
The Effects of Service Quality of University Sport Facilities on Students' Affective and Behavioral Outcomes

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Abstract

Supportive sport facilities in universities are necessary to encourage students to be actively involved in sport. The purpose of this study was to investigate students' perceived and expected service quality of sport facilities in universities and test the relations to satisfaction and subsequent behavioral intention. Results from the study revealed that while satisfaction played as partial mediators in the relationships between tangibles/reliability and intention, satisfaction was a full mediator in the relationship between assurance/empathy and intention.

Key words : service quality, satisfaction, behavioral intention, mediation

I. Introduction

Today, keeping fit is more important than ever in maintaining good health given the increase of obesity rate in the nation (Wang & Lobstein, 2006). To target the problem, the government administers various policies to encourage and support an active lifestyle. According to Sacks and Lawrence (2009), the policy developments that directly influence sport participation need to have a direct effect on the settings which people live in. Therefore, it would be effective for Singapore to provide the population with supportive sport facilities so as to encourage participation in sport. The government has

targeted schools, as the environment is attractive to promote strong sporting culture since students spend large amount of time in schools (Chan & Woo, 2010). One of the ways of attracting students to using sports facilities is by providing good service quality such that one feels satisfied, affecting subsequent behavioral outcomes (Bernhardt, Donthu, & Kennett, 2000).

Pre-university education normally has the standard physical education curriculum which students are led to using sport facilities. However, students in universities are given greater freedom to choose to utilize sport facilities instead. Therefore, it is more relevant to investigate the expectations

and perceptions that students have towards their university's sport facilities such that practitioners are able to better understand and meet those expectations. Yet, little studies have been conducted to relate student's perceptions and expectations of service quality on sport facilities. Particularly, sport facilities in Singapore universities have not received much attention on this topic. This study was designed to measure service quality of university sport facilities and test its relationships with the possible affective and behavioral consequences.

Service Quality is the comparison of customer's satisfaction about real service performance (Suh & Pedersen, 2010). Customer's satisfaction is a combination of emotional and cognitive responses, and service quality plays an important role to affect cognitive responses. In other words, service quality influences student's satisfaction with the sports facilities (Howat, Crilley, & McGrath, 2008). Students' affective responses (satisfaction) affect behavioral intentions that include recommendation to others or revisit intentions (Kouthouris & Alexandris, 2005). For the measurement of service quality, the Service Quality (SERVQUAL) model has been widely used as an instrument to assess customer's perceptions of service quality in the sport industry (Parasuraman, Zeithaml, &

Berry, 1988). It is a multidimensional scale that measures various service quality attributes such that school sports practitioner can better understanding of student's perceptions, and thus improve their services based on the (Parasuraman et al., 1988). SERVQUAL consists of five different dimensions, namely responsiveness, tangibles, reliability, assurance and empathy (Parasuraman et al., 1988). By investigating the five specific service quality dimensions, Singapore universities would then be able to identify particular areas of strength and room for improvement to work on.

As abovementioned, with the limited research on service quality of sport facilities in universities, this study aimed to measure perceived service quality and test its relationships with students' satisfaction and behavioral intention. This means, that students who perceive higher service quality are likely to be more satisfied and in turn increase their revisit intention or even recommend to others (Zeithaml, Bitner, & Gremler, 2006). This study will provide useful information to sports centers in universities to cater to the needs of the students by allowing them to learn more about the students' perception of their service quality. With the clear segmentation of service quality to the five dimensions, it provides a clear breakdown on the specific subject matter.

II. Theoretical Background

1. Service Quality in Sport Facilities

Service quality has been one of the most popular issues in marketing and is defined as customer's perception of services delivered (Grubor, 2008). According to Parasuraman et al. (1988), service quality refers to the difference in customer's expectations and perceptions. Many studies have investigated the impacts of consumers' perceived service quality on affective and behavioral outcomes, which have been applicable in the sport settings as well (Parasuraman, Zeithaml, & Malhotra, 2005). For instance, service quality provided by public aquatic centres are measured to better understand the needs of the customers, hence providing them with a competitive edge against other aquatic and fitness centers (Howat, Crilley, & McGrath, 2008). The SERVQUAL model has been the most popular tool of measuring service quality in the sports industry. Parasuraman et al. (1988) developed the SERVQUAL model and proposed five service quality dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The study initially conceptualized ten dimensions, which included tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding and access. However, after

further evaluations and scale purifications, the five factors (communication, credibility, security, competence, courtesy) were summed up to represent the dimension of assurance. On the other hand, two factors (understanding, access) were combined to form the dimension of empathy (Parasuraman et al., 1988).

