Sport Stadium Atmosphere: Formative and Reflective Indicators for Operationalizing the Construct

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This article reports the findings of an investigation into the atmosphere in stadiums during live team sports. Experiencing this special atmosphere represents an essential part of the total service provided by the organizers of sport events. However, existing research into the concept of atmosphere focuses on the retail environment. Our first step was therefore to define sport stadium atmosphere as a theoretical construct, drawing on theories from environmental psychology. We then developed a mimic (multiple indicator-multiple cause) model to measure the construct. To specify the mimic model, we generated and selected formative measures by means of a delphi study ($N = 20$), qualitative expert interviews ($N = 44$), and an indicator sort task ($N = 34$). The results indicate that various physical and social aspects of the stadium environment are causal indicators of sport stadium atmosphere. Following this, we conducted phenomenological interviews with spectators at sport events ($N = 5$) to identify typical affective responses to stadium environment (representing the reflective indicators of the mimic model). These interviews revealed that fans' experience of stadium environment is characterized by high levels of arousal and pleasure. In addition to our findings, the mimic model developed in this study represents a useful tool for future research into sport stadium atmosphere.

The importance of the physical and social environment in the consumption of live sport events is widely recognized (Tombs & McColl-Kennedy, 2003; Wakefield & Blodgett, 1999; Wakefield & Sloan, 1995; Westerbeek & Shilbury, 1999). According to the literature on sport marketing, the special atmosphere in sport stadiums is one of the most important reasons why people attend events (Bauer, Sauer, & Exler, 2005; Holt, 1995; Pfaff, 2002; Wochnowski, 1996). However, previous research into the phenomenon of atmosphere has almost exclusively focused on retail stores (Turley & Milliman, 2000). This research has provided empirical evidence for the fact that the store atmosphere exerts a considerable influence on several variables relevant for marketing–e.g., length

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of stay (Donovan & Rossiter, 1982), repatronage intention (Babin & Attaway, 2000), and perceived pleasure (Baker, Levy, & Grewal, 1992; Spies, Hesse, & Loesch, 1997; Tai & Fung, 1997).

Unlike retail stores and the majority of service settings, the atmosphere prevailing in a sport stadium not only provides additional value to the core product, but also creates a unique entertainment value. Indeed, it may itself become the dominant part of the total service experience (Kotler, 1973). Thus the effects of atmosphere on consumer behavior in sport stadiums may be even stronger than in the retail context. This assumption is supported by findings from empirical studies. These studies show that sport spectators' perceived excitement induced by the atmosphere in the stadium has positive effects on repatronage intentions, willingness to recommend a visit to others (Wakefield & Blodgett, 1999), and customer satisfaction (Madrigal, 1995; Wakefield & Blodgett, 1994).

However, the effects of sport stadium atmosphere on consumer behavior have received comparatively little attention from researchers to date. Our understanding of the construct of sport stadium atmosphere is still at a rudimentary stage. It remains unclear what specific factors contribute to the stadium atmosphere. There are no attempts in the literature to develop sport stadium atmosphere as a theoretical construct and to operationalize it for use in empirical studies. It is therefore impossible at present to investigate adequately the relationship between stadium atmosphere and variables with important financial implications, such as on-site food and beverage consumption, spectator satisfaction, and positive word-of-mouth.

This article attempts to remedy this situation somewhat. Its purpose is to develop and define sport stadium atmosphere as a theoretical construct. In addition, we conceptualize and operationalize the construct, and develop a measurement model for it.

In the first section, we develop sport stadium atmosphere as a theoretical construct, drawing on theories from environmental psychology. This includes defining and theoretically conceptualizing the construct. In the next two sections, we present four empirical studies that were carried out to generate formative and reflective indicators for the operationalization of the construct. Then, we specify a mimic measurement model for sport stadium atmosphere using the indicators developed in the empirical studies. Finally, we offer various suggestions as to how the measurement model can be validated using quantitative methods. We also highlight some limitations of the current study and potential avenues for future research.

Sport Stadium Atmosphere: Developing a Theoretical Construct

Theoretical Background

Research into the phenomenon of atmosphere in the marketing context is concerned with the influence of environmental stimuli on internal responses and external behaviors of consumers. Existing research has concentrated on the environment-person relationship, generally with environmental psychology as the theoretical background. Environmental psychology is an interdisciplinary area of research that provides various theories to explain the interdependencies between environmental characteristics and human perceptions, cognitions, emotions, and behavioral reac-

tions (Gifford, 1997; Holahan, 1986; Russell & Ward, 1982). The concept of atmosphere includes the notion that environments or places have specific affect-inducing qualities. It is therefore closely related to the environmental psychology construct of the *affective quality* of a place (Darden & Babin, 1994; Russell & Pratt, 1980). Therefore prior studies of atmosphere have largely focused on emotion-oriented theories that explain the link between environmental variables and a person's affective response to these variables.

The dominant theoretical concept used in current studies of atmosphere is the behavioral model by Mehrabian and Russell (1974). This SOR model suggests that the entire stimulus volume (S) in a specific environment elicits emotional reactions (O), which in turn cause either approach or avoidance behavior (R) toward the environment. Individual predispositions moderate the relationship between the environmental variables and the resulting emotional state of a person (Mehrabian & Russell, 1974).

A major concern of previous studies has been to conceptualize and operationalize the environmental stimuli under investigation, frequently equated with the atmosphere of a place. Mehrabian and Russell (1974) propose a verbal scale consisting of 14 pairs of adjectives for measuring the information rate of a specific location. This scale enables researchers to capture the stimulus volume of a location holistically, and has been used in several empirical studies focusing on the retail context (e.g., Donovan & Rossiter, 1982; Groeppel, 1993; Tai & Fung, 1997). The influence of specific environmental elements, however, cannot be determined using this measurement tool. For this reason, several empirical studies on the specific impact of concrete environmental stimuli have investigated random portions of different consumption environments (e.g., Baker, Grewal, & Parasuraman, 1994; Hightower, Brady, & Baker, 2002; Milliman, 1986; Spies, Hesse, & Loesch, 1997). However, these studies have almost exclusively considered physical stimuli of the environment, such as music or design factors, and have ignored social or contextual environmental stimuli.

Baker (1987) and Bitner (1992) develop conceptual frameworks that help to classify the complex bundle of environmental factors that impact consumers' internal responses and behavior. Baker (1987) divides the service environment into the components ambient factors, design factors, and social factors. Similarly, the stimulus component of Bitner's (1992) prominent servicescape framework consists of the dimensions ambient conditions, space/function, and signs/symbols/artifacts together forming the *perceived servicescape* construct.

