

HOW DOES THE STADIUM ATMOSPHERE AT A COLLEGE FOOTBALL GAME AFFECT BEHAVIORAL INTENTIONS ACROSS GENDER LINES? THE MEDIATING ROLE OF SPECTATOR SATISFACTION

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ABSTRACT

This study, grounded in the Stimulus-Organism-Response (S-O-R) framework, examines the mediating role of spectator satisfaction in the relationship between sports stadium atmosphere (SSA) and spectators' behavioral intentions in the context of American college football. It also investigates if gender differences are evident in the hypothesized pathways. Survey data collected from 211 spectators during a 2014 college football game were analyzed using structural equation modeling procedure. Supporting the S-O-R model, the direct association between SSA and behavioral intentions was not significant but the effect of SSA on word-of-mouth was fully mediated by spectator satisfaction in both males and females. However, satisfaction mediated the effects of SSA on intent to recommend and intent to attend for females but not males. We discuss managerial and theoretical implications for sports managers.

JEL: Y8, Z2

KEYWORDS: Sports Stadium Atmosphere, Spectator Satisfaction, Behavioral Intentions, Sports Marketing, Stimulus Organism Response Theory

INTRODUCTION

Sports stadium atmosphere (SSA) refers to the unique environment in stadiums and arenas during sports events, including the physical traits of the venue as well as the actions of all the people associated with the event including fans and stadium personnel (Uhrich and Koenigstorfer, 2009; Uhrich and Benkenstein, 2010; Chen, Lin, and Chu, 2013). Sports stadium atmosphere can consist of stimuli that are created by organizers, by spectators, and by the game itself (Koenigstorfer, Groeppel-Klein, and Kunkel, 2010). The physical traits of a sports stadium that influence the atmosphere include the scoreboard, the layout of the seating (e.g., are fans close to or far away from the action), and the sound and lighting system (Hightower, Brady, and Baker, 2002; Wakefield, Blodgett, and Sloan, 1996).

For some time, academics have investigated the various elements that create the atmosphere at a sports stadium. Research first focused on the physical aspects of the built environment (e.g., scoreboard, lighting system, sound system, and architecture of the stadium) (Wakefield et al., 1996; Hightower et al., 2002). Kahle, Aiken, Dalakas, and Duncan (2003) expanded the study of stadium atmosphere to include the actions created by personnel at the stadium. Later, the concept of stadium atmosphere was modified to include the spontaneous actions of spectators inside the stadium related to what was happening during the game. The organizers and managers of sports events can influence crowd behavior when they put messages on the scoreboard or make announcements over the public address system urging spectators to cheer; at another

level, spectators exhibit crowd behavior and create their own atmosphere when they cheer a great play or boo an opponent (Uhrich and Benkenstein, 2012; Yoshida and James, 2010; Charleston, 2008); fanatical supporters' groups can urge on other fans to cheer and sing chants (Theysohn, Hinz, Nosworthy, and Kirchner, 2009). Only recently have researchers advanced a comprehensive measure of sport stadium atmosphere that encompasses several factors associated with stadium atmosphere (Uhrich and Benkenstein, 2012; Chen et al., 2013).

Though a few empirical studies mainly outside of the United States have focused on SSA and its influence on spectators' behavior in the context of such sports as soccer, cricket, Australian rules football, and rugby (e.g., Yoshida and James, 2010; Uhrich and Benkenstein, 2012; Chen et al., 2013), there is a call for additional research to assess SSA in several different sports settings in different countries and cultures (e.g., Chen et al., 2013). There is a need of more comprehensive investigations of the college football atmosphere because this sport is popular among intensely loyal fans and has several features that contribute to a very unique game-day environment. Prior research suggests that males and females have different perceptions and responses to retail environments (Otnes and McGrath, 2001) but very little is known about how men and women react to the stadium atmosphere at a college football game (Kahle et al., 2003). No empirical studies have simultaneously investigated the relationship between SSA at college football games and spectator satisfaction and behavior across gender lines. Moreover, prior findings on the extent to which various components of SSA influence fan satisfaction and behavior are inconsistent. The Stimulus-Organism-Response (S-O-R) theory (Mehrabian and Russell, 1974) suggests that environmental stimuli (S) influence an individual's emotional reaction (O), which in turn, affects consumers' behavioral response (R). This suggests that the effect of sports stadium atmospherics on spectators' behavioral intentions may be mediated by customer satisfaction. Therefore, the primary objective of this study is to address the above issues by examining the mediating role of spectator satisfaction in the relationships between the sports stadium atmosphere and male and female fans' behavioral intentions in the context of college football in the United States. The findings of this study may help college football professionals and administration enhance the stadium atmosphere to increase attendance, satisfy spectators, and build loyalty among male and female fans. The document is organized into the following sections: Literature Review, Theoretical Framework and Hypotheses Development, Data and Methodology, Results, Concluding Comments, and References.

LITERATURE REVIEW

Few studies have attempted to understand the multitude of conditions that form the atmosphere within sports stadiums. Early research was limited to spectator perceptions of the "sportscares" (e.g., the physical environment, scoreboards, crowding) (Wakefield et al., 1996). Subsequent research focused on specific aspects of SSA and examined their impact on satisfaction and behavior. Yoshida and James (2010) investigated the extent to which the atmosphere at baseball and football games might influence spectator satisfaction and future intentions at sports events, but they did not specifically look into how the actions of event organizers influenced the atmosphere (e.g., the use of mascots and giveaways and promotions, etc.). Biscaia, Correia, Yoshida, Rosado, and Maroco, J. (2013) investigated spectator satisfaction at soccer matches and suggest that the atmosphere in a sports stadium might influence fan satisfaction. Uhrich and Benkenstein (2012) investigated how the actions of crowds of spectators at sports events might influence future behavior and concluded that spectators were essential co-creators of the experience and the influence of the actions of spectators was far stronger on future behavior than any issues related to the venue. Koenigstorfer et al. (2010) examined how spectators perceived the attractiveness of professional soccer clubs and found the atmosphere of the stadium is a powerful factor influencing spectator perceptions. Karg, McDonald, and Vocino (2008) indicated that the satisfaction of attendance at sports events was often influenced by the extent to which fans perceived the stadium is safe and welcoming.