The five dimensions measure the different aspects of service quality that organizations provide. However, some scholars pointed out that SERVQUAL was not applicable to all industries and did not provide a full evaluation of customer's attitude and perception towards service quality (Brown, Churchill, & Peter, 1993; Cronin & Taylor, 1992). Brown et al. (1993) also noted that the SERVQUAL questionnaire was too lengthy. However, in the sport settings, SERVQUAL has been a popularly used model as mentioned above. Parasuraman, Zeithaml, and Berry (1993) evidenced the psychometric properties of the scale in terms of validity, reliability and variance restriction and concluded that SERVQUAL was relevant for most industries as it measures the expectations and perceptions. According to Parasuraman et al. (1993), SERVQUAL is highly reliable as individual's perceptions and expectations are subjected to own preferences, hence there is no conceptual reason to correlate customer's evaluation to company's specific dimensions of service

quality. In other words, the model does not draw assumptions across all customers but includes individual perceptions and expectations towards each dimension of service quality. By measuring student's expectations of each dimension, it allows practitioners to understand the changing assessment of service quality of students, hence targeting specific areas for improvement (Parasuraman et al., 1993). In addition, practitioners would be able to work towards meeting these expectations that students have (Kuruuzum & Koksai, 2010). Lastly, to target the problem of lengthy questionnaire, Parasuraman et al. (1993) suggested that it could be shortened by placing expectations and perceptions column together.

2. Satisfaction with Sport Facilities

Satisfaction is a psychological and emotional state that reflects either the benefits or result of an experience obtained, such as, perceived service quality provided by sport facilities (Baker & Crompton, 2000; Cole & Illum, 2006). This sense of satisfaction may be derived from a comparison between own perceptions of service quality with expectation (Wang & Sieh, 2006). A variety of factors may affect feelings of satisfaction, but this study focused on the aspect of service

quality towards student's satisfaction.

As previously mentioned, the SERVQUAL model focuses on the five dimensions of service quality, which affect student's satisfaction towards sport facilities in a university. Tangibles refer to physicality such as equipment, facilities, communication materials, and physical appearance of personnel (Zeithaml et al., 2006). Tangible clues such as a wide variety of sport facilities and easy-to-use equipment affects students' satisfaction, hence possibly increases students' satisfaction (Shostack, 1977). Reliability of service quality means the ability to execute the promised service consistently and precisely (Parasuraman et al., 1988). Sport departments in university can provide reliable service quality by delivering promised upgrading of sport facilities or accurate knowledge of prevention in injuries. By providing reliable service quality, students are highly likely to feel satisfied (Wang & Sieh, 2006). Responsiveness incorporates employees' willingness to help with student's requests and handling problems efficiently (Parasuraman et al., 1988). An example of a responsive service quality suggests that employees at the University's sport and recreation centre (SRC) promptly reply a students' email within a timeframe of twenty-four hours or provide an efficient

booking system of sport facilities. Berry et al. (1994) mentioned that speed of response affects customer's satisfaction as quick response generally ensue greater satisfaction. Assurance involves employees' knowledge and experience, hence the ability to project confidence in students (Parasuraman et al., 1988). For instance, staffs at the SRC could provide training tips to students who want to lose weight at the gym, giving them feelings of satisfaction. Empathy includes feelings of care, concern and attention given to individual student to allow them to feel their importance (Parasuraman et al., 1988). For instance, when employees at SRC show students consideration about their progress in fitness, students generally has greater sense of satisfaction towards service quality.

These five dimensions assist practitioners' understanding to expectations and perceptions of students towards the service quality that is provided by the university. Alexandris, Dimitriadis and Kasiara (2001) have reported that the construct of service quality and customer's satisfaction is related. Therefore, this study hypothesized that students' perceived service quality influences their satisfaction level.

3. Behavioral Intention

Behavioral intention has two possible

outcomes, which is to remain with sport facilities or to defect from sport facilities (Zeithaml, Berry & Parasuraman, 1996). Remaining with sport facilities represents the intention of re-visitation, willingness to recommend to others, and positive words that are passed by word of mouth (Zeithaml et al., 1996). Students who do not wish to use the sport facilities again are said to have unfavorable behavioral intentions that defect from use of facilities (Zeithaml et al., 1996). However, many studies measure behavioral intention by revisit intention and recommendation to others (Kuruuzum & Koksai, 2010). This study also examined these behavioral outcomes as students' behavioral outcomes. Revisit intention refers to having a purpose to use the sport facilities again. On the hand, students could also propose or encourage fellow peers to participate in the use of sport facilities in universities as well.