Tombs and McColl-Kennedy (2003) discuss these frameworks as well as research into atmosphere based on Mehrabian and Russell's (1974) model. They conclude that existing conceptual and empirical work on atmosphere inadequately accounts for the social element in consumption environments. Addressing this research gap, the authors build on Mehrabian and Russell's (1974) model and Bitner's (1992) servicescape framework to create a *social servicescape* conceptual model that contains elements of social facilitation theory (Zajonc, 1965), behavior setting theory (Barker, 1968), and affective events theory (Weiss & Cropanzano, 1996). The social servicescape model has three environmental components: context (private or group purchase occasion), physical elements (social density), and social elements (displayed emotion of others). With this model, Tombs and McColl-Kennedy (2003) broaden the theoretical basis of research into atmosphere, elaborating on important social aspects of service environments that were previ-

ously largely ignored. One important conclusion of their work is that the affective quality of consumption locations is not just determined by physical environmental stimuli. This seems to be especially true for sport settings and is taken into account in our development of the construct of sport stadium atmosphere.

Interpretations of the Concept of Atmosphere— Review of Literature

Research into the concept of atmosphere has mainly focused on retail stores (for an overview, see Turley & Milliman, 2000). Sporadic studies consider other commercial or noncommercial environments, such as sport stadiums (Hightower et al., 2002; Kao, Huang, & Yang, 2007; Wakefield & Blodgett, 1994, 1996, 1999; Wakefield, Blodgett, & Sloan, 1996), flea markets (Sherry, 1990), restaurants (North & Hargreaves, 1998; Ryu & Jang, 2007), and people's homes (Pennartz, 1986). As discussed in the preceding section, existing research is concerned with the influence of environmental stimuli on internal responses or external behavior of consumers. However, there is an inconsistent understanding of where the construct of atmosphere is conceptually located in the causal chain of environmental stimuli, internal responses, and behavioral outcomes. Many studies define the construct of atmosphere vaguely or not at all (e.g., Donovan, Rossiter, Marcoolyn, & Nesdale, 1994; Eroglu & Machleit, 1993; Fiore, Yah, & Yoh, 2000; North & Hargreaves, 1998; Renko & Vignali, 2006).

Kotler's (1973) pioneering work in this field reveals that atmosphere is a quality of the spatial surroundings. This gives rise to an environment-oriented definition of atmosphere, in which atmosphere is equated with perceptions of environmental characteristics (e.g., Babin & Attaway, 2000; Spies, Hesse, & Loesch, 1997; Tai & Fung, 1997; Yalch & Spangenberg, 1990). This environment-oriented perspective is reflected in Wochnowski's (1996) definition of atmosphere in the context of sport settings: "Atmosphere . . . is the totality of emotionally appealing environmental stimuli in a defined place" (p. 181).

Contrasting this view is the more person-oriented perspective, in which atmosphere is interpreted as a psychological state, generally an affective response. Gosh (1990), for example, defines (store) atmosphere as the "psychological effect or feeling" (p. 465).

A third perspective defines atmosphere in a more holistic way, integrating both perceptions of environmental elements and affective responses. According to this view, atmosphere is the link between environmental stimuli and a person's emotional responses (Buckley, 1987; Darden & Babin, 1994).

Existing definitions of atmosphere, then, are characterized by a dualism between the environment or the perceived environment and the person. One of the major challenges in achieving a robust working definition of sport stadium atmosphere is thus to resolve the problem of the conceptual location of the concept of atmosphere.

Definition of Sport Stadium Atmosphere

Investigating the concept of atmosphere requires a clear definition of the term and a proper understanding of where the concept is located with regard to environment

and person. Equating atmosphere with environmental stimuli is just as unsatisfactory as equating it with psychological variables. In the former case, the influence of atmospheric variables on people is ignored, while in the latter case the question of whether certain affective states can be attributed to environmental factors remains unanswered.

We contend that both perceptions of environmental stimuli and affective responses should be integrated in the construct. In addition, the causal relationship between the perceived stimuli and the affective effects must be verified. To this extent, our definition matches the environmental emotional reaction indices of environmental psychology, developed to measure the affective quality of environments. Craik and Zube (1976) state that "the constructs . . . of environmental emotional reactions embody the notion of systematic links to the physical environment" (p. 276). Thus the atmosphere of a particular place can only be determined by integrating information about the environmental features of the place with information about the affective responses of the people located in that place.

In this form, our definition of atmosphere is still general. It can be used to investigate various research questions, such as:

What atmosphere prevails in place x?

Does the atmosphere in place x match the preferences of a specific group of people?

Does a predefined atmosphere prevail in a particular environment?

Sport stadium atmosphere can be tentatively defined, then, as the relationship between perceptions of the specific environmental features of a sport stadium and the elicited affective responses of the spectators. To be a unique theoretical construct, it must be further specified in terms of its temporal and spatial limits, as well as its character.

As far as the temporal aspect is concerned, sport stadium atmosphere refers to the period of time in which a sport event takes place. The spatial dimension of the construct is the area inside a sport stadium where the spectators usually watch the game, i.e., the grandstands and bleachers.

An important further specification of the construct is its qualitative content. From a marketing perspective, the most important question is what atmosphere prevails in a stadium and whether this atmosphere matches the preferences of the spectators. So our construct should also capture the idea of whether a predefined preferential atmosphere from the perspective of sport consumers prevails in the stadium.

Although sport spectators are a heterogeneous group, a certain consensus exists as to what environmental design they prefer in a stadium and what affective responses accompany this design. Research in environmental psychology supports this assumption. For example, research into the construct environmental quality reveals that certain environmental features are positively evaluated by specific groups of people in specific environments (Bell, Greene, Fisher, & Baum, 2001; Brush, 1976; Craik & Zube, 1976a). Furthermore, according to behavior setting theory (Barker, 1968), a sport stadium as a behavior setting has temporal and spatial limits, and spectators within the setting show a similar behavior. We therefore expect spectators' reactions to the environmental stimuli in a particular stadium to be relatively homogenous.

The construct of sport stadium atmosphere can thus be defined as a preferential affective state that spectators attribute to the idiosyncratic environmental features of a sport stadium.

