

Assessing the Influence of the Physical Sports Facility on Customer Satisfaction within the Context of the Service Experience

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It can be argued that customer satisfaction is at the centre of the marketing concept, and strategic planning of physical facilities has been found to influence consumer satisfaction. Considering the spectator sport industry has experienced a tremendous boom in the building of facilities, a better understanding of how facilities influence customers is warranted. A sample of 218 minor league ice hockey spectators was used to investigate the influence of individual physical facility elements on customer satisfaction, and to investigate the influence of the physical facility relative to other targets of quality, namely the core product and service personnel. Multiple regression analysis revealed that facility elements together predicted customer satisfaction ($R^2 = 0.183$, adjusted $R^2 = 0.162$), but that the attributes of the facility had little impact individually. Hierarchical regression analysis revealed that both perceptions of service personnel and of the physical facility contributed to customer satisfaction over and above the impact of customers' perceptions of the core product. Based on these results, it is argued that managers must address the physical facility in combination with other targets of quality to improve spectators' levels of customer satisfaction.

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Sports fans have come to expect comfort and convenience from sporting facilities, making it necessary for teams to build and renovate facilities at record speed (King, 1999). Nearly 100 new major league professional sports venues were either built, renovated, under construction, or in the planning stages during the 1990s (Siegfried & Zimbalist, 2000). In addition, 64 new ballparks opened in minor league baseball alone between 1990 and 1999 (King, 1999). The vast majority of these facilities have been designed to improve customer comfort and increase customer amenities.

In major league baseball, the trend has been to move away from multi-purpose stadiums into intimate, nostalgic, baseball-only facilities. Along with this trend is a move towards better sight lines and more spectator-friendly stadium amenities, which has translated into better sponsorship deals and increased ticket sales (Robinson, 1997). For example, the San Francisco Giants moved into an intimate new ballpark in 2000, and the team saw its average attendance double (Fisher, 2000). This trend is not exclusive to baseball, as football stadiums have followed suit. Paul Brown Stadium, the new home of the NFL's Cincinnati Bengals, was designed with increased customer service in mind. The futuristic looking stadium was built with attention to spectator sight lines, wide concourses and ample restroom facilities (Cameron, 2000).

There is a dramatic difference between old and new facilities. In particular, it is common for older facilities to have bench seating, a simple scoreboard and a single concession stand. Builders of newer facilities, however, have improved each of these areas in an attempt to increase fan comfort. Bench seats have been replaced with chairs with armrests, padded seats and cup holders. Specialty restaurants have replaced concession stands, and retail stores have replaced novelty stands. Even modern video screens once reserved for major league teams are now appearing in minor league parks. All of these changes are being made to increase customer comfort.

Conversely, a poorly designed or constructed sports facility can have negative results on an organisation's bottom line, because attendance and revenue shortcomings are often blamed on the facility in which a team plays. Specifically, the lack of stadium atmosphere and amenities has often been blamed for low attendance (Cannella, 1999). This is the case of the Tampa Bay Devil Rays baseball team, which ranks toward the bottom of the American League in attendance. Their low attendance numbers have been attributed to "... an antiseptic, domed ballpark that has all the ambience of a warehouse" (Cannella, 1999, p. 78).

The trends and viewpoints imply that the physical environment has an influence on customers' attitudes and behaviours beyond their perceptions of the core product. This has been addressed in the marketing literature where it has been argued that the place where the product is purchased or the service is rendered has an effect on consumer behaviour and purchasing decisions (Kotler, 1973). Further, physical surroundings can help determine whether customers approach or avoid the service provider, behaviours which contribute to the level of customer patronage and the

level of customer spending (Bitner, 1992). Elements of the physical environment such as ambient conditions, spatial layout and signage have the ability to influence customers' cognitive and affective states, which contribute to customer behaviour (Bitner, 1992; Donovan & Rossiter, 1982; Grossbart, Hampton, Rammohan, & Lapidus, 1990). Strategic use of environmental cues can increase consumer satisfaction, increase "word-of-mouth advertising", and communicate a firm's image to its consumers (Bitner, 1992; Grossbart et al., 1990; Ward, Bitner, & Barnes, 1992). In addition, a well-planned physical environment can offset negative feelings from poor service (Wakefield & Blodgett, 1999).

Within sports settings, the focus of the literature has been on the sports facility's ability to influence attendance or attendance intentions. Specifically, perceptions of the physical environment contribute to approach and avoidance behaviours that lead to attendance (Wakefield, Blodgett, & Sloan, 1996; Wakefield & Sloan, 1995), influence motivation to attend events (Tomlinson, Buttle, & Moores, 1995), and increase willingness to attend athletic events (Freiling, 1997; Hansen & Gauthier, 1989; Hill & Green, 2000).