Bauer, Sauer, and Exler (2005) suggested that the atmosphere in the stadium (as well as the behavior of spectators and the traditions of soccer clubs) has more of an effect on future fan loyalty than the quality of competition, the importance of the game, or the traits of players and coaches. Uhrich and Koengistorfer (2009) expanded the concept of SSA to include the environment at the venue, the attitudes and actions of spectators, and the emotions people experienced at sports events. Chen et al. (2013) developed and validated a comprehensive SSA scale by surveying spectators at professional basketball league games in Taiwan; they advocated that more research be carried out to examine the psychometric properties of SSA measure using non-Asian samples and other spectator sports.

Moreover, previous findings on various components of SSA and their influence on fan satisfaction, to some extent, are contradictory. For example, Wakefield et al. (1996), Sarstedt, Ringle, Raithel, and Gutergan (2014), and Karg, et al. (2008) suggested that the size of the crowd could have a negative effect on SSA (e.g., if sections of the stadium were empty or fans were not cheering on the team). Feelings of crowding (e.g., too many spectators in a confined space) adversely influenced spectators' perceptions of the servicescape and the perceived level of excitement at sports events (Wakefield and Blodgett, 1994). Conversely, Uhrich and Benkenstein (2012) concluded that the actions of spectators in the crowd had a much greater influence in creating a favorable atmosphere than physical elements associated with the stadium architecture. Other researchers point to the presence of a large and vocal crowd as a major positive contributor to SSA (e.g., Biscaia et al., 2013; Uhrich and Benkenstein, 2010). In contrast, Morely and Thomas (2005) suggested the effect of crowds at cricket matches did not create a positive sport stadium atmosphere because attendance was sparse and the sport was not exciting for spectators. Unlike previous studies that established a strong SSA—satisfaction linkage (e.g., Chen et al., 2013), Yoshida and James (2010) found that some dimensions of SSA such as player performance and opponent characteristics did not predict spectators' satisfaction. Sarstedt et al. (2014) found that atmosphere experienced during a visit to a stadium was a weaker predictor of spectator satisfaction than physical aspects of stadium.

Unlike previous studies, the current research contributes to the literature on sports stadium atmosphere in several important ways. First, previous studies primarily relied on the stimulus-response (S-R) paradigm and investigated a direct effect of SSA on behavior. The current study, however, employs the S-O-R framework which holds that the environmental stimuli may not directly influence behavior but such effect is mediated by an individual's affective and cognitive states (i.e., organism). In the SSA context, spectators' behavioral intentions can be driven by their satisfaction level which may be triggered by stadium atmospherics. While the S-O-R theory has been widely applied in retail and other services domains, only a very few studies tested the theory in a sports stadium atmosphere context. We used structural equation modeling which allows for performing simultaneous testing of complex mediating mechanisms with multiple latent variables and testing a path analysis while developing a large number of modeling frameworks (Bollen, 2002; Jöreskog, 1978). Because this study hypothesizes about the complex relationships among one-factor second-ordered SSA construct, spectator satisfaction, and spectators' behavioral intentions, it is critical to use path analysis and validate the proposed mediation model in a holistic way in order to draw meaningful conclusions and implications (Bollen, 1989).

Second, a study by Kahle et al. (2003) indicates that males and females have different perceptions and responses to the atmospherics at sporting events. Little empirical research exists that investigates gender differences in the perceptions of the sports stadium atmosphere. To date, no empirical studies have simultaneously investigated the relationship between SSA, spectator satisfaction, and behavior across gender lines. Thus, the current study aims to fill this gap by examining gender difference in the mediational pathways between sports stadium atmosphere, spectator satisfaction, and behavioral intentions. Third, a few empirical studies mainly outside of the United States have focused on SSA and its influence on fan' behavior in the context of such sports as soccer, cricket, Australian rules football, and rugby (e.g., Yoshida and James, 2010; Uhrich and Benkenstein, 2012; Chen et al., 2013). Chen et al. (2013) called for additional research to assess SSA in several different sports settings in different countries and cultures. The