Conceptualization of Sport Stadium Atmosphere

If we accept this definition of sport stadium atmosphere, a conceptually complete measurement tool for the construct will require simultaneous consideration of perceptions of environmental variables (as causal factors) and affective states (as effect variables). How can both types of variables be merged in a single measurement model? The environmental perceptions are considered *formative* indicators in measurement theory, while the elicited affective responses are *effect* or *reflective* indicators. Each formative indicator is a unique component of the construct and all formative indicators jointly determine the content of the construct. By contrast, reflective indicators are caused by the construct and are thus interchangeable effects of the latter (Bollen, 1984; Bollen & Lennox, 1991; Namboodiri, Carter, & Blalock, 1975). Although constructs are normally measured with either formative or reflective scales, a combination of both types of indicators is possible in what is known as a mimic model (mimic = multiple indicators-multiple causes, see Hauser & Goldberger, 1971; Joereskog & Goldberger, 1975).

Specifying a conceptually complete measurement model for sport stadium atmosphere thus requires an exploration of the idiosyncratic environmental stimuli in a sport stadium as well as the typical affective states of the spectators (see Figure 1 for an example). Following Tombs and McColl-Kennedy (2003), we argue that these stimuli should include not only physical elements of the environment but all kinds of affect-eliciting factors. These include in particular stimuli emanating from the social elements of group consumption within the stadium, such as emotions displayed by other people (Holt, 1995; Neumann & Strack, 2000) and the behavior of others, as well as various aspects related to the action of the game (Madrigal, 2003).

The literature offers some indications of what environmental factors are unique to the sport environment, although very few studies deal explicitly with this question. The majority of models include general elements such as spatial layout/functionality,
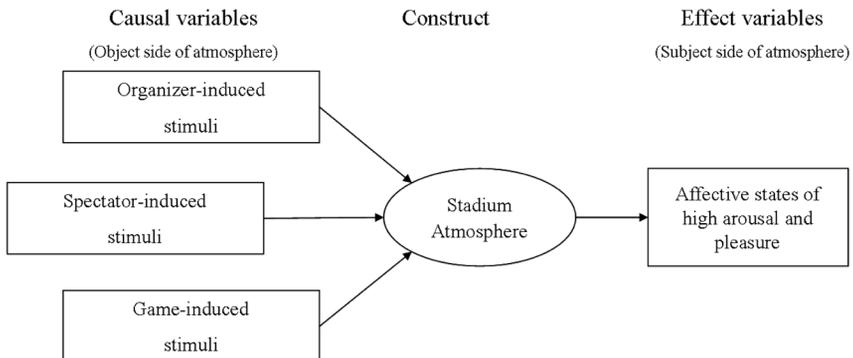

Figure 1 — Theoretical conceptualization of sport stadium atmosphere.

cleanliness, parking, scoreboard quality, crowding, layout accessibility, and seating comfort (e.g., Wakefield & Blodgett, 1994, 1996, 1999; Wakefield & Sloan, 1995). Kelley and Turley (2001) call for an exploration of variables specific to the sport setting, such as cheerleaders and mascots. Occasionally studies have examined background noise or impressive overall surroundings (Hightower et al., 2002), shared rituals of fans, the roar of the crowd, applause and booing, the welcoming of players, and terrace songs (Westerbeek & Shilbury, 1999). In a previous study, Uhrich and Königstorfer (2009) have tentatively categorized the sources of stadium stimuli into organizer-induced, spectator-induced, and game-induced factors.

We expect the typical affective responses of spectators to be high levels of pleasure, sensory stimulation, and arousal. These responses have been identified as important value-creating elements of sport events, motivating potential spectators to attend events (Holbrook & Hirschman, 1982; Kao et al., 2007; Neal & Funk, 2006; Pons, Mourali, & Nyeck, 2006; Russell, 1993; Sloan, 1989).

Empirical Investigation of Environmental Stimuli as Formative Indicators of Sport Stadium Atmosphere

We first conducted three empirical studies to identify the environmental factors contributing to the unique atmosphere in sport stadiums. As perceptions of the environmental stimuli make up the formative part of the measurement model, indicators must be selected with special care. The goal is to find a universe of indicators that fully covers the scope of environmental perceptions (Bollen & Lennox, 1991; Rossiter, 2002). Ignoring important parts of the affect-eliciting factors of stadium environment would reduce the scope of the construct.

Study 1: Generating Indicators

Method.   To generate formative indicators, a multistage expert survey was conducted based on the delphi method. The delphi method is considered a suitable approach for identifying the opinions of an expert group about a diffuse and unclear issue (Haeder, 2002). Our expert panel consisted of 20 fan commissioners[1] for first- and second-division German soccer clubs. In the first round of interviews, the panel was asked to specify all the possible components that contribute to the special atmosphere in a sport stadium. On the basis of their responses to this open question, plus the findings of additional in-depth interviews with other experts from the sport business and academics working in the field of sport management, we drew up an initial list of 174 aspects of stadium atmosphere (see Appendix for complete list). We then streamlined this list, removing overlapping items, to create a set of 105 distinct aspects. In a second round of interviews, we presented this list to the expert panel. The experts were asked to state for each aspect whether they believed it actually contributed to the creation of stadium atmosphere. For this, they used a three-point scale (1 = "*definitely generates good stadium atmosphere*", 2 = "*may generate good stadium atmosphere*", and 3 = "*does not generate good stadium atmosphere*"). Based on their responses, we then calculated the mean score for each of the indicators. In a third round of interviews, we again presented the indicators to the experts. As is usual in delphi surveys, respondents were, at this time, given feedback from the second round of interviews; the mean and the

Indicators	Definitely generates good stadium atmosphere (1)	May generate good stadium atmosphere (2)	Does definitely not generate good stadium atmosphere (3)	Mean	Distribution of answers in the second round		
					1	2	3
Stadium announcer heats up the spectators	☐	☐	☐	1.8	33%	56%	11%

Figure 2 — Questionnaire design in the third interview round of the Delphi Survey.

distribution of answers from the previous round for each indicator (see Figure 2 for an example). The purpose of giving feedback was to ensure considered responses, as respondents were forced in this way to reexamine their evaluations.

The subsequent analyses only considered indicators with a mean score of at least 2.0 and evaluated as "definitely not generating good stadium atmosphere" by no more than 25% of respondents (Bearden, Hardesty, & Rose, 2001)–some 77 indicators in total. The formative character of these indicators was confirmed by applying decision rules for distinguishing between formative and reflective measurement models, as suggested by the literature (Jarvis, MacKenzie, & Podsakoff, 2003).