Customer Satisfaction

An important outcome of exposure to the physical facility, which has been studied to a much lesser extent in the sport management literature, is customer satisfaction (or dissatisfaction). Customer satisfaction has been described as a post-choice, cognitive judgment connected with a particular purchase decision (Day, 1984). The customer's perceptions of the quality of service performance, the extent to which service performance exceeds expectations, or a combination of the two may influence an individual's satisfaction with a service encounter. The relative influence of these determinants varies by individual and situation (Oliver, 1993). Customer satisfaction has been identified as the link between quality and post-purchase evaluations (Churchill & Surprenant, 1982; Cronin & Taylor, 1992; Madrigal, 1995), and firms quite often use customer satisfaction as a measure of product or service performance (Anderson & Sullivan, 1993).

There are two important reasons to use customer satisfaction to assess service performance. First, customer satisfaction is experiential and unique to the customer (Oliver, 1993). Customer satisfaction depends on the customer's subjective perception and evaluation of service performance rather than the organisation's objective standards of quality. In consumer services such as spectator sport, it is argued that the customer is the best judge of the quality of the service, and that other standards of quality may be immaterial (Chelladurai & Chang, 2000; Zeithaml, Parasuraman, & Berry, 1990). In other words, a focus on customer satisfaction addresses the importance

of understanding the consumer when making marketing decisions. In fact, this focus on the customer has led some to argue that customer satisfaction is central to the marketing concept (Patterson, Johnson, & Spreng, 1997).

Second, customer satisfaction has been found to mediate the relationship between service quality and behavioural intentions (Anderson & Sullivan, 1993; Brady & Robertson, 2000; Cronin, Brady, & Hult, 2000). Specifically, customers make a cognitive service quality evaluation that leads to the emotional satisfaction assessment. This emotional satisfaction assessment leads to purchase intentions (Oliver, 1993). In terms of specific behaviours, customer satisfaction has been found to influence customer retention (Tornow & Wiley, 1991), purchase intentions (Anderson & Sullivan, 1993; Cronin & Taylor, 1992; Innis & La Londe, 1994; Oliver, 1980), willingness to engage in repeat business (Boulding, Kalra, Staelin, & Zeithaml, 1993), and willingness to refer other customers (Rust, Zahorik, & Keiningham, 1995; Heskett, Sasser, & Schlesinger, 1997; Howat, Murray, & Crilley, 1999). Satisfied customers tend to be loyal while dissatisfied customers are more likely to exit than are satisfied customers (Fornell, 1992; McDougal & Levesque, 2000).

These outcomes have been tied to the economic profitability of organisations by their ability to increase revenue and reduce costs. Retention results in ongoing relationships with customers, yielding streams of revenue beyond the original transaction (Reichheld, 1994). In spectator sport, retention is most often represented by renewal of season tickets, but is also realised by infrequent customers who purchase tickets, merchandise, etc. year after year. Thus, repurchase intentions implicate both increased levels of purchase, and the likelihood that customers will buy other services and products (Reichheld & Sasser, 1990). Referrals in the form of positive word-of-mouth create free advertising for organisations and drive new business (Heskett et al., 1997). In terms of cost savings, efforts directed at converting dissatisfied customers into satisfied customers reduces customer defection, which may create savings for the organisation by reducing the money expended to recruit new customers to replace those who have defected (Fornell & Wernerfelt, 1987). Accordingly, many argue that customer satisfaction is the key predictor of profitability (Anderson, Fornell, & Lehmann, 1994; Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994; Heskett et al., 1997; Rust et al., 1995).

The link between customer satisfaction and economic profitability, however, has been difficult to empirically validate in cross-sectional studies. Customer satisfaction, however, is positively correlated with profits and sales in the long run (Bernhardt, Donthu, & Kennett, 2000). Although there are many other variables that contribute to the profitability of an organisation, such as the cost of service improvements, the research mentioned above suggests that management strategies designed to increase customer satisfaction are likely to lead to quantifiable returns in the long term.