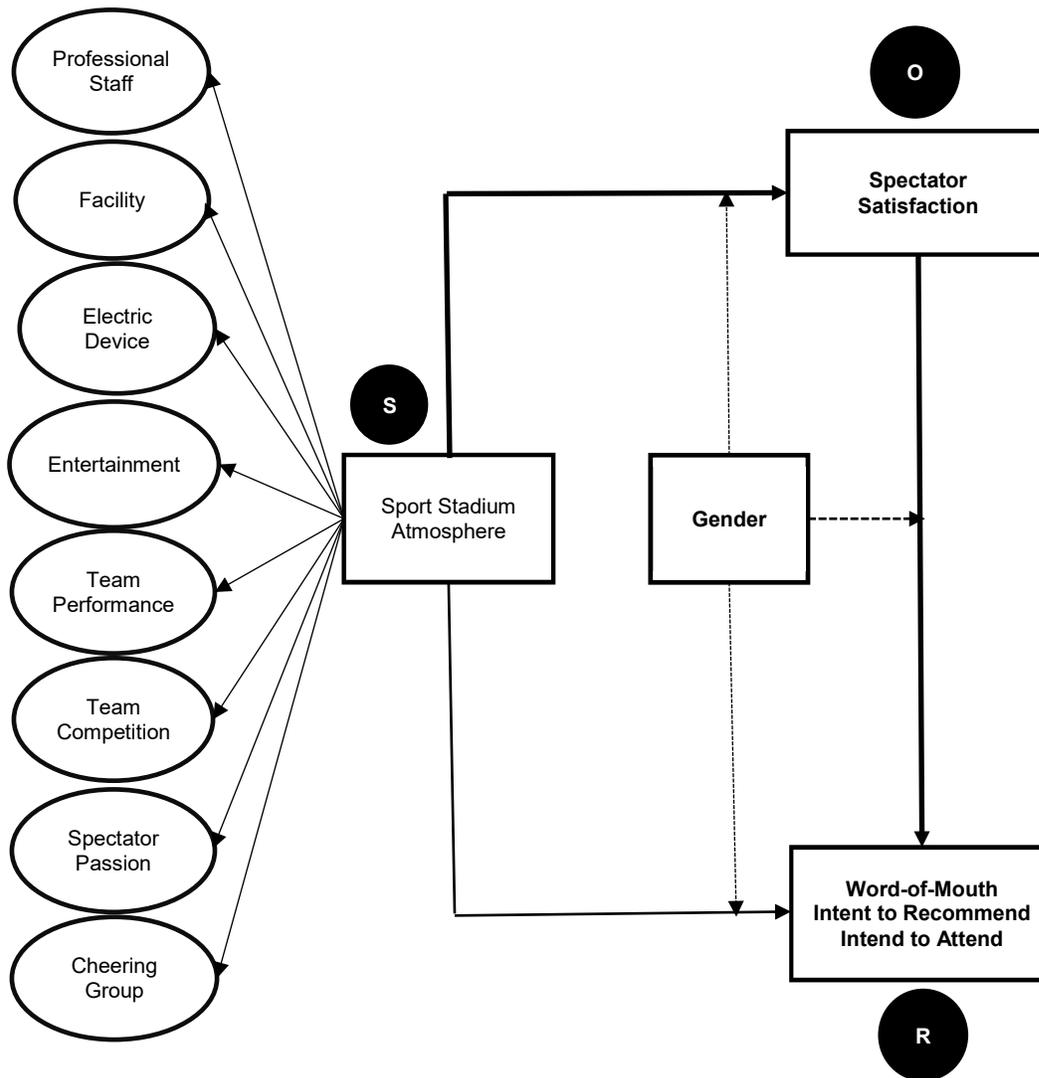
perceptions of SSA may differ across cultures and different types of sports simply because of the diverse nature of events, stadiums, spectators and cultures (Koenigstorfer et al., 2010). Thus, the current study centers on the stadium atmospherics of college football because this sport is unique and popular among intensely loyal fans. College football has several features that contribute to a very unique atmosphere that make it deserving of study.

In the United States, college football has assumed such an important role it is referred to as a new “religion” for large numbers of fanatic spectators (Lewis, 2013). Weeks before a big college football game is played, fanatic supporters of several universities travel long distances to cheer on their school; 50 million fans traveled to college football games in 2014 (Huston, 2014). On the day of the game, fans meet in the parking lot hours before kickoff to tailgate; they drink, eat, talk with friends and fellow students, and reminisce about their loved of the university. For many fans, college football provides a rich and welcoming environment to take part in a time-honored ritual and be part of a collective group that reflects their self-identity (Drenten, Peters, Leigh, and Hollenbeck, 2009). Other aspects that create a unique stadium atmosphere at college football games are marching bands with hundreds of members that play unique battle hymns and fight songs (Bain-Selbo, 2009); cheerleaders who urge the fans to rise, cheer and chant (Wilhalme, 2015), and many college football stadiums present specific and unique traditions (Smith, 2001). Finally, despite the fact that sports stadium atmosphere includes a wide range of factors, previous studies measured only a few but diverse aspects of SSA. These efforts focused primarily on physical aspects (e.g., the building layout, seating) and offered inconsistent findings as discussed earlier. Thus, the current study will operationalize SSA as a second-order as well as a much broader and holistic construct composed of eight dimensions as shown in Figure 1.

Theoretical Framework and Hypotheses Development

In line with the S-O-R model, the proposed causal framework in this study (see Figure 1) posits that spectator satisfaction plays an essential role in explaining the relationship between SSA and behavioral intentions. The SSA is composed of eight second-order constructs: professional staff (e.g., role of stadium announcer and coaches in encouraging spectators in the stadium), facility (i.e., quality of facility, unique architecture, comfortable seating in the stadium), electric device (e.g., lighting, music, screen scoreboard, acoustics in the stadium), entertainment (e.g., half-time show, giveaways, mascots, promotion activities, player-spectator interactions in the stadium), team performance (e.g., overall performance of teams in the stadium), team competition (e.g., rivalry and competitiveness between teams in the stadium), spectator passion (e.g., large number of intense and vocal spectators in the stadium), and cheering groups (e.g., performance of cheerleaders, cheering and maneuvers performed by spectators at the stadium). The behavioral intentions include word-of-mouth, intent to recommend, and intent to attend. In this study, spectator satisfaction is defined as a spectator’s pleasurable, fulfillment response to the entertainment of sport competition and/or ancillary services provided during a sporting event (Yoshida and James, 2010). Figure 1 shows the hypothesized relationships between dimensions that contribute to sports stadium atmosphere (e.g., professional staff, the facility, electric devices, entertainment, team performance, team competition, spectator passion, and cheering groups), spectator satisfaction, and behavioral intentions (e.g., word-of-mouth, intent to recommend, and intent to attend) as well as the moderating role of gender.