Results.   Using a heuristic technique for categorizing qualitative data (Kleining, 1995), the 77 indicators were grouped into seven preliminary dimensions. These seven dimensions represent the conceptual content of the formative part of sport stadium atmosphere. The purpose of the categorization was not to reduce the amount of data, but to identify indicators that were close to each other in terms of content, and to gain an understanding of the basic dimensions underlying environmental stimuli.[2] The dimensions identified in this way confirmed that the organizers of the event, the spectators, and the action of the game were key sources of the environmental stimuli generating the unique atmosphere found in stadiums. The categorization also led to a more detailed subdivision of the stimuli, into *organizer-induced acoustics* (4 indicators), *spectator-induced acoustics* (7 indicators), *fan-specific behavior* (9 indicators), *architectural conditions* (7 indicators), *exciting game action* (13 indicators), *sport event-specific visual stimuli* (17 indicators), and *miscellaneous* (covering all other aspects, 20 indicators).

The results of Study 1 provide a comprehensive overview of the specific environmental features of sport stadiums. The pool of 77 stimuli represents a solid foundation for developing the formative part of the measurement model.

Study 2: Selecting Indicators

Formative measurement models must be conceptually complete. However, the number of indicators must be limited, otherwise collecting quantitative data will be difficult. Moreover, the idea is not to find all the possible components of a formative construct, but to identify the essential constituting variables (Rossiter, 2002). A factor analytic approach to data reduction is appropriate for reflective indicators but not for building formative models, as a correlation-based selection of indicators may eliminate important facets of the construct (Bollen, 1984). We therefore aggregated indicators on the basis of findings from qualitative interviews.

Method.   In Study 2, 44 experts were asked to single out the 20 most important aspects generating a good stadium atmosphere from the complete list of 77. The panel consisted of stadium managers, season-ticket holders, members of fan clubs, and academics working in the field of sport marketing and management. We first listed the 77 indicators in random order and presented this list to a subsection of the group ($n = 26$), who were asked to select the 20 most important indicators. The indicators were not categorized and no additional restrictions on their choice were imposed, so as to ensure the maximum level of freedom in this exploratory stage of the research. The remaining experts ($n = 18$) were likewise shown the 77 indicators and asked to pick the 20 most important indicators. However, at this time, the indicators were arranged according to the seven dimensions identified in Study 1, and participants had to choose at least two indicators for each dimension, so as to ensure that all the dimensions of the construct were considered. Their six remaining choices could be made freely from all seven dimensions. To avoid bias due to fatigue, the list was randomized differently for each expert. For the second group of experts, the randomization was carried out on the level of the dimensions.

Results.   All the indicators nominated as one of the 20 most important by at least one respondent were put on a list. For the first group (noncategorized indicators, no restrictions), 75 of the 77 indicators were nominated; for the second group (categorized indicators, restrictions), 68 indicators were nominated. We then counted the total number of times each indicator with at least one nomination was chosen, for all 44 respondents. Next, we ranked the indicators by number of nominations; the more often an indicator was nominated, the higher it came in the ranking. Six indicators shared 20th position in the ranking (each with 14 nominations), so the total number of indicators left was 25 rather than 20. By carefully inspecting these 25 indicators and removing overlaps, we reduced the final list to just 16 indicators.

Study 3: Validating Indicators

As mentioned above, formative indicators are distinct components of the construct that do not necessarily show a high level of correlation with other indicators in the measurement model. Indeed, an excessive level of correlation between formative indicators may give rise to problems of multicollinearity in later studies with quantitative data. So, assessing the validity of the formative indicators should not be based on the relationship between the indicators, but rather on the relationship between each indicator and the construct itself. We therefore chose to apply an indicator sort task.

Method.   Anderson and Gerbing (1991) develop an indicator sort task that can be used to evaluate the extent to which individual indicators belong to the conceptual content of a construct. The procedure involves blending the indicators to be investigated with indicators for related constructs, creating a single list. Next, a sample of people (who should be representative of the population of later research studies) is asked to assign the indicators to the correct construct. In Study 3 we used this procedure to mix the 16 formative indicators of sport stadium atmosphere randomly with the indicators of the constructs stadium esthetics and stadium comfort. The latter two constructs and their corresponding indicators

(stadium esthetics = 11 indicators, stadium comfort = 15 indicators) were derived from the literature (Baker, 1987; Wakefield & Blodgett, 1994, 1996). A sample of 34 regular spectators of professional soccer games were presented with a short definition of the three constructs and, in individual interviews, asked to assign the indicators to the related construct.

Results.   Based on the results, two validity measures can be calculated for each indicator. These are the P_{SA} index, which specifies the proportion of respondents who relate the indicator to its intended construct, and the C_{SV} index, which shows how many respondents assign the indicator to the expected construct more frequently than to any other construct (Anderson & Gerbing, 1991). The P_{SA} index is calculated by dividing the number of "correct" assignments to a construct by the total number of respondents. Correspondingly the values of the P_{SA} index range from 0 to 1, with higher values indicating greater validity. The C_{SV} index is calculated as follows: The highest number of assignments of an indicator to any construct other than the intended one is subtracted from the number of assignments to the intended construct. This value is then divided by the total number of respondents. Hence, the values of the C_{SV} index range from –1 to 1. High values indicate greater validity, although high negative values do not relate to the intended construct, as the indicator has more frequently been assigned to another construct.

   With just two exceptions, all the indicators exhibited high P_{SA} scores of over .7. Only the indicators "play of floodlights" (P_{SA} score = .62) and "bleachers are located right by the field" (P_{SA} score = .56) showed lower values. For the C_{SV} scores, a Binomial test can be used to calculate the statistical significance of the assignment of indicators to constructs (Anderson & Gerbing, 1991). For this purpose, the most restrictive scenario of assignments is used as the theoretical binomial distribution. This scenario corresponds to a situation in which an indicator is assigned with equal probability (50%) to either the intended construct or one other specific construct. All other scenarios, for example a probability of 33% for each of three constructs, would be less restrictive, as a smaller number of actual assignments would be statistically significant. The critical number of assignments depends on the level of significance applied. For our sorting task, the critical number is 24 assignments if the level of significance applied is $p < .05$, and 25 assignments if $p < .01$. This corresponds to C_{SV} scores of .41 and .47 respectively. With two exceptions, the indicators were found to be more often assigned to the construct of sport stadium atmosphere than to the other two constructs, with $p < .01$ (see Table 1). Once again, the two exceptions were the indicators "play of floodlights" ($p = .229$) and "bleachers are located right by the field" ($p = .61$).