The Service Experience

Although the focus of this study is to analyse the physical facility as it relates to customer satisfaction, it is important to note that the facility does not influence customers in isolation. Rather, customers evaluate multiple targets of quality when they evaluate a service (Chelladurai & Chang, 2000; Lehtinen & Lehtinen, 1991). Customers experience three interrelated components of the service experience: the inanimate environment, service personnel, and a bundle of service benefits (Langeard, Bateson, Lovelock, & Eiglier, 1981). In sports, the inanimate environment is represented by the facility itself, the staff who interact with customers are considered service personnel, and the bundle of service benefits is the core product or game itself. This study, therefore, seeks to better understand how the physical facility compares to other targets of quality in the service experience, namely the core product and service personnel. In the following section, these variables are further explained as they relate to a sports setting.

The core product consists of the central product or service (Mullin, Hardy, & Sutton, 2000). In sport, the core product usually consists of the set of items that influence customers' perceptions of the quality of the game. Specifically, factors such as team performance (Baade & Tiehen, 1990; Branvold, Pan, & Gabert, 1997; DeSchrive, 1999; Pan, Gabert, McGaugh, & Branvold, 1997), quality of opponents (Madrigal, 1995; Marcum & Greenstein, 1985; Zhang, Pease, Smith, Lee, Lam, & Jambor, 1997), rivalry rank (Wall & Myers, 1989) and star players (Schofield, 1983) have each been found to influence attendance. The service personnel are the employees of an organisation who are in contact with the customers. Service personnel facilitate processes that deliver the core product and either add to or detract from the customer's experience (Chelladurai & Chang, 2000). In the context of spectator sport events, service personnel take the roles of ticket sellers, concessionaires, merchandisers, ushers, and customer representatives (McDonald, Sutton, & Milne, 1995).

While the value of the core product is often apparent, it is important to note that consumers not only evaluate the outcome of the service encounter, but the encounter itself (Parasuraman, Zeithaml, & Berry, 1985). Therefore marketers must take into account all of the influences that have some bearing on customers in addition to their perceptions of the core product. The context of the service encounter can often dictate which component of the service experience is most important (Bitner, 1992; Winstead, 1999). In many contexts, positive evaluations of the environment or of service personnel have the ability to influence customers' evaluations of service encounters, regardless of the outcome of the core product (Bitner, 1992; Shostack, 1977). In fact, there are many situations where the facility and service personnel provide the vital cues to the consumer as to the quality of the service offering.

Several studies have shown that facility factors (Wakefield & Blodgett, 1999; Wakefield & Sloan, 1995; Zhang, Smith, Pease, & Lam, 1998) and personnel factors

(Zhang et al., 1997; Zhang et al., 1998) are significantly related to customer behaviour. But there is little known about the value of these influences relative to customers' perceptions of the core product. In fact, some have suggested that the importance of evaluations of the physical facility and the service personnel may be secondary to evaluations of the core product in spectator sport (Rasmussen, 1999; Trail, Fink, & Anderson, *in press*).

By analysing the relative importance of the components of the service experience, managers should be able to evaluate which component will better predict customer satisfaction. Thus, the purpose of this study is twofold. First, the study seeks to determine which attributes of the physical facility have the most influence on customer satisfaction. Second, this study seeks to examine the relative contribution of the physical environment in a spectator sports setting within the context of the service experience.

Method

Sample

The sample was selected from spectators of a minor league ice hockey team competing in their second season in the American Hockey League (AHL), minor league hockey's highest level. The team in question had drawn an average of 5,000 spectators per home game over the last two years. The team played in a 45-year-old facility, which recently underwent a major renovation. The arena had a seating capacity of 17,200 spectators. The facility was similar to other arenas used in minor league ice hockey in that it was a civic-owned, multipurpose facility. Additionally, this facility was selected, because, as an older facility, there was a good possibility that customers would experience a mix of both good and bad service. This was important since many previous studies had utilised samples of customers who had experienced only good service (e.g., Rasmussen, 1999; McDonald et al., 1995).

Of the 218 subjects in the final sample, a few subjects opted not to answer one or more demographic questions. Ethnic background was indicated by 212 subjects, who included 205 (96.7%) Caucasians, 3 (1.42%) African-Americans, 3 (1.42%) Native Americans, and 1 (0.47%) Hispanic. Age was indicated by 217 of the 218 subjects. Three (1.38%) of the subjects were under 20 (only subjects 18 and older were sampled), 75 (34.56%) were aged 20–34, 100 (46.08%) were aged 35–49, 35 (16.13%) were aged 50–64, and 4 (1.84%) were 65 or older. Household income was indicated on the questionnaire by 201 subjects. Nine (4.48%) listed their household income as less than US\$20,000; 36 (17.91%) had incomes in the range US\$20–39,000; 54 (26.87%) were in the range US\$40–59,000; 45 (22.39%) were in the range US\$60–79,000; 20 (9.95%) were in the range US\$80–99,000; and 37 (18.41%)

listed their household incomes as more than US\$100,000. Questionnaires were completed by 134 males (61.47%) and 84 females (38.53%).