It is important to establish relationships among service quality, student satisfaction and behavioral intentions. Burton, Sheather and Roberts (2003) found that customer's satisfaction positively influenced behavioral intentions. This means that students were more likely to have favorable behavioral intention when they were satisfied with the service quality provided. And as previously mentioned, service quality affects customer's

satisfaction. Cronin and Taylor (1992) discovered the positive relationship between service quality and behavioral intention as well. This means that when service quality is high, levels of satisfaction towards using sport facilities is also perceived to be high. Therefore, this study expected positive impacts of satisfaction with sport facility on behavioral intention. Overall, it was hypothesized that students' satisfaction partially mediates the relationship between their perceived service quality and subsequent behavioral intention.

III. Method

1. Data Collection

The population of this study consists of undergraduates attending a large university in the western Singapore. Out of 181 questionnaires collected using a convenience sampling technique, 179 questionnaires were used in this study; 2 questionnaires were excluded as they were not filled up completely (response rate: 99%). There were relatively equal numbers of males (54%) and females (46%) who participated in this study. Respondents comes from varying age group with 17% from year 1, 24% from year 2, 22% from year 3, 30% from year 4 and

7% of others. Respondents also represented different course of study, with majority from College of Engineering (37%), followed by Sports Science and Management (29%), Nanyang Business School (16%), College of Science, College of Humanities (9%), and College of Arts and Social Sciences (9%). Only students who visited the SRC at least once were chosen for the study. These respondents were given a link through emails and Facebook media for the online questionnaire using Google forms from 12th March 2014 to 20th March 2014. No follow-up was required. Noremuneration was given. Data was consolidated using Google forms and transferred in Excel sheet to code each response before transferring to SPSS for further analysis.

2. Survey Instrument

The questionnaire was designed to measure students' perceptions and expectations of service quality, their satisfaction with the sport facilities as well as behavioral intentions such as revisit intention or recommendation to others after using the sport facilities in their university. For the measurement of service quality, this study adapted the SERVQUAL scale (Parasuraman et al., 1988) as its reliability and validity were supported by past literature (e.g., Gary et al., 2008;

Shapiro, 2010). The expectation and perception version of the five dimensions (tangibles, reliability, responsiveness, assurance and empathy) with 22-items from the SERVQUAL scale were adjusted to fit the current research setting. The first section of questionnaire measured students' expectations whereas the second section measured the perceptions of the service quality obtained through the use of sport facilities. Two sets of data are required to identify the possible gaps of service quality evaluations such that practitioners are able to identify problems specifically. A negative score reflects service quality falling below expectations; whereas a positive score shows sport departments are performing beyond expectations (Parasuraman et al., 1988).

Tangibles consisting of four items (Cronbach's $\alpha = .68$) such as up-to-date equipment, visually appealing physical facilities, well-dressed employees, and sporty appearance of physical facilities (Parasuraman et al., 1988). Reliability factor includes five items (Cronbach's $\alpha = .78$), delivering promises punctually, delivering services punctually, solving students' problems, producing dependable services, and presenting accurate information (Parasuraman et al., 1988). Responsiveness incorporates four items (Cronbach's $\alpha = .81$) including initiative in providing accurate time frame for delivery

of services, enabling students to expect prompt services, employees' willingness to help, and providing prompt service despite being busy (Parasuraman et al., 1988). Assurance quality involves four items (Cronbach's $\alpha = .85$) such as students trust employees, students feel safe with service provided by employees, employees are polite, and employees provide adequate support for students (Parasuraman et al., 1988). Lastly, empathy comprise of five items (Cronbach's $\alpha = .84$) such as sports department provides individualized attention to students, employees provide personal attention to students, employees are aware of students' needs, sports department have students' best interest at heart, and SRC has convenient operating hours for students (Parasuraman et al., 1988). A 7-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (7) was utilized for measurement of service quality. The Cronbach's α was calculated to ensure reliability of the scale of .87 to .90 (Parasuraman et al., 1988).