Figure 1: A Framework of Sports Stadium Atmosphere



This figure shows the hypothesized relationships between dimensions that contribute to sports stadium atmosphere, spectator satisfaction, and behavioral intentions, as well as the moderating role of gender.

Previous research in retailing suggests that a store environment can influence a wide variety of consumer evaluations and behaviors (Turley and Milliman, 2000). For example, store atmosphere affects store patronage behaviors such as repurchase and recommendation intention (Baker, Levy, and Grewal, 1992; Baker, Parasuraman, Grewal, and Voss, 2002; Grewal, Baker, Levy, and Voss, 2003). In a sports context, stadium atmosphere can affect fan’s behavior. Chen et al. (2013) found a positive relationship between sports stadium atmosphere and spectators’ intentions to attend sporting events. Uhrich and Benkenstein (2010) argue that stadium atmosphere can directly influence spectators’ short-term behaviors (e.g., the amount of money spectators spend at the stadium) as well as long-term behaviors (e.g., identification with the team or the image of the club, and purchases of season tickets or club membership). Based on above arguments, we hypothesize the following.

H1: Sports stadium atmosphere is positively related to: a) positive word-of-mouth, b) intent to recommend, and c) intent to attend.

Prior studies suggest that the atmosphere at a sports event can influence spectator satisfaction. Uhrich and Koenigstorfer (2009) proposed a conceptual framework which suggests SSA is a primary driver of spectator satisfaction. Yoshida and James (2010) suggested that the extent to which the game was thought to be exciting was an important component of atmosphere that influenced satisfaction. The extent that the atmosphere of the game lived up to fan expectations is an important predictor of spectator satisfaction (Kelley and Turley, 2001). Centieiro (2013) suggests that fans who experience the excitement of the stadium atmosphere are likely to be more engaged and thus more satisfied. Similarly, Karg et al. (2008) found that season ticket holders were more satisfied with sports clubs that provided a safe and welcoming sport stadium atmosphere than venues that were hostile and dangerous. Thus, based on above, we predict the following.

H2: Sports stadium atmosphere is positively related to spectator satisfaction

Literature indicates that customers who express a high level of satisfaction at sports events are more likely to exhibit such positive fan behaviors as willingness to attend additional games, purchase merchandise, and follow a sports team in the mass media (Yoshida and James, 2010; Chen et al., 2013). Biscaia et al. (2013) indicate that fan satisfaction plays a role in influencing future behavioral intentions. An empirical study by Uhrich and Benkenstein (2012) suggest that satisfaction with the sport stadium atmosphere is positively correlated with increased spending at sports events. In a conceptual study, Uhrich and Koenigstorfer (2009) proposed that a sports stadium atmosphere that satisfies fans could result in increases in long-term fandom, positive word-of-mouth, and heightened sales of tickets and merchandise. Thus, we posit the following hypothesis.

H3: Spectator satisfaction is positively related to: a) positive word-of-mouth, b) intent to recommend, and c) intent to attend.

In a retail setting, a number of studies demonstrate that consumers' cognitive and emotional states can mediate the effects of servicescapes (the built physical environment where a product or service is purchased, Bitner, 1992) on behavioral reactions (Baker et al., 1992; Baker, Baker, Grewal, and Parasuraman, 1994). A large body of service marketing quality literature suggests that customer satisfaction (i.e., a pleasurable or positive emotional state felt by a customer with a product or service) is a key intervening variable in the relationship between service quality, customer loyalty and future behavior (Cronin and Taylor, 1992; Anderson, Fornell, and Lehmann, 1994; Gotlieb, Grewal, Brown, Dacin, and Gunst, 1994). In sports contexts, research suggests that fan satisfaction may play a mediating role in shaping perceptions of service quality attributes (e.g., the quality of effort put forth by individuals working at the stadium to meet the needs of spectators such as ushers, ticket-takers, food vendors and security personnel, etc.) and behavioral intentions (Biscaia et al., 2013; Javadein, Khanlari, and Estiri, 2008). Spectators' perceptions of stadium quality can be indirectly linked to future intentions via spectators' satisfaction with the stadium atmospherics (Wakefield and Blodgett, 1994). These arguments suggest that spectator satisfaction can mediate the impact of sports stadium atmosphere on spectators' behavioral intentions. From a theoretical perspective, one way of viewing the atmosphere at sports stadium is through the broad framework of the S-O-R model. The concept of S-O-R model was introduced by Mehrabian and Russell (1974) based in the environmental psychology theory. The theory posits that social stimuli in the environment (the stimulus) directly influence the affective and cognitive state of individuals (the organism), thereby influencing behaviors (the response). A few studies have examined the S-O-R theory in different service-related settings including online casinos (Abarbanel, 2013), servicescapes (Yi and Gong, 2009), and online retailing (Eroglu, Machleit, and Davis, 2003). The current study employs the S-O-R model to understand how spectator's satisfaction (the organism) can mediate the effect of stadium atmosphere (the stimulus) on word-of-mouth, recommendation intention, and attendance intention (the responses). The rationale is that the atmospheric-related stimuli in a college football stadium (e.g., physical facility, electric devices, team

competition, quality of the game, etc.) should influence spectator's satisfaction (Oliver, 1997; Yi and Gong, 2009) which ultimately influences behavioral intentions.

From a methodological perspective, one rationale for why the spectator satisfaction can serve as a mediator is that it is an internal psychological state variable that is affected by external events. In the marketing literature, customer satisfaction has consistently been theorized as a mediator in the relationship between conditions that make up the service environment and consumer behavior because it affects the cognitive and affective response of consumers to service encounters (Oliver, 1997). Baron and Kenny (1986) suggest using a mediating variable in the case of a strong relationship between a predictor and a dependent variable. Since spectator satisfaction has been hypothesized to have a strong association with both sports stadium atmosphere and spectators' behavioral intentions, we hypothesize that SSA has a positive relationship with behavioral intention when spectator satisfaction is considered as intervening factor.