   Formative indicators should not be eliminated lightly (Diamantopoulos & Winklhofer, 2001). Thus the two indicators failing the test were carefully examined again. As far as the indicator "bleachers are located right by the field" is concerned, the nonsignificant result can be attributed to a simple misunderstanding by respondents. A large number of respondents understood close proximity of bleachers to be a factor guaranteeing a good view of the game, and hence assigned it to the construct stadium comfort.[3] However, the indicator was actually intended to capture the subjective impression of being close to the action. Being close to the field in this sense contributes to the high level of arousal and pleasure of spectators. We therefore decided to retain this indicator, rephrasing it to ensure that future respondents understood it correctly.

In the case of the indicator "play of floodlights," no such factors could be found. We therefore eliminated the indicator from the measurement model. The final version of the formative part of the measurement model thus consists of 15 indicators. We find that the key stimuli generating the specific atmosphere in sport stadiums emanate from the spectators and their characteristic behavior, architectural factors, organizer-related aspects, and the action of the game itself (see Table 1).

Empirical Exploration of Affective States as Reflective Indicators of Sport Stadium Atmosphere

According to the conceptualization of sport stadium atmosphere, perceptions of environmental stimuli are modeled as formative indicators causing specific affective responses for spectators. To specify the mimic model, the typical affective states of sport spectators must first be identified. It can be assumed that spectators' emotional

Table 1   Summary of Results of the Indicator Sort Task for the Formative Indicators

Indicators	Assignments SA/HAOC	*PSA* scores	*CSV* scores
A lively, energetic game	34/0	1.00	1.00**
Constant chanting by fans	34/0	1.00	1.00**
Away fans' grandstands are packed	29/4	.85	.74**
Soccer songs and club anthem played frequently	34/0	1.00	1.00**
Many spectators wear clubs' merchandising	33/1	.97	.94**
Bleachers are located right by the field	19/10	.56	.26
Fans perform set choreography	34/0	1.00	1.00**
Game develops in an exciting way	32/2	.94	.88**
Fans on grandstands shout at each other	34/0	1.00	1.00**
Enthusiastic elation if goal is scored	34/0	1.00	1.00**
Home fans' grandstands are packed	25/6	.74	.56**
Acoustics as in a covered hall	25/7	.74	.53**
Stadium announcer encourages spectators	32/1	.94	.91**
Home team shows team spirit and desire to win	34/0	1.00	1.00**
Active and loud participation by many spectators	34/0	1.00	1.00**
Play of floodlights	21/9	.62	.35

Note. Statistical significance of C_{sv} scores was calculated using a Binomial test. SA = Stadium atmosphere; HAOC = Highest assignment to other construct; P_{SA} = Proportion of substantive agreement; C_{SV} = Coefficient of substantive validity.

** $p < .01$

states vary during the course of a game. Critical events such as goals are usually accompanied by strong affective responses. Furthermore, the score is likely to elicit positive or negative emotional reactions, as spectators as a rule support either one team or the other. The subject side of the construct sport stadium atmosphere entails more general affective responses, typically occurring over the course of several visits to the stadium; these affective states are subject to short-term variation.

The literature provides some insights into the feelings that consumers experience in various situations of hedonistic consumption. Interviews with adventure shoppers and active consumers of sport have identified feelings such as "a high," "a thrill" (Thompson, William, & Howard, 1990, p. 357), "exhilaration" (Celsi, Rose, & Leigh, 1993, p. 8; Sherry, 1990, p. 17), and "great excitement" (Arnold & Reynolds, 2003, p. 91). Similar combinations of high arousal and pleasure can be expected for spectators of live sports in stadiums. To test this assumption, we conducted a number of in-depth interviews in our fourth study.

Study 4: Identifying Affective States of Spectators

Method.   A thorough exploration of the internal affective responses of sport spectators must embrace their introspective perspective (Taylor & Bogdan, 1984). We therefore conducted five flexible, open-ended, in-depth interviews. The five interviewees (four male, one female) were regular visitors to soccer games. Although all were supporters of a particular soccer club, they had attended games at various stadiums in the past. Interviews were conducted in neutral surroundings, at least a couple of days after their team had played. The aim here was to keep the influence of the last game's results to a minimum and ensure that the interviewees concentrated on the more general sensations experienced in the stadium. One disadvantage of this approach, however, was that affective states were not captured directly at the stadium but several days later. Cohen and Areni (1991) call such an ex-post description of deliberate feelings an "affective trace" (p. 192). In the interviews, a phenomenological approach was followed: We asked the respondents to describe the feelings and sensations they typically experience at the stadium. Depending on the interviewees' level of understanding of the question and their ability to verbalize their feelings, the question could be rephrased or made more precise. Throughout the interviews, participants were reminded to report their emotional experiences relating to the stadium environment, as opposed to their affective attachment to a particular team. Responses were recorded immediately in written form.

Results.   In all five interviews, the respondents had problems verbalizing their emotional experiences in the stadium. Often they referred to factors that influenced their feelings, rather than describing their own subjective experience of the feelings. Typical examples were as follows:

> "My sensations in the stadium depend on the game" (Subjects 1 and 3)

> "How you feel depends on whether you have a seat or you're in the bleachers" (Subject 5)

Various responses indicate that the affective states during sport events differ from those experienced in everyday life. However, it was not always apparent if the affective quality was positive or negative:

"It's purely emotional" (Subject 3)

"It's very emotional . . . when you are in the stadium, there are very special vibes" (Subject 2)

Nevertheless, the respondents' way of describing their experiential impressions indicates a dominance of positive affects. In a number of responses, subjects referred to feelings they suspected others had rather than their own feelings:

"In the stadium there's generally a lot of excitement" (Subject 4)

"There's usually an exhilarating feeling in the stadium" (Subject 5)

"People are just excited and completely into it" (Subject 1)

"Yes, the atmosphere is always great" (Subject 3)

On closer questioning, it was found that respondents unconsciously abstract from their own emotional experiences. They confirmed that their own feelings were the same as those imputed to others.

