*1.1. Research Question.* Can parent perception of service quality in K-12 international schools be reliably measured and what effect does service quality have on parent satisfaction and on parent word of mouth?

*1.2. Research Objectives.* The objective of the current study was to develop a reliable instrument for measuring service quality by adapting and contextualizing one used in private healthcare. The second objective was to implement and validate the instrument by determining the effect that service quality has on parent satisfaction and parent word of mouth.

## 2. Literature Review

*2.1. Service Quality.* Service quality is most often based on the expectancy disconfirmation theory [8–10]. A review of the literature suggests that two service quality models are typically accepted. Parasuraman [10] and colleagues proposed the SERVQUAL model for measuring service quality that consisted of 5 dimensions: tangibles, reliability, responsiveness, assurance, and empathy. This model has been used widely by many researchers [11–15] and specifically to measure service quality in higher education [2, 16–18]. Gronroos [9] developed a service quality model specifying the technical and functional aspects of service quality [9, 19].

Research into service quality has been used in many industries but its use in education has been limited to higher education [16, 20] and the researcher was unable to find any studies where it was used in K-12 contexts. Unfortunately, the use in HE is not suitable for K-12 contexts. In a university setting, the student receiving the service also decides whether it fits their expectations. In K-12 education, parents determine if the service meets their expectations though they may have only received some of the services directly and some of the services indirectly. As such, there is a need for a different measurement instrument that addresses this gap.

*2.2. Expectation Disconfirmation Theory.* Service quality and satisfaction is a measure between what is expected and what is experienced and is commonly referred to as expectation disconfirmation theory [21] and previously known as expectation confirmation theory [22, 23]. Expectation disconfirmation theory can be applied to a product or a service. A person with low expectations may be satisfied with the same level of experience that a person with high expectations would not. As such, expectation disconfirmation theory informs perceived service quality. Customers are satisfied with a service experience if it meets or exceeds their expectations [8]. In the same way, parents will be satisfied with their service experience from the school if it meets or exceeds their expectations.

*2.3. Satisfaction.* The satisfaction of both students and parents is often closely monitored by schools using both internal and external procedures. School-related nonacademic and academic aspects are frequently included in the

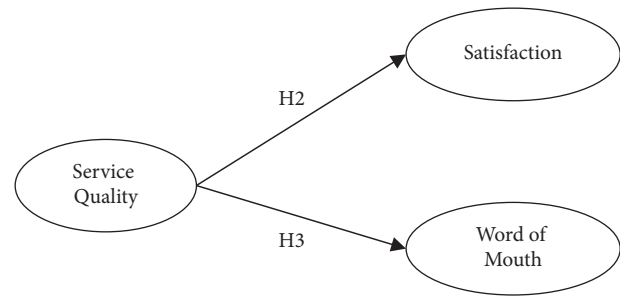


FIGURE 1: Conceptual framework for the current study.

multifaceted concept of satisfaction. Parents who are not happy will complain and spread negative messages, and if things do not change, they will withdraw their children from the school and look for another one.

In the research, satisfaction is informed by the expectancy disconfirmation theory [22–24] as the “consequence of the difference between the expected and perceived performance” [25]. Consumer satisfaction is a unique type of customer attitude used in the service sector that takes into account how much a customer likes or dislikes a service after using it [26].

Research is also interested in how satisfaction affects customer loyalty. Customer loyalty can be exhibited in repurchasing, continued use, or positive word of mouth. Jain et al. were not able to establish a link between satisfaction and WOM or brand loyalty. While satisfaction was not sufficient by itself in generating WOM, building customer-brand relationships on social media did have a significant and positive impact on brand trust, brand loyalty, and WOM for the brand [27].

*2.4. Word of Mouth.* Word of mouth (WOM) occurs when a consumer expresses their individual experiences with the company to other consumers. Previous research has shown that WOM has a direct effect on a consumer’s expectation and on a consumer’s perceived benefit which leads to a decision to purchase. WOM is generated by the consumer after purchasing and thereby influences other potential customers. In this way, the consumer is the producer of the WOM [27]. WOM is often a behaviour associated with customer loyalty. Like customer loyalty, parent loyalty can be defined as parents who give positive word of mouth, recommends the school to others, and encourages others to use the school service [28].

A special kind of WOM includes the liking, commenting, and sharing of posts on social media [29]. The effect of WOM is directly related to the strength of the tie between the author and receiver [30]. Prospective parents put a lot of faith in the WOM of their friends who are already enrolled in the institution.