H4: Spectator satisfaction will mediate the relationship between sports stadium atmosphere and positive word-of-mouth.

H5: Spectator satisfaction will mediate the relationship between sports stadium atmosphere and intent to recommend.

H6: Spectator satisfaction will mediate the relationship between sports stadium atmosphere and intent to attend.

Prior studies in marketing and related fields indicate that men and women differ in evaluating retail environment (Otnes and McGrath, 2001; Grewal et al., 2003). For example, men evaluated the store atmosphere less positively than did women (Grewal et al., 2003). Men and women can differ in their perceptions of atmospheric factors at sporting events; women may place more emphasis on the courteousness of staff, facility, and hospitality but men may emphasize secondary entertainment factors, such as the noise generated by bands and fans at the stadium (Kahle et al., 2003). Although sports spectatorship and fandom have traditionally been believed to be a male activity, the importance of the rapidly growing number of female sports fans is now recognized (Clark, Apostolopoulou, and Gladden, 2009; Bush, Bush, Clark, and Bush, 2005). However, research suggests that gender differences may exist in regard to sports fandom, satisfaction, and behaviors (Fink, Trail, and Anderson, 2002; Wann, Waddill, and Dunham, 2004). Research indicates that men show a greater interest in sports, watch more sports on television, and spend time discussing sports than females (Dietz-Uhler, Harrick, End, and Jacquemotte, 2000). Females are more likely to be sports fans because they attend or watch games with friends and family while male spectators are fans because they play sports (James and Riddinger, 2002).

Social identity theory (Tajfel, 2010) can be useful in understanding how males and females can react differently to sports stadium atmosphere and its effect on their emotional states and behaviors. The former theory holds that individuals attain a sense of belonging in particular groups and derive much of their self-esteem from their memberships in social groups or categories. When applied in a sports context, social identity theory suggests male fans can gain a higher level of sense of membership and belonging with sports or a team because this relationship enhances self-esteem and reinforces masculine values (Costa and Guthrie, 1994). Males are often more likely than females to be avid fans, to watch and follow sports more often, and to be fans of a specific team (James and Riddinger, 2002). Gender socialization theory suggests that men and women learn different gender-appropriate roles through social learning processes as a result they develop different attitudes and behaviors (Carter, 2014). The theory suggests that male and female spectators may evaluate stadium atmospherics in a different way and exhibit different levels of satisfaction as well as behavioral intentions (Chen et al., 2013). Based on the above supporting literature and theories, we hypothesize the following.

H7: Gender moderates the hypothesized pathways between sports stadium atmosphere, spectator satisfaction, and behavioral intentions (word-of-mouth, intent to recommend, and intent to attend).

DATA AND METHODOLOGY

Data were collected using a mall-intercept technique at MetLife Stadium during a 2014 college football game between Notre Dame University and Syracuse University. This event was played at a neutral site in a large urban area and as a result many of the spectators were not fans of either team but merely wanted to come experience this event. Sixteen field researchers randomly approached participants and invited spectators to participate in the survey just after the halftime show was completed. A total of 217 individual participated in the survey. After removing six incomplete cases, a total of 211 usable surveys were obtained. The majority of the participants were neither Notre Dame nor Syracuse fans. Almost one-fifth (21.3%) of the participants indicated they were Notre Dame die-hard fans and only 15.2 percent of them were avid Syracuse fans. More participants were males (57.3%) than females (42.7%). About three out of ten participants (29.4%) attended at least one NFL game and 34.1 percent attended college football game in the past year. Table 1 shows the summary of measurement items which were measured on a 5-point Likert-type scale ranging from “1 = strongly disagree” to “5 = strongly agree.” Sports stadium atmosphere was measured using the SSA scale adapted from Chen et al. (2013). As shown in Figure 1, the scale is composed of eight multi-item dimensions: professional staff, facility, electric device, entertainment, team performance, team competitions, spectator passion, and cheering group. Spectator satisfaction was assessed with three items adapted from Yoshida and James (2010).

The sample items in this scale were: “I am satisfied with this game at X Stadium.” and “I am delighted with this game at X Stadium”. Behavior intention measure included three aspects: intent to attend future games, intent to recommend, and intent to spread positive word-of-mouth. Intent to attend was assessed using a three-item scale adapted from Hagger, Chatzisarantis, and Biddle (2001) and Cunningham and Kwon (2003). Intent to recommend future events at the stadium was measured with two items adapted from Brown et al. (2005) and Uhrich and Benkenstein (2012). To assess intent to spread positive word-of-mouth, three items were adapted from Zeithaml, Berry, and Parasuraman (1996) which were slightly modified to fit the context of this study. First, the confirmatory factor analysis (CFA) was conducted for each key variable in order to examine the construct validity of measured variables. Second, we estimated measures of central tendency (mean), standard deviations, and correlations among key variables to describe the characteristics of respondents. The reliability of the instrument and its scales were measured by calculating Cronbach’s alpha for each scale. Third, structural equation modeling was used to examine the associations and mediation effect of key variables for this study.

RESULTS

The construct reliability ranges from 0.84 to 0.90, higher than recommended level of 0.60 and average variance extracted (AVE) estimates for all hypothesized constructs are higher than recommended level of 0.50 with the exception for the SSA construct (Bagozzi and Yi, 1988; Fornell and Larcker, 1981). The CFA was used because key variables of this study were driven by the theoretical relationship among the observed and unobserved variables (Schreiber, Amaury, Barlow, and King, 2006). Particularly, CFA was deemed the appropriate statistical technique because it is commonly used when there is a theoretical rationale for an a priori factor structure such as positive psychological capital (Luthans, Norman, Avolio, and Avey, 2008). We conducted CFA tests to assess the validity of the proposed measurements and estimated the quality of structural reliabilities and designated factor loading by testing the model fit between the proposed measurement models and the collected data.