Satisfaction with SRC was measured with four items on a 7-point semantic differential scale, adapted from (Cole, Crompton, & Willson, 2002). The past study supported its reliability ($\alpha = .97$; Cole et al., 2002). The four items measuring students' satisfaction include unfavorable to favorable, dissatisfied

to satisfied, displeased to pleased, and negative to positive (Cole et al., 2002).

Using a 7-point Likert scale, the respondents' behavioral intention, where participants were required to indicate the likelihood of taking each of the following actions (i.e., encouraging friends to visit SRC, visiting SRC again in future, and saying positive things about SRC to other people (Zeithaml et al., 1996). The last section of the questionnaire involves the demographic profile of the students. It includes the identification their gender, year of study, and course of study. This helps to ensure that the sample well represents the entire population of undergraduate students in the university.

3. Data Analysis

The data were analyzed using IBM SPSS 21.0 for preliminary analyses and the main analyses. In the preliminary stage, descriptive statistics and internal consistency tests were carried out to see if there were any outliers, invalid data, non-normal items, and unreliable measures. In the main stage, a series of regression analyses was conducted to test the proposed mediation effect of satisfaction on the relationship between service quality and behavioral intention, using the four guidelines suggested by Baron and Kenny (1986) as shown below. <Figure

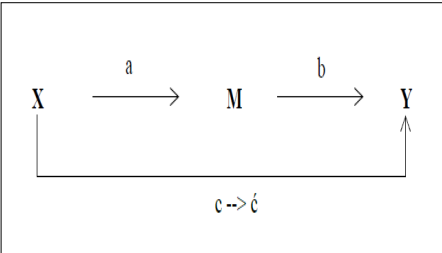
1> shows an overview of the relationships among service quality dimensions (X), satisfaction (M) and behavioral intention (Y):

Step 1: Conduct a simple regression analysis with service quality dimensions individually predicting behavioral intention (c).

Step 2: Conduct a simple regression analysis with individual service quality dimensions predicting satisfaction (a).

Step 3: Conduct a simple regression analysis with satisfaction predicting behavioral intention (b).

Step 4: After controlling satisfaction, conduct a multiple regression analysis with the individual service quality dimensions and satisfaction predicting behavioral intention. If the previous significant path (c) from service quality to behavioral intention is no longer significant (\hat{c}), satisfaction is considered as a full mediator. However, the new path (\hat{c}) is significant but weaker than the previous path (c), the satisfaction is considered as a partial mediator.



<Figure 1> Baron and Kenny/s(1986) procedures for mediation testing

IV. Results

1. Preliminary Analysis

The descriptive statistics of the all measures such as mean, standard deviation, skewness and kurtosis were calculated. For internal consistency test, Cronbach's alpha coefficients for five-service quality dimensions, satisfaction, and behavioral intention and item-to-total correlations for the individual measures were calculated (see <Table 1>). The mean values of the service

quality dimensions were obtained through the averages of gap scores between the perception and expectation versions of service quality. There were no missing values and no invalid responses. A majority of the service quality dimensions reveals negative mean scores with the lowest score of -2.50. The skewness values ranged from -1.17 to 0.08. The kurtosis value lies within -0.17 to 2.90. According to Kline (1998), the recommended cutoff for skewness and kurtosis is ± 3 and ± 10 respectively. Data is normally distributed as it fits the cutoff

<Table 1> Descriptive Statistics of Service Quality Dimensions, Satisfaction and Intention