*2.5. Generation Y.* Parents of international school students span multiple generations. Generation Y parents, also called Millennials, were born between 1981 and 2004 inclusively. Generation Y parents place greater emphasis on caring for

TABLE 1: Results of the item objective congruence test.

Item	1st expert	2nd expert	3rd expert	Total scores	IOC scores	Result
SQ1	1	1	1	3	1	Accepted
SQ2	1	1	1	3	1	Accepted
SQ3	1	-1	1	1	0.33	Revised and resubmitted
SQ3 revised	1	1	1	3	1	Accepted
SQ44	1	-1	1	1	0.33	Revised and resubmitted
SQ4 revised	1	1	1	3	1	Accepted
SQ5	1	1	1	3	1	Accepted
SQ6	1	1	0	2	0.67	Accepted
SQ7	1	1	1	3	1	Accepted
SQ8	1	1	0	2	0.67	Accepted
SQ9	1	1	1	3	1	Accepted
SQ10	1	1	0	2	0.67	Accepted
SQ11	1	0	1	2	0.67	Accepted
SQ12	1	1	1	3	1	Accepted
SQ13	1	0	1	2	0.67	Accepted
SQ14	1	0	1	2	0.67	Accepted
SQ15	1	1	1	3	1	Accepted
SQ16	1	1	1	3	1	Accepted
SQ17	1	0	1	2	0.67	Accepted
SQ18	1	1	1	3	1	Accepted
SQ19	1	1	1	3	1	Accepted
SQ20	1	1	1	3	1	Accepted
SQ21	1	1	1	3	1	Accepted
SQ22	1	0	1	2	0.67	Accepted
SQ23	1	0	1	2	0.67	Accepted
SQ24	1	1	1	3	1	Accepted
SQ25	1	1	0	2	0.67	Accepted
SQ26	1	1	1	3	1	Accepted
SQ27	1	1	1	3	1	Accepted

and protecting their children while also encouraging their children to be involved in community service. Academic achievement of the children of Generation Y parents is increasing and parents are likely to have higher expectations of their children's teachers and schools. [31].

### 3. Methods

*3.1. Research Framework and Hypotheses.* In addition to developing a reliable instrument to measure service quality, the current study developed the following research model to investigate the effect of service quality on satisfaction and word of mouth where service quality is considered an independent variable and satisfaction and word of mouth are considered dependent variables. The following hypotheses are proposed:

*H1.* A reliable and contextually valid instrument can be developed to measure service quality of parents in international schools.

*H2.* Service quality has significant and positive impact on satisfaction.

*H3.* Service quality has significant and positive impact on parent word of mouth.

The following conceptual framework provided a model to examine the relationships between service quality and

satisfaction and service quality and word of mouth as seen in Figure 1.

*3.2. The Contextualized Scale Items.* Previously developed for private healthcare by Lam [32] and operationalized by Cham [33], the 23 scale items were selected based on the reliability evidenced through its Cronbach Alpha value of 0.839 [33].

The researcher converted the scale items for the K-12 private international school context. The conversion was verified through an IOC test with 3 experts in the K-12 education sector. The experts were asked to determine the suitability of the construct to measure the given variable. Items that did not achieve a majority approval (>0.6) were revised based on the expert feedback and resubmitted during the second round. Results of the IOC are shown in Table 1.

The 23 items of Cham (2016) were converted to 27 items as shown in Table 2 [33]. Industry experts specifically separated the identified subject in the original scale items from "staff" to "teachers" and "office and support staff" in the revised scale items to more closely reflect the different roles in a school.

*3.3. Sample Size and Method.* Given the framework of 3 latent variables with 37 observed variables, an anticipated effect size 0.2, and a probability level of 0.05, it was calculated

TABLE 2: Conversion of Cham (2016) original scale items for K-12 context.