Initially the factor loading criteria was set as greater than 0.50 considering the rule of thumb that less than 0.40 is weak and equal or greater than 0.60 is strong (Cabrera-Nguyen, 2010). CFA results of SSA indicated

that the entertainment (0.22) and cheering group (0.38) measurements had poor factor loadings that were significantly less than .50. In addition, the item of ‘importance’ in the Team competition measurement had a poor factor loading (0.25). The factor loadings for remaining SSA items were significant and higher than 0.5 and retained for the analysis. All factor loadings of spectator satisfaction (0.82 ~ 0.84) and spectators’ behavioral intentions (0.76 ~ 0.94) were above the minimum factor loading criteria, which provides an initial support for convergent validity (Gerbing and Anderson, 1988). Table 1 shows the measurement items and standardized factor loadings, average variance extracted, and construct reliability.

Table 1: Measurement Items and Standardized Factor Loadings, Average Variance Extracted (AVE) and Construct Reliability

Construct	Latent Construct	FL	CR	AVE	Observed item	FL
SSA	Electric Device	0.70	0.84	0.48	The lighting is great in X Stadium.	0.71
					The music is exciting in X Stadium.	0.70
					The big screen scoreboard is great in X Stadium.	0.67
	Facility	0.58			The acoustics are encouraging in X Stadium.	0.58
					Seating is comfortable in the X Stadium.	0.57
					The architecture of X Stadium is unique.	0.65
	Team performance	0.89			The quality of the facility is great in X Stadium.	0.73
					Fans are excited when their team scores in X Stadium.	0.64
					The morale of these teams was intense in X Stadium.	0.70
	Spectator passion	0.70			The overall performance of my team is great in this game in X Stadium.	0.56
					There were a large number of fans at this game at X Stadium.	0.72
					The support of fans was intense in X Stadium.	0.88
	Professional staff	0.52			The passion of fans was intense in X Stadium.	0.88
					The stadium announcer encouraged fans in X Stadium.	0.75
The behavior of the coaches encouraged fans in X Stadium.					0.51	
Team competition	0.68			The rivalry between these teams was emphasized in X Stadium.	0.71	
				The competitiveness between these teams was intense in X Stadium.	0.91	
Spectator Satisfaction	0.83	0.87	0.69	I am satisfied with this game at X Stadium.	0.84	
				I am happy with this game at X Stadium.	0.84	
				I am delighted with this game at X Stadium.	0.82	
Spectators’ Behavioral Intentions	Intent to attend	0.85	0.90	0.75	I intend to attend another football game at X Stadium.	0.76
					Attending another football game at X Stadium is something I plan to do.	0.92
	Intent to recommend	0.90	0.87	0.77	I try to attend another football game at X Stadium.	0.91
					I am likely to recommend someone to attend a football game at X Stadium.	0.91
	Word of mouth	0.84	0.90	0.75	I will probably recommend to others to attend a football game at X Stadium.	0.84
					I am likely to encourage friends and family to attend a football game at X Stadium.	0.76
					I am likely to say positive things about X Stadium.	0.94
					I will probably spread a positive word-of-mouth about X Stadium.	0.89

This table shows the measurement items and standardized factor loadings, average variance extracted, and construct reliability. FL: Factor loading criteria >0.50; CR: Construct Reliability >0.70; AVE: Average Variance Extracted (AVE) >0.47; SSA: Sports Stadium Atmosphere. All $p < 0.001$.

To assess the model fit, several fit indices including chi-square (χ^2), degrees of freedom (df), probability (p), root mean square error of approximation ($RMSEA$), the comparative fit index (CFI), and the Tucker-Lewis index (TLI) were used. Basing on the generally accepted rules (Hair, Black, Babin, and Anderson, 2010; Hu and Bentler, 1999; Kline, 2010; MacCallum, Browne, and Sugawara, 1996), several cutoff criteria were set and used to assess the model fit. The confirmatory factor analysis results of the proposed models fitted the data at an acceptable level (Model 1: $\chi^2_{(221)} = 386.3$, $p < .00$, $CFI = .92$, $TLI = .91$, $RMSEA = .06$; Model 2: $\chi^2_{(200)} = 362.8$, $p < .00$, $CFI = .91$, $TLI = .90$, $RMSEA = .06$; Model 3: $\chi^2_{(221)} = 410$, $p < .00$, $CFI = .91$,

TLI= .90, *RMSEA*= .06). Table 2 presents means, standard deviations, and correlations among key study variables including fan satisfaction, intent to attend, intent to recommend, and word-of-mouth.

Table 2: Means, Standard Deviations, and Correlations Among Key Variables

N = 211		M	SD	1	2	3	4	5
1.	SSA	3.74	0.44	1				
2.	Satisfaction	4.06	0.74	0.59**	1			
3.	Intend to attend	4.10	0.88	0.40**	0.49**	1		
4.	Intend to recommend	4.12	0.85	0.42**	0.49**	0.71**	1	
5.	Word-of-mouth	4.18	0.74	0.51**	0.57**	0.69**	0.77**	1

*This table displays the means, standard deviations, and correlations among key variables, including fan satisfaction, intent to attend, intent to recommend, and word-of-mouth. Note that *p < .05 (two-tailed); **p < .01 (two-tailed).*

Structural equation modeling was performed using the Stata 14 program to examine the relationship between key variables and mediation effect of spectator satisfaction between sports stadium atmosphere and spectators’ behavioral intentions. In Hypotheses 1a-1c, we posited that sports stadium atmosphere would be positively related to positive word-of-mouth, intent to recommend, and intent to attend. As shown in Table 3, these hypotheses were not supported. The results indicated that there was a significant positive relationship between sports stadium atmosphere and spectator satisfaction, thus supporting Hypothesis 2 ($\beta > 0.781, p < 0.001$). Consistent with Hypotheses 3a-3c, the results provide strong evidence that spectator satisfaction is positively related to positive word-of-mouth, intent to recommend, and intent to attend ($\beta = 0.361 \sim 0.559, p < 0.01$). Table 3 presents standardized coefficients, standard errors, and probability about the extent to which the research hypotheses were proven to be associated with the intent to attend, the intent to recommend, and the intent to spread positive word-of-mouth.