We analyzed the qualitative data gathered in the interviews using content analysis (Kassarjian, 1977). In two readings, the authors of this study identified and marked all statements representing fans' emotional states. Subsequently the authors independently classified each statement using the dimensions high versus low arousal and high versus low pleasure. Disagreements were resolved by discussion. Overall, the responses confirm that a high level of arousal and pleasure are the dominant affective states, as shown by the following statements:

"Overall there is . . . a great feeling of suspense in the stadium . . . It's really enjoyable and gives you a feeling of release. The vibes are great most of the time." (Subject 1)

"I have lots of fun in the stadium . . . I get very enthusiastic. In the stadium there's a very special atmosphere . . . yes, you can feel it yourself. It's very emotional, the whole enthusiasm for your own club. There is always great excitement." (Subject 2)

"The feeling when you come into the stadium is just overwhelming. The crowd . . . is really . . . insane. You feel real emotion. It kinda gives me a high." (Subject 3)

"Actually you're always excited . . . Good words to describe it would be excited, struck, or awe-inspired. Overall it's a good feeling, there's great excitement in the stadium." (Subject 4)

"Being in the bleachers and getting really involved in the game is really cool . . . It's a good feeling . . . and mostly there's a good vibe in the stadium." (Subject 5)

We can use the findings of the in-depth interviews to formulate reflective indicators for the mimic model. These indicators should cover the typical affective states of stadium visitors, i.e., high sensory stimulation and pleasurable feelings. Although arousal is a physiological rather than a psychological parameter, it can also be

interpreted as consciously experienced feeling (Russell, Weiss, & Mendelsohn, 1989; Mehrabian & Russell, 1974). This is particularly likely when the levels of arousal are relatively high, as a highly stimulated person will more likely notice and remember his or her personal state of arousal.

Also critical for the reflective part of the mimic model is the dimensionality of the affective states of pleasure and arousal. These two emotional states have been shown in a number of empirical studies (e.g., Mehrabian & Russell, 1974; Russell & Pratt, 1980; Watson & Tellegen, 1985) to be orthogonal dimensions. However, specific combinations of these two dimensions can be expressed verbally. For example, high levels of arousal accompanied by great pleasure can be described in terms of excitement, ecstasy, or enthusiasm. Moreover, the aim of the model is not to give a comprehensive evaluation of spectators' emotions, but rather to see whether a predefined affective combination prevails. According to the definition of the construct, sport stadium atmosphere describes predefined preferential affective responses of the spectators caused by their perceptions of the idiosyncratic environmental stimuli in the stadium.

The indicators should be formulated in everyday language so that they can be readily understood by participants in later studies. We therefore rephrased the indicators using language based on the statements by participants in the in-depth interviews. The final form of the indicators is given in Figure 3. The fact that there are seven indicators–a relatively large number–means that potentially problematic indicators can be dropped in later studies if necessary.

Specifying a MIMIC Model to Measure Sport Stadium Atmosphere

The mimic model comprises the 15 formative and seven reflective indicators. The model is able to capture the full conceptual content of the construct sport stadium atmosphere as described further above. Each of the formative indicators represents the perception of a unique factor in the stadium environment. The 15 formative indicators together provoke affective responses in spectators.

Careful consideration must be given to how the formative indicators are formulated. Two key issues must be taken into account. Firstly, for most of the formative indicators, responses are only likely to show variance if the indicators are phrased strongly and clearly. For example, if we say "there are chants in stadium x", there will probably hardly be any disagreement from respondents and thus no variance. If, however, we say "there is non-stop chanting in stadium x," some respondents will disagree. At the same time, the indicators should refer to the positive aspects of fans' enthusiasm, rather than negative behavior such as hooliganism. Secondly, the way the formative indicators are formulated should ensure that interviewees actually refer to distinct aspects of the stadium environment in their responses.

To address these issues, we drew up 15 formative indicators and presented them to 96 undergraduate business students. The students were divided into three groups ($n = 30$, $n = 35$, $n = 31$) and the draft indicators read out to them. Participants were provided with a sheet of paper on which they could note down any indicators that they thought referred to similar or identical aspects of stadium environment. In addition, participants were asked to comment on any indicators that they associated with negative behavior by fans rather than the enjoyable experience of being in a sport stadium.

The results showed that two pairs of indicators in particular were potentially difficult to distinguish: "a lively game" versus "the game is usually exciting" and "constant chanting by fans" versus "active and loud participation by many spectators." These indicators were therefore rephrased slightly to make them more distinctive. In the first pair, "a lively game" versus "the game is usually exciting," the former indicator refers to the action of the game in general irrespective of the score, while the latter refers to the general uncertainty of the outcome. In the second pair, "constant chanting by fans" versus "active and loud participation by many spectators," "constant chanting" refers to ongoing chants in the stadium, while "participation by many spectators" tries to capture the idea that a large proportion of fans are actively involved in chanting and other spectator activities.

On the question of positive or negative associations with the indicators, only one indicator ("fans in the stands shout at each other") was considered to be potentially associated with negative fan behavior, by 4 of the 96 participants. The vast majority of participants did not categorize this or any other indicator as problematic. The final form of the formative indicators is given in Figure 3.

Discussion

This study investigates the atmosphere in sport stadiums from the perspective of environmental psychology. The central theoretical concept used in the study is Mehrabian and Russell's (1974) SOR model which proposes a causal link between the physical stimuli of an environment and people's affective states. In addition,
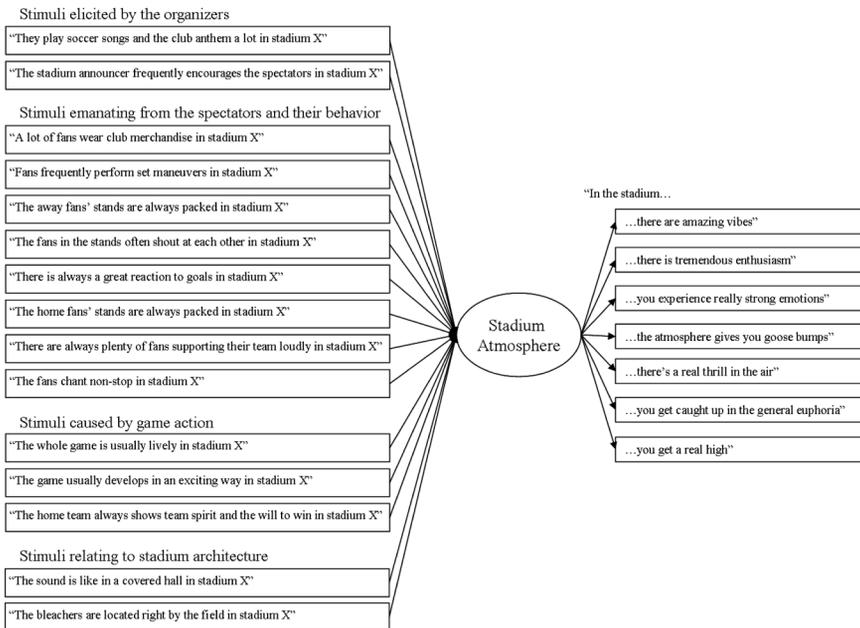

Figure 3 — MIMIC model for measuring sport stadium atmosphere.

we draw on Tombs and McColl-Kennedy's (2003) social-servicescape conceptual model that highlights the importance of social stimuli in service settings. Unlike most existing research, this study systematically identifies the specific stimuli found in sport stadiums, with the help of three empirical studies. Moreover, we explore the typical affective states of spectators through a series of in-depth interviews. Based on the results, we propose a mimic model that captures the conceptual content of the construct of sport stadium atmosphere in full.