Item	Original scale item	Revised scale tem
SQ1	This hospital has up-to-date equipment	This school has up-to-date equipment.
SQ2	The physical facilities of this hospital are visually appealing	The physical facilities of this school are visually appealing.
SQ3	The staffs of this hospital appearance are neat	The teachers at this school present and conduct themselves in a professional manner.
SQ4		The office and support staff at this school present and conduct themselves in a professional manner.
SQ5	The materials associated with this hospital are visually appealing	The educational materials associated with this school are visually appealing.
SQ6	The staffs of this hospital perform the medical service right on the first time	The school performs the educational service well.
SQ7	The staffs of this hospital provide dependable services as promised	The school provides dependable services as promised.
SQ8	The staffs of this hospital are sincere to solve my problems	The school is sincere in solving my problems.
SQ9	The staffs of this hospital provide services at the appointed time	The school provides meetings and events as scheduled.
SQ10	This hospital keeps accurate medical records	This school keeps accurate educational records.
SQ11	The staffs of this hospital are never too busy to respond to my requests	The school responds to my requests promptly.
SQ12	The staffs of this hospital tell me when the services will be performed	The school tells me when the school events and activities will occur.
SQ13	The staffs of this hospital are always willing to help me	The teachers of this school are always willing to help me or my child.
SQ14		The staff of this school are always willing to help me or my child.
SQ15	I received prompt service from the staffs of this hospital	I received prompt service from the school.
SQ16	The staffs of this hospital are trustworthy	This school is trustworthy.
SQ17	I feel safe in receiving services from the staffs of this hospital	I feel positive about receiving education and support services from the school.
SQ18	The staffs of this hospital are consistently courteous to me	The teachers are consistently courteous to me.
SQ19		The office and support staff are consistently courteous to me.
SQ20	The staffs of this hospital have the knowledge to answer my questions	The teachers of this school have the knowledge to answer my questions.
SQ21		The staff of this school have the knowledge to answer my questions.
SQ22		The office and support staff of this school give individual attention to me or my child.
SQ23	The staffs of this hospital give individual attention to me	The teachers of this school give individual attention to me or my child.
SQ24	This hospital has convenient operating hours for my needs	This school schedules meetings that are convenient for my needs.
SQ25	This hospital has my best interests at heart	This school has the best interests of my child at heart.
SQ26	The staffs of this hospital understand my specific needs	The teachers of this school understand my child's specific needs.
SQ27		The staff of this school understand my child's specific needs.

that a minimum sample size of 296 would be required to determine effect. As such, a goal of 400 responses was set and exceeded. In this study, nonprobability sampling was used. The school granted access to 1937 parent emails and contact information. The researcher was also able to collect contact details of alumni's parents who would fit the Y population. The researcher was able to use judgement sampling by emailing all parents whose children were currently enrolled in the school. Upon completing the questionnaire, respondents were asked to forward the questionnaire to another potential participant including alumni parents whose contacts were not available at the school. The use of snowball sampling further increased response success.

A pilot test using the modified scale items and a 5-point Likert scale was administered by emailing 99 current parents and resulted in 33 valid responses. The collected data was used to test the reliability of the modified scale items. The service quality construct achieved a Cronbach Alpha value of

0.956 which indicates that the items are internally consistent and reliably indicate the service quality construct.

The resulting prototype instrument was then distributed to the parents at The International School of Macao by email and they were asked to complete the survey in English or Chinese. There were 475 total responses by Generation Y parents. Of the 475 valid responses, 74.3% (353) were female, 24.0% (114) were male, and 1.7% (8) preferred not to state their gender.

#### 4. Results Analysis

*4.1. Demographics.* Of the 475 responses, 422 were complete and valid and 74.9% (316) were female, 23.2% (98) were male, and 1.9% (8) preferred not to state their gender. Most respondents were married or living with a partner (90.8% (383)), 5.7% (24) were single or divorced, and 3.5% (15) preferred not to state their marital status.

TABLE 3: Mean, standard deviation, and assessment of normality.