Table 3: Standardized Coefficients, Standard Errors, and Probability

Path to Dependent Variables	Attend			Recommend			Word-Of-Mouth		
	β	SE	$p > z $	β	SE	$p > z $	β	SE	$p > z $
Structural									
H1 SSA → Spectator behavior									
H1a: SSA → Attend	0.204	0.141	0.147						
H1b: SSA → Recommend				0.167	0.137	0.222			
H1c: SSA → WOM							0.100	0.139	0.471
H2 SSA → Spectator satisfaction	0.781	0.045	0.000	0.782	0.045	0.000	0.785	0.045	0.000
H3 Spectator satisfaction → Spectator behavior									
H3a: Spectator satisfaction → Attend	0.361	0.136	0.008						
H3b: Spectator satisfaction → Recommend				0.411	0.13	0.002			
H3c: Spectator satisfaction → WOM							0.559	0.130	0.000
Measurement (latent)									
SSA → Electric device	0.675	0.060	0.000	0.688	0.059	0.000	0.678	0.060	0.000
SSA → Facility	0.568	0.076	0.000	0.571	0.076	0.000	0.590	0.076	0.000
SSA → Team performance	0.914	0.052	0.000	0.911	0.052	0.000	0.904	0.053	0.000
SSA → Spectator passion	0.678	0.953	0.000	0.673	0.054	0.000	0.670	0.054	0.000
SSA → Professional staff	0.422	0.116	0.000	0.424	0.117	0.000	0.441	0.114	0.000
SSA → Team competition	0.684	0.060	0.000	0.677	0.061	0.000	0.691	0.060	0.000

Table 3 presents standardized coefficients, standard errors, and probability about the extent to which the research hypotheses were proven to be associated with the intent to attend, the intent to recommend, and the intent to spread positive word-of-mouth. Note that WOM: word-of-mouth. SSA: sports stadium atmosphere. β = standardized coefficient. SE: standard error

In Hypotheses 4, 5, and 6, we hypothesized mediating effects of satisfaction on the relationships between SSA and behavioral intentions. As shown in Table 4, the results show that spectator satisfaction mediated the relationships between sports stadium atmosphere and positive word-of-mouth, intent to recommend, and intent to attend ($\beta = 0.487 \sim 0.539, p < 0.05$). Thus, all three hypotheses received support. Table 4 shows the associations between spectator satisfaction, sports stadium atmosphere, and positive word-of-mouth, intent to recommend, and intent to attend.

Table 4: Direct Effects of Sports Stadium Atmosphere and Indirect Effects on Spectator Behaviors

Path			Total Effect	Direct Effect	Indirect Effect
SSA	→	Intend to attend	0.487*** (0.000)	0.205 (0.157)	0.282** (0.016)
SSA	→	Intend to recommend	0.489*** (0.000)	0.167 (0.225)	0.322*** (0.005)
SSA	→	Word of mouth	0.539*** (0.000)	0.100 (0.474)	0.439*** (0.001)

*This table shows the associations between spectator satisfaction, sports stadium atmosphere, and positive word-of-mouth, intent to recommend, and intent to attend. Note that SSA: Sports stadium atmosphere. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. The coefficients are standardized values. Values in parenthesis are probability of $|p| < z$.*

Hypothesis 7 predicted that gender would moderate the hypothesized pathways between sports stadium atmosphere, spectator satisfaction, and behavioral intentions. Table V shows the results which reveal that the hypothesized relationships differ by gender. The mediation effects of spectator satisfaction on the relationships between SSA and attendance and recommendation intentions are evident for females ($\beta = 0.288 \sim 0.369, p < 0.05$) while such effects were not observed for males. The mediation effect between SSA and word-of-mouth is significant for both males ($\beta = 0.418, p < 0.05$) and females ($\beta = 0.423, p < 0.05$). Thus, Hypothesis 7 is partially supported. Table 5 shows the extent to which the mediation effects of spectator satisfaction between sports stadium atmosphere and behavioral intentions vary between male and female spectators.

Table 5: Mediation Effects of Spectator Satisfaction Between SSA and Behavioral Intentions Across Genders

	Male		Female	
	Coefficient	<i>P</i>	Coefficient	<i>p</i>
Intend to Attend	0.236	0.177	0.288**	0.055
Intend to Recommend	0.263	0.119	0.369**	0.024
Word-of-Mouth	0.418**	0.022	0.423**	0.015

This table shows the extent to which the mediation effects of spectator satisfaction between sports stadium atmosphere and behavioral intentions vary between male and female spectators.