To determine whether the sample was representative of the population attending professional ice hockey games, the demographic profile of the sample was compared with the demographic profile of professional ice hockey spectators reported by the Simmons Market Research Bureau (1993) using chi-square analysis. The analysis revealed that participants in the study did not differ significantly from the profile of ice hockey spectators in the categories of ethnicity $\chi^2(2, N = 212) = 3.09$, $p = 0.21$, or gender $\chi^2(1, N = 214) = 2.11$, $p = 0.15$, but did differ somewhat from the profile in terms of household income $\chi^2(3, N = 201) = 31.86$, $p < 0.001$, and age $\chi^2(2, N = 217) = 35.96$, $p < 0.001$. Respondents in the present study tended to have higher incomes than those profiled in the Simmons data, and there were more respondents in the 35–64 age range than in the Simmons profile. It appears that this sample differed somewhat from a national sample. This should be considered when attempting to generalise beyond our sample.

Setting

The market in which the team competes is a mid-sized Midwestern United States city with approximately one million people living in the metropolitan area. There is little history of ice hockey in the region other than a few failed minor league franchises. In terms of other sports, there is one major NCAA Division I University, two minor league franchises, and no major league professional sport teams. The closest city with a major league professional franchise is located 90 miles away. The closest city with a National Hockey League franchise is approximately 175 miles away. Intercollegiate sports and thoroughbred racing attract the majority of local media coverage.

Based on this information, ice hockey was not a very popular sport in the community; there was little history or support for the team. On the other hand, there was little competition from other sport entities so the team was able to attract a small customer base. In terms of outcomes, the team lost one of the games at which data were collected and won the other, so the outcome of the event should not have skewed the results. No other major events were taking place in the area during this time period, so levels of customer satisfaction were not likely to be influenced by a comparison with alternate events.

Procedure

Customers were surveyed to ascertain their judgments of the physical facility, core product, and service personnel. Subjects were selected to complete questionnaires and self-report data. The selection method was analogous to the mall-intercept or street-intercept method used in marketing research, which has been found to be a

feasible alternative to traditional survey methods (Gates & Solomon, 1982; Lysaker, 1989; Miller, Wilder, Stillman, & Becker, 1997). Questionnaires were distributed and collected at two different games, a Friday night game and a Sunday afternoon game. Based on input from the team's marketing staff, these games were chosen to best represent the team's average customer base.

At each game, research assistants were posted at each entrance to distribute questionnaires as customers entered the building. Questionnaires were distributed to every fifth adult entering the facility. Research assistants approached subjects and asked them if they would like to complete a short questionnaire and informed them that they could enter themselves to win a \$50 gift certificate. Respondents were able to return the questionnaire at any time during the game and up to 15 minutes after the game. This allowed subjects to return the questionnaires at their leisure throughout the game, so that they would not feel rushed, and so that their post-game affective states would not confound the results (Wann & Wilson, 1999). It was not necessary for respondents to wait until the end of the game to return the questionnaire, because it was not necessary to measure respondents' reactions to the outcome of the game.

At the first game, 320 questionnaires were distributed. Of these, 143 (45%) were returned, and 134 (42%) were deemed usable. At the second game, 214 questionnaires were distributed, 100 (47%) were returned, and 84 (39%) were deemed usable. This resulted in a total of 218 usable questionnaires and an overall response rate of 41%. This response rate is similar to that found in other studies in the sport management literature using similar methods (i.e., McDonald et al., 1995; Wakefield, 1995; Wakefield et al., 1996; Wakefield & Blodgett, 1999; Wakefield & Sloan, 1995).

Measures

The instrument consisted of several subscales designed to measure perceptions of the physical facility, perceptions of the core product, and perceptions of service personnel. The dependent variable investigated was customer satisfaction. Each of the scales used in this study was chosen because it had been used in prior research and had been shown to exhibit content validity. To establish face validity, the instrument was subjected to a field test with a class of 20 students. To address the reliability of the measures, a pilot study of 121 respondents was conducted at an earlier game. A description of each of the scales follows.