Item	Mean	SD	Skewness	Kurtosis	Item-total correlation	α
Tangibles 1	-1.60	1.77	-0.04	1.29	.45	.78
Tangibles 2	-1.43	1.89	-0.31	-0.24	.71	
Tangibles 3	-0.32	1.61	-0.73	1.94	.56	
Tangibles 4	-1.10	1.41	-0.69	1.03	.68	
Reliability 1	-1.65	1.57	0.05	1.59	.60	.80
Reliability 2	-1.55	1.61	-0.56	0.35	.62	
Reliability 3	-2.24	1.40	-0.53	0.28	.58	
Reliability 4	-2.31	1.33	-0.26	0.39	.65	
Reliability 5	-2.43	1.26	-0.11	0.93	.48	.63
Responsiveness 1	-0.23	2.06	-0.26	0.40	.37	
Responsiveness 2	-0.31	1.83	-0.01	0.04	.44	
Responsiveness 3	-1.79	1.68	-0.10	0.17	.50	
Responsiveness 4	-2.29	1.73	0.88	2.90	.34	.75
Assurance 1	-1.20	1.38	-0.53	1.31	.58	
Assurance 2	-1.98	1.50	0.13	1.20	.62	
Assurance 3	-1.36	1.41	-0.56	1.36	.55	
Assurance 4	-2.50	1.15	-0.22	0.50	.44	.69
Empathy 1	0.63	2.08	-0.15	-0.17	.57	
Empathy 2	0.69	2.18	-0.14	.000	.56	
Empathy 3	-0.17	1.91	-0.40	0.87	.48	
Empathy 4	-1.8	1.65	-0.30	-0.17	.22	.95
Empathy 5	-0.35	2.14	-0.06	0.48	.41	
Satisfaction 1	4.63	1.17	-1.08	1.15	.85	
Satisfaction 2	4.61	1.26	-0.98	0.74	.86	
Satisfaction 3	4.63	1.20	-0.84	0.80	.89	.59
Satisfaction 4	4.63	1.28	-0.91	0.84	.90	
Intention 1	4.79	1.32	-0.63	0.59	.46	
Intention 2	5.89	1.30	-1.15	1.04	.41	
Intention 3	5.82	1.66	-1.17	0.27	.36	

<Table 2> Descriptive Statistics of Service Quality Dimensions, Satisfaction and Intention

	1	2	3	4	5
1. Tangibles	-				
2. Reliability	.54*	-			
3. Assurance	.38*	.63*	-		
4. Empathy	.22*	.22*	.08*	-	
5. Satisfaction	.36*	.48*	.46*	.20*	-
6. Intention	.36*	.38*	.30*	.23*	.53*

*Significant at $\alpha = .05$.

suggested by Kline (1998).

Internal consistency testing showed that all service quality dimensions, except responsiveness, were deemed reliable, ranging from .69 to .80 (Hair, Anderson, Tatham, & Black, 1998). Responsiveness was removed due to its low reliability of $\alpha = .63$. The corrected item-total correlations for the three items in responsiveness were below .50, with the lowest being .34. In addition, the item of “sports departments have students’ best interest at heart” (empathy 4) in empathy service quality dimension, was also removed as its corrected item-total correlation was far below the .50 cut-off (Bearden, Netemeyer, & Teel, 1989). While reliability of the satisfaction measures was satisfactory, the Cronbach’s alpha of behavioral intention did not meet the cutoff of .70. The results related to behavioral intention should be interpreted with extra caution.

<Table 2> represents Pearson’s correlation matrix. A correlation is the extent to which

two variables are associated with each other, which is a necessary condition prior to a regression analysis. Among all the dimensions, reliability had the highest correlation with satisfaction ($r = .48$), followed by assurance ($r = .46$). Reliable service quality such as delivering promises punctually and providing assurance to students led to high levels of satisfaction. In addition, the matrix revealed that satisfaction was also positively correlated with intention ($r = .53$).

2. Hypotheses Testing

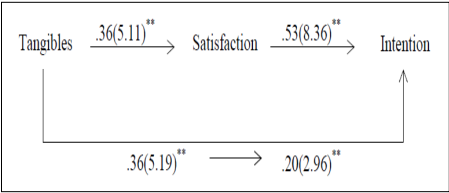
After removing the responsiveness dimension, this study tested the mediation effects of satisfaction on the relationship between each of the four dimensions of service quality and behavioral intention. To find out if satisfaction is a mediator between service quality and behavioral intention, Baron and Kenny’s (1986) four guidelines for mediation testing were employed to

analyze the data in this study.

Mediation is a hypothesized casual chain, in which one variable affects a second variable that in turn, affects the third variable. Each Figure below shows the results from testing for the mediation effect of satisfaction between each of service quality and behavioral intention.

As shown in <Figure 2>, first, a simple regression analysis was conducted to test the relationship between tangibles and behavioral intention, and this path was significant ($\beta = .36$). Subsequently, a simple regression analysis was conducted with tangibles to predict satisfaction where $\beta = .36$, which was significant. After which, a simple regression analysis with satisfaction and behavioral intention ($\beta = .53$) was conducted and supported. This third step only required one testing, as it remained constant throughout the four service quality dimensions. In the final step, a multiple regression analysis with tangibles and satisfaction predicting behavioral intention. When satisfaction is controlled, the β -value (.36) decreased to $\beta = .20$ ($p = .003$). Therefore, the results supported a partial effect of satisfaction between tangibles service quality and intention.