Construct	Items	Mean	Std dev	Skewness	Std error	Kurtosis	Std error
Service quality	SQ1	4.08	0.678	-0.415	0.119	0.281	0.237
	SQ2	4.24	0.713	-0.789	0.119	0.918	0.237
	SQ3	4.23	0.608	-0.413	0.119	1.134	0.237
	SQ4	4.24	0.585	-0.169	0.119	-0.078	0.237
	SQ5	4.13	0.666	-0.399	0.119	0.172	0.237
	SQ6	4.13	0.597	-0.186	0.119	0.293	0.237
	SQ7	4.14	0.601	-0.460	0.119	1.812	0.237
	SQ8	4.12	0.622	-0.266	0.119	0.257	0.237
	SQ9	4.26	0.554	0.020	0.119	-0.420	0.237
	SQ10	4.08	0.587	-0.157	0.119	0.432	0.237
	SQ11	4.18	0.605	-0.364	0.119	1.173	0.237
	SQ12	4.36	0.554	-0.188	0.119	-0.272	0.237
	SQ13	4.39	0.581	-0.316	0.119	-0.725	0.237
	SQ14	4.36	0.575	-0.228	0.119	-0.715	0.237
	SQ15	4.24	0.598	-0.139	0.119	-0.491	0.237
	SQ16	4.28	0.559	-0.023	0.119	-0.513	0.237
	SQ17	4.20	0.590	-0.222	0.119	0.290	0.237
	SQ18	4.39	0.556	-0.167	0.119	-0.856	0.237
	SQ19	4.37	0.586	-0.373	0.119	-0.271	0.237
	SQ20	4.29	0.578	-0.201	0.119	-0.148	0.237
	SQ21	4.27	0.543	0.077	0.119	-0.425	0.237
	SQ22	3.85	0.741	-0.146	0.119	-0.400	0.237
	SQ23	4.01	0.737	-0.297	0.119	-0.363	0.237
	SQ24	3.87	0.781	-0.576	0.119	0.844	0.237
	SQ25	4.12	0.606	-0.063	0.119	-0.346	0.237
	SQ26	4.03	0.690	-0.295	0.119	-0.091	0.237
	SQ27	3.87	0.721	-0.299	0.119	0.397	0.237
Satisfaction	SAT1	4.33	0.609	-0.328	0.119	-0.654	0.237
	SAT2	4.27	0.685	-0.409	0.119	-0.850	0.237
	SAT3	4.24	0.640	-0.311	0.119	-0.419	0.237
	SAT4	4.28	0.682	-0.969	0.119	2.485	0.237
Word of mouth	WOM1	4.42	0.595	-0.554	0.119	-0.228	0.237
	WOM2	4.38	0.635	-0.584	0.119	-0.328	0.237
	WOM3	4.27	0.733	-0.771	0.119	0.428	0.237

The following descriptive statistics and assessment of normality are presented in Table 3. While the values for skewness and kurtosis between -2 and +2 are considered acceptable to prove normal univariate distribution [34], only SAT4 exceeds the -2, +2 limit. However, Kline suggests that when using a large sample population procedure, such as SEM, one could reject the null hypothesis (of consistency with the normal distribution) and adopt a more descriptive approach to assessing normality. As such, the results are considered acceptable [35].

**4.2. Confirmatory Factor Analysis.** To evaluate the convergent and discriminant validity of the constructs and to determine the model fit, confirmatory factor analysis (CFA) was utilized. To test convergent validity, the following four criteria should be met as suggested by Hair et al. [36]; namely, the construct reliability (Cronbach Alpha value) should be greater than 0.7; the explained variance (AVE) within each construct should be larger than 0.5; the standardized factor loading of each observed variable to the latent construct should be at least 0.60; and the composite

reliability (CR) should be at least 0.70. As seen in Table 4, all four criteria were met. All the observed variables had a factor loading greater than the recommended minimum of 0.6. The Cronbach Alpha values are well above the minimum of 0.7. The AVE values for all constructs exceed the minimum of 0.5 and the composite reliability (CR) values meet the minimum of 0.7. These results demonstrate that all the constructs in this study achieved the acceptable level of convergent validity. Two observed variables from service quality, namely, SQ1 and SQ2, were removed to get model fit.

Discriminant validity of this study was assessed using the Heterotrait-Monotrait Ratio of Correlations (HTMT) method proposed by Hensler et al. [37]. The statistical variances between the constructs are measured using discriminant validity. By comparing the correlations of indicators across constructs to the correlations of indicators within a concept, discriminant validity may be evaluated. The model has discriminant validity if the correlation ratio is below 0.9 [37]. The HTMT plugin by Gaskin was used in AMOS to determine the HTMT values [38]. As seen in Table 5, the correlation ratios between all variables are below 0.9; thus discriminant validity for this study was achieved.

TABLE 4: Convergent validity assessment.

Variables	Factor loading	<i>t</i> -value	CR	AVE	Cronbach Alpha
Service quality (SQ)			0.964	0.517	0.963
SQ3	0.715	—			
SQ4	0.638	15.534			
SQ5	0.608	12.240			
SQ6	0.753	15.224			
SQ7	0.734	14.838			
SQ8	0.771	15.588			
SQ9	0.724	14.640			
SQ10	0.709	14.321			
SQ11	0.753	15.209			
SQ12	0.652	13.148			
SQ13	0.749	16.717			
SQ14	0.736	14.886			
SQ15	0.810	15.433			
SQ16	0.835	16.911			
SQ17	0.771	15.580			
SQ18	0.742	14.991			
SQ19	0.656	12.320			
SQ20	0.765	15.469			
SQ21	0.783	15.840			
SQ22	0.602	12.139			
SQ23	0.641	12.945			
SQ24	0.618	12.459			
SQ25	0.781	15.810			
SQ26	0.733	14.817			
SQ27	0.629	12.683			
Satisfaction (SAT)			0.900	0.694	0.893
SAT1	0.853	—			
SAT2	0.845	21.101			
SAT3	0.870	22.241			
SAT4	0.759	18.645			
Word of mouth (WOM)			0.886	0.721	0.876
WOM1	0.836	—			
WOM2	0.908	22.290			
WOM3	0.800	19.055			

TABLE 5: HTMT analysis of the current study.