To measure perceptions of the physical facility, this study used five subscales from Wakefield et al.'s (1996) sportscape scale. This scale was preferred for this study because it identifies elements of the physical environment that contribute to affective responses, and it has been found to be internally consistent with alpha levels over 0.80 in multiple administrations (Wakefield, 1996, et al.). The five subscales from the sportscape scale that were found to directly influence affective responses were in this study: stadium access, facility aesthetics, scoreboard quality, seating

comfort and layout accessibility. Each subscale consisted of four items measured on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). The four items for each subscale were averaged to provide an overall measure for each. Each of the subscales was found to be internally consistent. Cronbach's alpha coefficients ranged from 0.80 to 0.91 in the pilot study, and from 0.85 to 0.91 in the present study.

In this study, perceptions of the core product consisted of a combination of items representing the game itself; specifically, the quality of the home team and its opponents. Based on this conceptualisation, customers' perceptions of the core product (CORE) were measured using items from Zhang et al.'s (1997) scale, which included scale items referring to a team's overall quality, win/loss record, place in the standings, team history, and the number of star players on the team. The subscale also addressed the quality of the opposing team and the number of star players on the opposing team. Seven items were measured on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). Items were averaged to provide an overall measure of customers' perceptions of the core product. This subscale was found to be internally consistent, with Cronbach's alpha coefficients of 0.78 in the pilot study and 0.80 in the present study.

Perceptions of service personnel (STAFF) were measured using Howat, Absher, Crilley, and Milne's (1996) four-item staff quality scale. This scale was preferred because it reflects research findings in both the services marketing literature and the sport management literature. Specifically, this scale was developed by applying Parasuraman et al.'s (1985) SERVQUAL dimensions to sport and leisure centres. Howat et al. (1996) found items regarding staff responsiveness, staff presentation, staff knowledge, and behaviour of officials formed a unique factor that explained customers' perceptions of service personnel. In the present study, the scale was worded to address the entire staff in order to get a macro perspective on customers' perceptions of staff quality and to keep the scale brief. Customers were asked to rate the following items on a 7-point Likert scale: "The staff is responsive to my needs", "The staff is presentable and easily identified", "The staff is experienced and knowledgeable", and "The team officials are qualified, experienced and consistent". Items were averaged to provide an overall measure of the customers' perception of the service personnel. This scale was found to be internally consistent, with Cronbach's alpha coefficients of 0.92 in both the pilot study and the present study.

Customer satisfaction was measured by three items defined by Oliver (1980) that have been used repeatedly in the services literature (Oliver & Swan, 1989; Westbrook & Oliver, 1991) and have been used in previous sport management research (e.g., Madrigal, 1995). Customers were asked to rate the following statements: "I am satisfied with my decision to attend this game", "I think that I did the right thing by deciding to attend this game", and "I am not happy that I attended this game" (reverse

coded). Items were measured on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). The items were averaged to provide an overall measure of customer satisfaction. This scale was also found to be internally consistent, with Cronbach's alpha coefficients of 0.79 in the pilot study and 0.90 in the present study.

Results

An examination of means revealed that most variables received a good rating from the customers, and that customers reported high levels of satisfaction. Customers gave relatively neutral ratings to their perceptions of the core product (4.2) and their perceptions of seating comfort (3.8). Means and standard deviations for each of the dependent variables used in this analysis are presented in Table 1. A correlation matrix for the subscales measuring customers' perceptions of the different elements of the physical facility, customers' perceptions of the core product (CORE), customers' perceptions of service personnel (STAFF), and customers' satisfaction (SAT) is also presented in Table 1.

Table 1: Means, Standard Deviations and Correlations among Variables

	<i>M</i>	<i>SD</i>	ACC	AEST	SCR	COMF	LAY	CORE	STAFF	SAT
Access	5.52	1.21	1.00	0.22**	0.22**	0.17*	0.43**	0.15*	0.26**	0.28**
Aesthetics	4.45	1.21		1.00	0.41**	0.27**	0.34**	0.25**	0.41**	0.18**
Scoreboard	5.11	1.26			1.00	0.26**	0.45**	0.31**	0.43**	0.30**
Comfort	3.78	1.51				1.00	0.39**	0.25**	0.32**	0.16*
Layout	5.10	1.04					1.00	0.30**	0.47**	0.34**
Core	4.23	0.96						1.00	0.40**	0.39**
Staff	4.84	1.14							1.00	0.40**
Satisfaction	5.96	1.15								1.00

* $p < 0.05$

** $p < 0.01$

The first purpose of the study concerned the relationship between the individual attributes of the physical facility and customer satisfaction. Customer satisfaction was regressed on the facility characteristics, which were entered in a block. Customers' perceptions of the physical facility as a whole significantly predicted customer satisfaction ($F(5,197) = 8.83$, $p < 0.001$), explaining 16.2% of the variance ($R^2 = 0.18$, adjusted $R^2 = 0.16$). In terms of the individual attributes of the physical facility, only perceptions of scoreboard quality ($p = 0.008$) significantly and solely influenced customer satisfaction. These results indicate that the facility as a whole influenced customer satisfaction, but attributes had little impact individually. Results are presented in Table 2.