We identify 15 separate environmental factors responsible for the specific atmosphere found in sport stadiums. Taking into account Mehrabian and Russell's (1974) theory, perceptions of these factors are taken as the causal indicators for the mimic model (see Figure 3). A close examination of the factors leads us to identify four different dimensions of sport stadium atmosphere: stimuli emanating from the spectators and their behavior, stimuli relating to the architecture of the stadium, stimuli elicited by the organizers, and stimuli caused by the action of the game. The first dimension, stimuli emanating from the spectators and their behavior, refers to various factors associated with sport fans, such as certain chants, enthusiasm when the home team scores, choreographic routines, the wearing of merchandise, and the exchange of chants between bleachers on opposite sides of the stadium. It is clear that creating a specific "fan culture" is important, as fan behavior significantly contributes to the attractiveness of sport events. Spectators who express or embody the fan culture during an event are therefore a major part of the stimulus creating the atmosphere in the stadium (Tombs & McColl-Kennedy, 2003). Being a member of the fan culture in turn is a contextual factor that supports fans' positive affective evaluation of the stadium environment. Membership of a fan community and identification with a favorite team are objects of evaluation in themselves, and they form the basis of a fan's emotional attachment to a particular team. These contextual aspects can influence a person's emotional experience of the environment but they should be distinguished from the conceptual content of stadium atmosphere. Given the importance of fan behavior for the creation of stadium atmosphere, future research should tackle the topic of how a fan culture can be created and shaped by a sport team.

The second dimension, stimuli relating to the architecture of the stadium, includes the direct proximity of the grandstands and bleachers to the field. This not only ensures that spectators have a good view of the game, but also makes them feel that they are an integral part of the action, thereby triggering affective responses of arousal and pleasure. Another important aspect of stadium design is the special acoustics, which make the sound in the stadium echo like in a covered hall. This should be taken into account when the stadium is first built, or during later redesigns.

The third dimension, stimuli elicited by the organizers, includes having an enthusiastic stadium announcer and playing the club's anthem at games. This dimension plays a crucial role in generating the special atmosphere found in sport stadiums.

The final dimension, stimuli caused by the action of the game, is another important element in the stadium environment. The action of the game provides suspense, thereby causing a response of arousal in the spectators. Further stimulation comes from players showing team spirit and a strong desire to win. Creating a good stadium atmosphere is therefore also a function of the players, and this is something of which the club management should make the players aware.

The proximal antecedents of the construct of sport stadium atmosphere consist of various stimuli that most likely interact to create the characteristic atmosphere in sport stadiums. According to Mehrabian and Russell's (1974) model, this atmosphere is directly reflected in the affective responses of spectators. The two emotional dimensions of arousal and pleasure describe how sport spectators respond to the physical and social sportscape. Affective combinations of great arousal and pleasure that we can describe verbally in terms of excitement or enthusiasm were found to be typical affective responses to the stadium environment.

Previous conceptual and empirical work in the area of atmosphere suffers from a number of shortcomings. In particular, earlier work tends to neglect social and contextual environmental factors, to focus on individual elements of the environment, and to provide only a vague or inconsistent conceptualization of the construct of atmosphere. The current study overcomes these limitations, as we outline below.

In terms of social and contextual environmental factors, the delphi study we carried out provides empirical support for the notion that the influence of places of consumption on consumers rests on more than just the physical characteristics of the environment–an idea repeatedly advanced in conceptual papers (Baker, 1987; Tombs & McColl-Kennedy, 2003; Turley & Milliman, 2000). In addition to the inanimate aspects of the service environment, our model includes various social interactive elements. Consistent with our expectations, the role of environmental variables relating to the mere presence and the behavior of other consumers is particularly important in the context of team sport events. The 15 formative measures identified reveal that social interactive factors are the key constituents of a preferential stadium atmosphere. Consequently, the experience of a special atmosphere in a sport stadium primarily emerges from the group consumption situation, and is only partially driven by physical stimuli. The spectators are therefore both coproducers and recipients of stadium atmosphere.

Given the importance of the social interactive component of the atmosphere in sport stadiums, it is further evident that general atmosphere models should not be applied to the sporting context. As already discussed, existing conceptualizations are often solely based on the Mehrabian and Russell model (Mehrabian & Russell, 1974) and therefore focus too strongly on elements of the physical environmental, while neglecting the relevance of social interactive aspects. Our study of atmosphere in the sporting context highlights the role of social elements and thus broadens previous conceptualizations of atmosphere. Indeed, the case of team sport events shows that interaction with other people may be the major determinant of a consumer's emotional experience at the point of consumption.

Furthermore, the findings of the current study broaden our knowledge of the relevant features of sport consumption settings. The environmental aspects identified here are, to a large extent, ignored in previous sport environment models. As well as more common factors such as accessibility, seat comfort, food, and signage, there are elements specific to sport stadiums that make them a unique place of consumption. The construct of sport stadium atmosphere developed in this study gives due consideration to these elements and so extends our understanding of the influence of place in sport settings.

Another interesting finding is that several important determinants of a preferential stadium atmosphere are associated with negative affect in the majority of other consumption environments. For example, noise has been found to be

problematic in shopping malls and high social density is unwelcomed in restaurants (Hopkins, 1994; Yildirim & Akalin-Baskaya, 2007). By contrast, a noisy crowd and high social density on the stands and bleachers contribute to spectators' positive emotional experience of the stadium environment. The current research thus confirms the importance of taking contextual and situational variables into account in the study of atmosphere, as recommended in previous work (Foxall & Greenley, 1999; Tombs & McColl-Kennedy, 2003). It also supports the recommendations of environmental psychologists to relate environmental evaluations to specific places, with their particular meanings and functions (Craik & Feimer, 1987).

A second limitation of earlier studies is that they tend to focus on a very small portion of the environment or even on a single stimulus. This approach has been criticized (e.g., Harris & Ezeh, 2008) for narrowing down too far the complex configuration of stimuli in many consumption environments. This issue applies in particular to the investigation of atmosphere in sport stadiums, where a great variety of stimuli contribute to the overall experience. The present study overcomes this problem by identifying and selecting stimuli from an extensive list of environmental elements. In the final version of the mimic measurement model, 15 aspects are included–a relatively large number compared with previous models. In this sense, our study is a response to Kelley and Turley (2001), who encourage research that contributes to a more comprehensive understanding of the atmospheric variables in sport stadiums.