	WOM	SAT	SQ
WOM			
SAT	0.792		
SQ	0.586	0.742	

Since convergent and discriminant validity were proved, construct validity was established.

Based on the suggestion by Hair et al. [36] the following criteria were used to determine model fit including chi-square fit statistics over degrees of freedom (CMIN/DF), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). A research model with a good fit meets the following criteria: CMIN/DF greater than 5; GFI greater than 0.85; AGFI, NFI, CFI, and TLI greater than 0.8; and RMSEA less than 0.08. As seen in Table 6, the current

TABLE 6: Model fit criteria and values for the current study.

Index	Acceptable values	Statistical values
CMIN/DF	<5.00 [38]	2.584
GFI	≥0.85 [39]	0.854
AGFI	≥0.80 [39]	0.817
NFI	≥0.80 [40]	0.903
CFI	≥0.80 [41]	0.938
TLI	≥0.80 [42]	0.927
RMSEA	<0.08 [43]	0.061
Model summary		Acceptable model fit

research model exceeded every criterion and achieved acceptable model fit.

*4.3. Structural Equation Model.* A structural equation model (Figure 2) was created to determine the standardized path coefficients of the constructs, given construct validity and an acceptable model fit. The initial model required SAT and WOM to be covaried in order to achieve model fit as

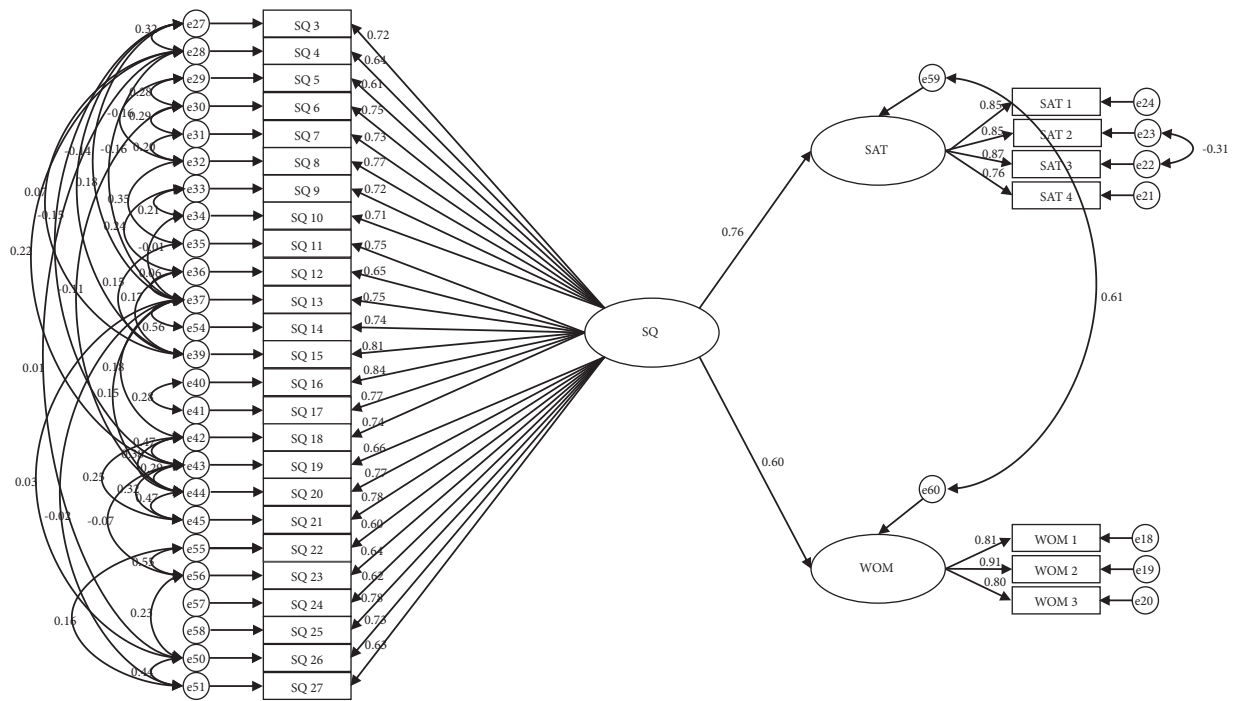


FIGURE 2: Structural Equation Model of the current study.