Table 2: Simultaneous Regression Analysis of Customer Satisfaction on Attributes of the Physical Facility ($N = 203$)

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Access	0.12	0.07	0.13	1.86	0.07
Aesthetics	0.05	0.07	0.05	0.68	0.50
Scoreboard	0.18	0.07	0.20	2.68	0.01
Comfort	0.06	0.05	0.08	1.06	0.29
Layout	0.15	0.09	0.15	1.81	0.07

Note: $R^2 = 0.18$; Adjusted $R^2 = 0.16$; $F(5,197) = 8.83$, $p < 0.001$; Standard error = 1.01

Hierarchical regression was used to address the influence of the three components of the service experience on customer satisfaction. Because previous studies had shown that perceptions of the core product tended to explain the greatest amount of variance in satisfaction (Madrigal, 1995; Rasmussen, 1999) this variable was entered first. Further, it was assumed that the customers would have some knowledge or opinion of the quality of the core product prior to entering the facility, while perceptions of the facility and of service personnel would be formed at the facility. Since there is not sufficient theory to posit an exact order of causal priority, two sets of hierarchical regressions were considered (Cohen & Cohen, 1983). In the first equation, the variable measuring customers' perceptions of the core product was entered first, followed by customers' perceptions of the physical facility (the subscale scores were entered as a block). Customers' perceptions of service personnel were entered into the equation last (also as a block). For the second equation, the order of the last two variable sets was reversed. Bonferonni's correction (i.e., $\alpha/\text{number of equations} = 0.03$) was used to handle the problems associated with family-wise error rate. Due to the correlation among perceptions of the physical facility and perceptions of service personnel, multicollinearity was investigated for the full model. Each tolerance value was near 1.0, and VIF values were all less than 1.7. Thus, multicollinearity was not a problem.

Results of the full regression models were significant, and the independent variables accounted for 28% of the variance in customer satisfaction ($R^2 = 0.31$, adjusted $R^2 = 0.28$, $F(7,190) = 12.05$, $p < 0.001$). Squared semipartial correlations (sr^2) were examined to determine the proportion of variance in customer satisfaction accounted for by each block of independent variables when the other two blocks of independent variables had already been taken into account. Entered first, the variables measuring perceptions of the core product contributed 15.9% of the variance ($sr^2 = 0.16$, $p < 0.001$) in customer satisfaction. The variables measuring perceptions of service personnel added 11.4% of unique variance when entered second ($sr^2 = 0.11$, $p < 0.001$) and 4.9% when entered last ($sr^2 = 0.05$, $p < 0.001$). The variables measuring

perceptions of the physical facility added 9.9% of unique variance when entered second ($sr^2 = 0.10$, $p < 0.001$) and 3.4% when entered last ($sr^2 = 0.03$, $p = 0.10$). The variables measuring perceptions of the physical facility, when entered second, significantly added to the prediction of the model, but did not make a significant contribution when entered last. This does not signify that perceptions of the physical facility are inconsequential, but rather indicates that most of the variance predicted by customers' perceptions of the physical facility is shared with their perceptions of service personnel. Further, the correlation between the two indicates that one may be a presumptive cause of the other. Results of the regression analyses are presented in Tables 3 and 4.

Table 3: Hierarchical Regression Analysis of Customer Satisfaction with Staff Entered Last ($N = 198$)

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Core	0.47	0.08	0.40**
Step 2			
Core	0.33	0.08	0.28**
Access	0.11	0.06	0.12
Aesthetics	0.01	0.07	0.01
Scoreboard	0.15	0.07	0.17*
Comfort	0.04	0.05	0.06
Layout	0.11	0.08	0.11
Step 3			
Core	0.26	0.08	0.22**
Access	0.10	0.06	0.11
Aesthetics	-0.04	0.07	-0.05
Scoreboard	0.11	0.07	0.12
Comfort	0.03	0.05	0.04
Layout	0.05	0.08	0.04
Staff	0.27	0.07	0.28**

Note: $R^2 = 0.16$ for Step 1; $\Delta R^2 = 0.10$ for Step 2 ($p < 0.001$); $\Delta R^2 = 0.05$ for Step 3 ($p < 0.001$)