Second, the relationship between reliability and intention was $\beta = .38$ using a simple regression. Subsequently, simple regression analysis with reliability predicting satisfaction

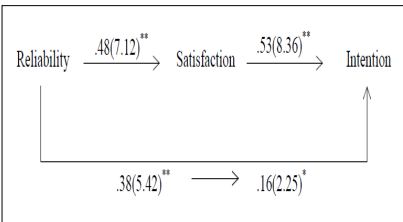


<Figure 2> Mediating effect of satisfaction on the relationship between tangibles and intention

**Significant at the .01 probability level

Note: Numbers in parentheses represent -values.

revealed the significant path ($\beta = .48$). When satisfaction was controlled, the previously significant path coefficient from reliability to intention ($\beta = .38$) decreased to $\beta = .16$ in the multiple regression analysis with reliability and satisfaction predicting behavioral intention. The test supported that satisfaction played a role of a partial mediator towards the relationship between reliability service quality and behavioral intention.



<Figure 3> Mediating effect of satisfaction on the relationship between reliability and intention

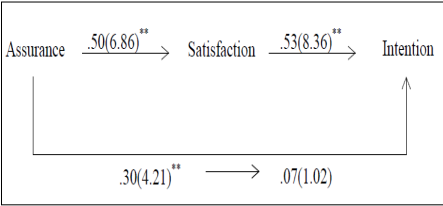
*Significant at the .05 probability level;

**Significant at the .01 probability level

Note: Numbers in parentheses represent t-values.

Third, assurance service quality construct significantly influenced intention with $\beta = .30$ after a simple regression analysis. Also,

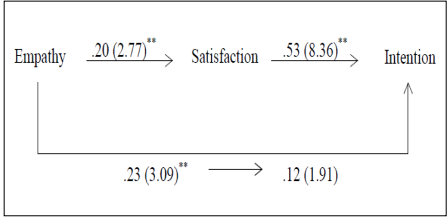
using a simple regression analysis with assurance predicting satisfaction, β -value was found to be .50. On the other hand, multiple regression analysis was conducted and results have shown that the significant path was no longer significant ($\beta = .07$) with the p-value of .31. As p-value was greater than .05, null hypothesis was not rejected. The results from the data analysis reinforced that satisfaction was a full mediator between assurance service quality and behavioral intention for sport facilities in universities.



<Figure 4.> Mediating effect of satisfaction on the relationship between assurance and intention
**Significant at the .01 probability level
Note: Numbers in parentheses represent t-values.

Lastly, simple regression analysis was used with empathy predicting intention ($\beta = .23$), and empathy predicting satisfaction ($\beta = .20$). A multiple regression analysis was employed with empathy and satisfaction predicting behavioral intention ($\beta = .12$). When satisfaction was controlled, β -value was not significant in the multiple regression ($\beta = .12$, $p = .06$). The

results supported that satisfaction was a full mediator between empathy and behavioral intention for sport facilities.



<Figure 5.> . Mediating effect of satisfaction on the relationship between empathy and intention
**Significant at the .01 probability level
Note: Numbers in parentheses represent t-values

V. Discussion

The purpose of this study is to measure the service quality of sport facilities perceived by students in Singapore's universities based on Parasuraman's SERVQUAL model (1988). Results have shown that tangibles and reliability dimensions are partially mediated by satisfaction to affect students' behavioral outcome. On the other hand, assurance and empathy service dimensions are fully mediated by satisfaction towards behavioral intention. Responsiveness was omitted during preliminary analysis due to reliability issues.

The results from the study supported the hypothesis that satisfaction is a partial mediator between tangibles and behavioral

intention. A partial mediation effect highlights that both satisfaction and tangibles affect students' subsequent behavioral intention directly. Therefore, practitioners need to focus on both service quality dimensions of tangible and satisfaction in order to attract students to revisit, recommend sport facilities to others, or say positive things about sport facilities. The university's SRC could upgrade sport facilities or increase the amount of sport facilities. For instance, the gyms in SRC could be further improved and upgraded with better equipment such as more dumbbells, multi-stack machines to maximize space, as well as better air ventilation. Hydraulic machineries could also be installed in gyms hence a weights-free system. SRC could also provide regular maintenance of equipment such as a regular change of basketball court nets, court line repainted on a constant basis, and daily cleansing of swimming pools for hygiene purposes. SRC should build more facilities to support the growing population of athletes since healthy lifestyle is promoted. More indoor multi-purpose halls should be built to cater to greater variety of sports and individual rooms should be dedicated to martial arts so that they have sufficient practice space. An open-air concept with vast space available also encourages activities to

be held, hence improving student's interaction and satisfaction towards sport facilities provided by universities. To support the overlook of SRC, employees should be dressed in sporty attire that suits the fitness setting to exude confidence. With the upgrading of sport facilities to improve tangibles service quality dimension, students are likely to increase their level of satisfaction, hence improve their behavioral intention, as shown in results.