TABLE 7: Model fit of SEM.

Index	Acceptable values	Before adjustment	After adjustment
CMIN/DF	<5.00 [38]	2.864	2.584
GFI	≥0.85 [39]	0.840	0.854
AGFI	≥0.80 [39]	0.800	0.817
NFI	≥0.80 [40]	0.893	0.903
CFI	≥0.80 [41]	0.927	0.938
TLI	≥0.80 [42]	0.914	0.927
RMSEA	<0.08 [43]	0.067	0.061
Model summary		No model fit	Model fit

reported in Table 7. Thus, we can conclude that the model is valid [36].

As can be seen in Figure 2, the standardized direct effects reported by the AMOS software indicate that service quality had 0.76 factor on satisfaction and a 0.60 factor on word of mouth. The results are discussed in the following section.

### 5. Discussion

This study’s primary goal was to develop a contextually reliable and valid measure instrument for assessing the perceived service quality of parents in international schools. The findings demonstrate that, through IOC and CFA, a reliable instrument can be developed. This study’s secondary objective was to use the new instrument to assess the impact service quality had on satisfaction and word of mouth. The impact of these variables and the proposed hypotheses are discussed below and shown in Table 8.

TABLE 8: Hypotheses results.

Hypothesis	Goal	Result
H1	Service quality instrument	Supported
H1	SQ → SAT	Supported (.756, ***)
H2	SQ → WOM	Supported (.596, ***)

\*\*\* =  $p < 0.001$ ; \*\* =  $p < 0.01$ ; \* =  $p < 0.05$ ; ns = “not significant”.

**5.1. Influence of Service Quality on Satisfaction.** The current study revealed that service quality had a significant and direct impact on parent satisfaction. As such, H2 was supported. Like satisfaction, service quality is a measure of the gap between expected results and actual results. When a parent receives lower than expected service, they perceive it as lower quality. Responding to a parent complaint with good service quality can lead to parent satisfaction. When a parent receives higher than expected service, they perceive it as higher quality. This expectancy confirmation or expectancy disconfirmation applies to satisfaction as well [8]. When a parent’s needs are exceeded, they are more likely to be perceived as being satisfied.

**5.2. Influence of Service Quality on Word of Mouth.** The results of the current study revealed that there is a significant and direct relationship between service quality and parent word of mouth. As such, H3 was supported. When a parent receives greater than expected service at the school, they are more likely to recommend the school to others. It is understandable that when more parents feel that they get higher levels of service at the school, their satisfaction of the school and the likelihood of them recommending the school are increased.

## 6. Conclusion

This study reports the development of a contextualized service quality instrument for K-12 parents from one sample of Generation Y parents. The results demonstrate that modified scale items are reliable and may be used as an appropriate instrument for assessing parents' perception of service quality. The objectives were all answered satisfactorily. The adaptation of the service quality model used in healthcare required industry expert consultation for contextualization and measuring for internal consistency to ensure that the scale items would measure the intended variables. The use of the Item Objective Congruence provided a meaningful context of the scale items for a K-12 international school. Service quality scale items originally referring to staff were split to identify teachers and office and support staff. The development of reliable and contextualized scale items can be used in future research. As suggested by Chatfield and Collins [44] modified scale items can be used reliably as part of a measurement model and further used in the structural equation models (SEM) to identify causal relationships that use service quality as one of the constructs.

School administrators and leaders need a reliable method for measuring the quality of the service that staff were providing in their schools. School administrators and leaders can also benefit by understanding the role that the service that a parent experiences has a direct impact on their satisfaction and on the likelihood to recommend the school. By improving the experience associated with service, parents will have a greater perception of the school quality. The instrument can be used by schools to better evaluate the quality of the service that it provides to parents. Furthermore, the use of the new instrument can be used to survey all the parents in the school and does not need to be limited to a specific subpopulation such as Generation Y.

One limitation is that the developed instrument was only tried out in one international school and specifically limited to one specific population within the larger parent population. Future studies should expand on the population and be implemented within a greater range of international schools. Such development would yield further refining of the instrument.

## Data Availability

The data used to support the findings of this study are available from the corresponding author.

## Conflicts of Interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

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