* $p < 0.5$, ** $p < 0.01$

To address the relative influence on customer satisfaction, standardised partial regression coefficients (β) were examined. Since standardised partial regression coefficients are regression coefficients calculated from standardised data, comparisons can be made among independent variables (Hair, Anderson, Tatham, & Black, 1998). For the sample, customers' perceptions of the service personnel ($\beta = 0.28$) were more predictive of customer satisfaction than were customers' perceptions of the

Table 4: Hierarchical Regression Analysis of Customer Satisfaction with Facility Entered Last ($N = 198$)

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Core	0.47	0.08	0.40**
Step 2			
Core	0.29	0.08	0.25**
Staff	0.36	0.06	0.37**
Step 3			
Core	0.26	0.08	0.22**
Staff	0.27	0.07	0.28**
Access	0.10	0.06	0.11
Aesthetics	-0.04	0.07	-0.05
Scoreboard	0.11	0.07	0.12
Comfort	0.03	0.05	0.04
Layout	0.05	0.08	0.04

Note: $R^2 = 0.16$ for Step 1; $\Delta R^2 = 0.12$ for Step 2 ($p < 0.001$); $\Delta R^2 = 0.03$ for Step 3 ($p = 0.10$)

* $p < 0.05$, ** $p < 0.01$

core product ($\beta = 0.22$). The difference in magnitude of these coefficients is slight, albeit interesting, and could potentially occur by chance. A comparison among perceptions of service personnel and perceptions of the physical facility using standardised beta coefficients was not possible, because standardised beta coefficients should only be used when collinearity is minimal (Hair et al., 1998). Further, each block of variables contributed less incremental variance when entered last in the equation, indicating that the relative influence is dependent on the causal priority of the variables.

Discussion

This study sought to investigate how customers' perceptions of the physical facility, within the context of the service experience, influenced customer satisfaction. An examination of customers attending two minor league ice hockey games revealed several interesting findings and points of discussion related to the perceptions and behaviours of customers attending those games.

When viewed in isolation, customers' perceptions of the physical facility were moderately associated with customer satisfaction. This finding indicated that customers in this study were influenced by their perceptions of the physical facility, and customers' judgments about satisfaction were based, in part, on their interactions

with the facility. Although perceptions of the facility as a whole predicted customer satisfaction, scoreboard quality was the only specific element that uniquely predicted customer satisfaction. None of the other attributes solely and significantly predicted customer satisfaction. This finding is consistent with Hill and Green (2000) who found that the facility as a whole predicted return intentions of rugby spectators, but few individual attributes predicted return intentions. This indicates that customers in this study did not make their satisfaction judgments based on individual attributes, but looked at the facility as a whole. It is conceivable that a nice, new facility or an improved facility may influence customer satisfaction, but improvements in only one or two areas of the facility may not be enough to significantly sway customers' opinions.

Although few other studies have looked specifically at customer satisfaction, the amount of variance predicted by the facility in this study was similar to that found in other studies examining the relationship between perceptions of the physical facility and customer behaviours (Wakefield & Blodgett, 1999; Wakefield & Sloan, 1995; Zhang et al., 1998). The majority of these studies, however, evaluated the perceptions of the physical facility independently from perceptions of the core product and service personnel, thus overlooking the influence of shared variance. This study went further to address customers' perceptions of the physical facility along with perceptions of the core product and perceptions of the service personnel to assess the amount of variance uniquely attributable to the physical facility.

Results from this study revealed that the three components of the service experience influenced the level of customer satisfaction experienced by spectators attending the two minor league hockey games. While customers' perceptions of the core product, the physical facility, and service personnel together explained variance in customer satisfaction, very little of the variance was unique to the physical facility or to service personnel. Instead, much of the variance was shared among the three components. This is consistent with work from Langeard et al. (1981) who argue that customers experience the three components in an interrelated manner. The large portion of shared variance may be explained by the relationship among the individual components of the service experience. Specifically, the perceived quality of any one of the components may have influenced perceptions of the quality of the other two components. For example, the concepts of product and place are interactive in the sense that customers will make evaluations of one based on their perceptions of the other (Mullin et al., 2000). In other words, the facility in which a team plays may significantly influence customers' perceptions of the quality of the core product.