CONCLUDING COMMENTS

The goal of this study is to examine the mediating role of spectator satisfaction in the relationships between the sports stadium atmosphere and male and female fans' behavioral intentions in the context of college football in the United States. Data were collected using a mall-intercept technique at MetLife Stadium during a 2014 college football game between Notre Dame University and Syracuse University. This event was played at a neutral site in a large urban area and as a result many of the spectators were not fans of either team. Sixteen field researchers randomly approached participants and invited spectators to participate in the survey just after the halftime show was completed. A total of 217 individual participated in the survey. After removing six incomplete cases, a total of 211 usable surveys were obtained. Research hypotheses 1a-1c (in which it was posited that sports stadium atmosphere would be positively related to positive word-of-mouth, intent to recommend, and intent to attend) were not supported. Research hypothesis 2 (which posited

there was a significant positive relationship between sports stadium atmosphere and spectator satisfaction) was supported. Research hypothesis 3 (which posited spectator satisfaction is positively related to positive word-of-mouth, intent to recommend, and intent to attend) was supported. Research hypotheses 4, 5, and 6 (which posited that spectator satisfaction may have mediating effects of satisfaction on the relationships between sports stadium atmosphere and positive word-of-mouth, intent to recommend, and intent to attend) received support. Research hypothesis 7 (which posited that gender would moderate the hypothesized pathways between sports stadium atmosphere, spectator satisfaction, and behavioral intentions) was partially supported; the mediation effect between SSA and word-of-mouth is significant for both males and females, but the mediation effects of spectator satisfaction on the relationships between sport stadium atmosphere and attendance and recommendation intentions are evident for females but not for males.

The primary finding of this study is that the sports stadium atmosphere does not directly influence spectators' behavioral intentions but spectator satisfaction mediates the impact of SSA on fan future behavior. This means improved stadium atmosphere leads to spectator satisfaction which ultimately influences such spectators' behavioral intentions as future attendance, recommendation intention, and positive word-of-mouth. However, mere improvement in sports stadium atmosphere may not enhance spectators' behavioral intentions unless fans are satisfied with the game and stadium atmospherics. From a managerial point of view, investing resources only in improving a stadium atmosphere will likely be inadequate unless the fans are satisfied with the experience at the stadium. Thus, resources have to be allocated to design and implement programs to improve spectator satisfaction (e.g., customer relationship management, spectator loyalty programs, and unique privileges for season ticket holders). Sports stadium managers must be committed to providing excellent services (e.g., courteous employees such as ushers and security personnel, timely resolution of spectator complaints, rapid delivery of quality foods and beverages, resolving spectator concerns by working with fans on a one-one basis, etc.).

Stadium managers may want to improve the ways fans can communicate with the club (e.g., expanded stadium wi-fi and improved social media programs) (Williams and Chinn, 2010), and develop long-term customer loyalty programs that make fans feel like valued customers (Kaplan, 2014). That being said, the best solution is to work simultaneously on creating a great atmosphere and working to make fans feel truly pleased and satisfied with the experience at sports events. To develop excellent stadium atmospherics and to enhance spectator experience and satisfaction, sports marketers should focus on developing and managing various elements of SSA including stadium facility, electric devices, professional staff, team competition and performance, and spectator passion. The sports stadium atmosphere can be enhanced by manipulating specific aspects. For example, the Seattle Seahawks have been praised for developing an exciting stadium atmosphere via a unique architecture designed to keep crowd noise inside the facility and actions of stadium staff to urge the fans to yell and cheer (Saraf, 2014). In contrast, there are prominent evidences in which the stadium atmospherics were believed to be deficient; after a recent UEFA Champions League home match, Chelsea FC coach Jose Mourinho complained about the poor lighting and the sparse attendance that created the stadium atmosphere he compared to “a library” in which the fans were quiet throughout the match (Nagle, 2014).

This study has shown that there are differences between men and women in their emotional expressions (e.g., satisfaction) to a sporting event at a stadium and their behavioral intentions (e.g., intent to recommend and future attendance). This may suggest that when developing stadium atmosphere and creating a successful sporting event, stadium managers should employ different strategies for male and female spectators; when marketing to men, the emphasis should focus on such aspects as the quality of play, the skills of athletes, and the level of competition while marketing to female fans should emphasize the opportunities for socialization and entertainment. From a theoretical perspective, this study contributes to the literature by applying Mehrabian and Russell's Stimulus-Organism-Response framework in a sports context. The results support the thesis of the S-O-R model which found an indirect effect of stadium atmosphere on behavioral intentions via satisfaction. Since spectators' perceptions of sports stadium

atmosphere may differ across cultures and different types of sports, researchers called for further research to assess stadium atmospherics in several different sports settings in different countries and cultures (Koenigstorfer et al., 2010; Chen et al., 2013). Our sample participants included spectators attending American college football thus the study contributes to the literature by extending the generalizability of the SSA measure developed by Chen et al. (2013); this study examined the external validity and psychometric properties of the measure in the context of stadium atmosphere at an American college football game. Our findings demonstrate that SSA can be operationalized as a second-order construct composed of electric device, facility, professional staff, spectator passion, team competition, and team performance. This study suffers from a number of limitations.

A major limitation is its cross-sectional design in which data were collected at a single sporting event; thus future research should employ longitudinal designs to examine the proposed relationships by collecting data over a period of time. The study is also limited in that the spectators at this event included many individuals who were not fans of either team; it will be useful to examine stadium atmosphere at typical home games where much of the crowd consists of avid and loyal fans. Future research needs to be conducted to better understand the factors that influence stadium atmospherics and the extent to which stadium atmosphere and customer satisfaction influences key marketing outcomes among fans of different genders. Future studies could study the same sport (e.g., basketball, soccer, etc.) played in different nations and cultures. Other research could investigate the moderating effects of other demographic constructs (e.g., age, ethnicity, geographic regions) psychographic characteristics (e.g., attachment to sports, need for uniqueness, intrinsic motivation, sense for nostalgia, etc.) when reexamining the hypothesized relationships between sport stadium atmosphere, customer satisfaction, and behavioral intentions.

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