Similar to tangibles, satisfaction is a partial mediator between reliability service quality construct and students' behavioral intention. Universities of SRC should deliver their promises punctually such that students trust the services provided. For instance, SRC could share their vision to improve the gym by 2015 and could provide constant updates to students on the progress of upgrading. Staff should be knowledgeable in providing assistance to students, such as physiotherapists to help students in recovery process or to prevent injuries from occurring. Moreover, professionals should be engaged in providing accurate advice on using equipment to produce best results or to prevent injuries from happening due to incorrect use of machine. SRC could also deliver their promise to support to the athletes by employing trained coaches to teach and adequate amenities to cater to all.

Records should also be kept accurately to ensure all equipment is accounted. With reliable service quality provided by SRC, students will feel assured and satisfied, hence increasing their behavioral intentions to revisit, recommend to others or speak positively about SRC.

On the other hand, the results from the study revealed that satisfaction functioned as full mediators in the relationships between empathy and behavioral intention as well as in the relationship between assurance and behavioral intention. This shows that there is no direct relationship and therefore, practitioners should more focus on improving students' satisfaction towards sport facilities in universities in order for better behavioral outcomes instead of emphasizing on assurance and empathy service quality constructs. Firstly, SRC could improve on the overall outlook by beautifying the environment with more greenery and better lightings. Buildings could be repainted with bright colours to make SRC more vibrant and lively, hence students will feel happier (Hemphill, 1996). Enclosed areas such as sports halls and gyms should be well ventilated as unpleasant scent has negative effect on environment that students are in (Ehrlichman & Halpern, 1988). Secondly, supporting facilities should be taken into

account (e.g., showering facilities, car park lots, ice machines, easily available first-aid boxes or even benches for supporters to watch matches). By refining supporting facilities, students would be more motivated to visit SRC. Lastly, SRC should be conducive and fun for interaction. Hence, weekly classes could be held at available rooms to encourage interaction among students from different faculties. For instance, yoga or Pilates classes could be held weekly, or SRC could support clubs to conduct sports events and competitions for students. These are some of the ways to increase satisfaction towards using sport facilities in universities, which is hypothesized to ameliorate behavioral intentions.

VI. Conclusions

The purpose of this study was to investigate the relationships among service quality dimensions, satisfaction and behavioral intention of students' actual perception towards the sport facilities in universities. The results from this study revealed that practitioners should work on improving tangibles and reliability aspects of SRC in addition to developing satisfaction

for better subsequent behavioral intention. Little studies have been conducted to explore students' perceptions about the service quality provided by their universities in recent years. Hence, this study is necessary for universities in Singapore to rectify problems with their service quality of sport facilities in order to cater to students' specific needs. This study utilized a reliable instrument for evaluating service quality using Parasuraman's SERVQUAL model (1988). In addition, the proposed models were built on past literature relevant to service quality associated to sport facilities. However, there are some limitations to this study. First, this study utilized a convenience sampling method and had a limited sample size of 179 students. Moreover, sample was not recruited from a well diverse population course of study, with greater proportion to sport science and management students. More diverse samples will help better represent the research population. Second, the responsiveness service quality dimension was removed after the preliminary analysis due to reliability issues; Cronbach's alpha was low ($\alpha = .63$). In addition, the SERVQUAL may not be the best measurement model for service quality in the outdoor industry as it was designed to test service organizations such as banks, hotels, restaurants, health centers which

seem different from the outdoor aspect (Kouthouris & Alexandris, 2005). Therefore, a future study could use other service quality models, such as the Hierarchical Approach by Brady and Cronin, focusing on three dimensions (interaction, quality, physical environment quality, and outcome quality), which might be more relevant to outdoor industry (2001). Furthermore, in-depth review of literature is necessary to refine items measuring responsiveness and empathy service quality dimensions.

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