What is unknown is the causal priority among the components. In this study, perceptions of service personnel and of the physical facility were highly correlated ($r = 0.60$), but it is unknown whether one may have caused the other. An argument can be made for each. For example, it is conceivable that customers who experienced the facility first and perceived it to be of good quality may have made assumptions

that the quality of the service personnel was on a similar level. On the other hand, customers who received good personal service may have been more willing to overlook elements of the facility that lagged in quality. The causal priority of the two variables also influences comparisons of relative importance. Results differed depending on the assumed order, therefore the relative influence of these two variables remains ambiguous.

In terms of the relative influence of customers' perceptions of the core product and their perceptions of service personnel, perceptions of service personnel were slightly more predictive of customer satisfaction in the sample. Although the difference was slight, it was counter to findings from previous literature which observed the variables together. Both Rasmussen (1999) and Trail et al. (in press) found that perceptions of the core product were the only significant predictors of future customer behaviour. However, both of those samples were derived from spectators of intercollegiate athletics, whereas this sample was derived from attendees of a minor league ice hockey team. The current finding is consistent with other research on minor league spectators (Frieling, 1997; Zhang et al., 1997), which found that spectators were concerned with components of the service experience other than the core product. Such findings lend credence to the marketing principle that some customers will evaluate both the core product and product extensions in making their satisfaction judgments, even in spectator sport venues (Mullin et al., 2000).

Although this study examined minor league ice hockey spectators, and it was not intended to generalise from the findings to other sports, the research does provide implications for future study beyond minor league ice hockey in the United States. Specifically, this study addresses the importance of evaluating the physical facility as a whole rather than a few selected attributes. Further, this study highlights the efficacy of evaluating the entire service experience rather than isolating one or two attributes. In practical terms, the results of this study suggest that a good facility alone (or any other aspect of the service experience) may not drive customer satisfaction, but a good facility in combination with an acceptable core product and good service personnel can be very influential. To truly satisfy customers, managers must pay attention to all three variables.

Limitations and Future Research

Because the purpose of this study was to identify how selected organisational factors contribute to customer satisfaction, it did not take into account personal characteristics of customers or environmental influences, which may also have contributed to customer satisfaction. The first item of future research, therefore, would be to fully develop the list of factors that predict customer satisfaction in a spectator sport environment. The service experience, as defined in this study, explained just 31% of

the variance in customer satisfaction, indicating that there are other factors influencing customer satisfaction or dissatisfaction. Those factors may be related to knowledge of the game of ice hockey (Zhang, Smith, Pease, & Mahar, 1996), interest in hockey (Zhang et al., 1997), the price of the event, the influence of other customers (Mullin et al., 2000), the influence of significant others (Mullin et al., 2000), or variables previously unexamined.

The second suggestion for future research is to further investigate customers' perceptions of the core product. During the time period when data were being collected, the team was playing poorly and was drawing well below its early season average of 5,000 spectators. The team had the worst record in the AHL and had just traded its two most popular players. Consequently, responses may have been tempered by the team's poor performance. Surprisingly, customers' evaluations of the core product were quite positive. On average, customers seemed to believe that, despite playing poorly and having no star players, the team was a quality team. Similarly, the building in which the team played was an older facility lacking many of the amenities found in newer arenas. Customers, however, gave somewhat favourable ratings to the building. Further research should investigate why customers would give positive ratings to an obviously poor team and facility. It is conceivable that customers, seeking a sense of vicarious achievement, subconsciously elevated their opinions of the team and the facility in order to feel good about themselves. Alternatively, customers may expect less from a minor league experience. Further, customers may alter their perceptions to avoid cognitive dissonance when evaluating their purchase activity. It would be interesting to segment customers by achievement motives in order to determine whether customers' self-interest influences their perceptions of the team and the facility.

Third, the games at which the questionnaires were distributed were in the last third of the season. By this time of the season, the public was aware of the team's poor play, and many casual spectators had stopped attending. This may have limited the types of customers who were at the games and available to complete the questionnaires. Specifically, it is possible that spectators who identified highly with the team were still attending while spectators less strongly identified with the team had stopped attending games. Based on this, it is possible that customers' positive perceptions of the core product and physical facility may have been attributable to the level of team identification exhibited by customers in this study. Further research should investigate the role of team identification on perceptions of the components of the service experience.

Finally, the present study assumes customer satisfaction is important because it leads to behavioural intentions and profitability. Future study should provide empirical evidence of the links among perceptions of the physical facility and customer satisfaction and profitability, as there is a need for more study concerning which service investments may achieve the greatest results (Zeithaml, 2000). Empirical

evidence should allow managers to view improvements in the physical facility as investments with quantifiable returns and give managers a clearer understanding of which components of the service experience have the largest impact on customer satisfaction and profitability.

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