A third limitation of earlier work in the field is that it often provides only a vague or inconsistent conceptualization of atmosphere. We suggest that the characterization of atmosphere should always include both perceptions of the environment and affective responses. This proposition builds on conceptual work in the field of environmental psychology, which contends that a conceptually complete evaluation of place requires a multidimensional taxonomy of environmental stimuli and their corresponding psychological representations (Russell & Ward, 1982). Atmosphere is thus apprehended through people's senses, as proposed by Kotler (1973), but should be defined with reference to the characteristics of the place to which the people's sensations refer.

The current study also offers precise recommendations on how to realize this conceptualization of atmosphere in future empirical studies. We recommend operationalizing any construct of atmosphere with a mixture of formative and reflective indicators. This approach is referred to as a mimic model. The formative components represent direct antecedents of the latent variable, which is directly measured by a set of reflective indicators. One important advantage of this method is that the concept of atmosphere is represented by just one latent variable, which can be related to other constructs.

The mimic measurement model developed in this study makes it possible to carry out empirical studies of atmosphere in the sporting context. Most existing knowledge of atmosphere is based on empirical studies in the retail trade environment, by contrast. The study of stadium atmosphere is also of value to practitioners in the field of sport management, as atmosphere is thought to have a significant effect on spectators' behavior. Findings in the retail context indicate that a good atmosphere is likely to influence short-term behavior. In the context of sport events, this could include the amount of time spent at the stadium after the game and on-site consumption of food, beverages, and merchandising, for example. Thus, stadium atmosphere directly affects how much money spectators spend at the stadium; a matter of critical importance to sport managers.

Stadium atmosphere is also likely to influence long-term internal and behavioral variables. Team sport events can be categorized as atmosphere dominant services (Turley & Fugate, 1992), which means that the experience of the atmosphere is a pivotal factor in the popularity of these events (Bauer et al., 2005; Holt, 1995; Uhrich & Königstorfer, 2009). The significance of stadium atmosphere therefore goes beyond the subliminal influence of consumer behavior at the point of purchase. Indeed, it is a stand alone reason why people visit sport events. Long-term psychological factors such as identification with the team or the image of the club, and behavioral variables such as purchases of season tickets or club membership, can therefore probably be positively influenced by a good stadium atmosphere. Consequently, systematically creating a preferential stadium atmosphere is an important competitive factor, and one of which the organizers of sport events should be aware. The formative antecedents of the construct represent the parameters through which stadium managers can systematically control the atmosphere. Subsequent quantitative studies will reveal the relevance of individual drivers of the construct. This allows us to make specific recommendations as to which of the environmental elements are the most important determinants of spectators' emotional experiences.

Limitations of the Study and Directions for Future Research

An important task for future research will be to validate the proposed mimic model of sport stadium atmosphere. To this end, quantitative data must be collected. The formative and reflective parts of the model must be validated in separate analyses, as different validation techniques and assessment criteria apply to each part. For the reflective part, the psychometric qualities of the scale must be checked using exploratory and/or confirmatory factor analyses. Relevant criteria are the unidimensionality and internal consistency of the scale–both good indications of its validity. Convergent and discriminant validity must also be confirmed. The content validity of the formative part of the measurement model is already, to a large extent, confirmed by the empirical studies presented in this paper. Quantitative evaluation of the formative part entails assessing the indicator relevance, the degree of multicollinearity between the indicators (Diamantopoulos & Winklhofer, 2001), and the degree to which the formative indicators explain the variance of the reflective indicators. The mimic model as a whole should also be evaluated with respect to its nomological validity. For this purpose, the construct's link to related constructs must be investigated in a nomological network, using structural equation modeling techniques.

One important limitation of the research is its focus on professional soccer. It ignores critical elements specific to the servicescapes of other sports. As a result, the formative part of the mimic model may not be generalizable, and the results of the study, although plausible, may not be transferable to other sports. Nevertheless, although the focus on soccer is a limitation of this research, it enabled us to identify specific stimuli for a standardized environmental setting.[4] A broader approach integrating other sports would have increased the number of potentially relevant stimuli, as different sport settings are characterized by different environmental elements. The selection of formative measures would have been highly complex, as only those stimuli could be considered that prevailed across all sports. Furthermore,

the spectators of sports other than soccer may show different emotional responses to particular configurations of environmental stimuli.

Future studies investigating different sports can build on the general conceptualization of atmosphere presented in this study, but should develop specific measurement models that take into account the peculiarities of the sport in question. The proposed approach to measuring atmosphere can also be applied to leisure services other than sport events, such as theme parks, live music concerts, or tourist shopping habitats, as atmosphere is likely to play a similarly dominant role here (Bigné, Andreu, & Gnoth, 2005; Turley & Fugate, 1992; Yüksel, 2007).

The proposed measurement model only captures a fixed and predefined environment-person relationship. The totality of the effects of the stadium environment on the spectator's affective responses is therefore only partially covered by the model. The model does not measure what the atmosphere in stadiums is like, but rather the extent to which a predefined atmosphere prevails in a specific stadium. This does not take into account the fact that different spectator segments may have different emotional reactions to the stimuli in the stadium. In addition to feelings of great arousal and pleasure, there may be other affective states elicited by the stadium environment which are equally desirable for spectators. Investigating the preferred atmosphere of different groups of spectators represents an interesting avenue for future research. It is thought that sport spectators vary in their perceptions, preferences, and evaluations of different atmospheres depending on factors such as how often they attend games, how involved they are, and certain socioeconomic factors.

A further shortcoming of the model is that it does not account for interdependencies between the selected stimuli, although interactions between the stimuli are very likely to occur in the stadium setting. Specific stimuli also probably elicit different affective responses depending on contextual factors. For example, spectator chanting and encouraging announcements by the stadium announcer may elicit negative affective responses from certain spectators when their favorite team is down in the game.

Conclusion

The better our understanding of stadium atmosphere, the more able we are to build stadiums that match spectators' preferences. This is a valuable understanding for the managers of sport events. Our study offers a starting point for future research into the concept of sport stadium atmosphere by exploring the unique factors creating the special atmosphere at sport events, as called for in previous research (Kelley & Turley, 2001). In addition, we develop and validate a mimic model for measuring the construct of sport stadium atmosphere. The model will enable future researchers to investigate empirically the causes and effects of stadium atmosphere.

Notes

As part of the license agreement, every club in the German professional soccer league is obligated to employ a fan commissioner who is responsible for all kinds of issues concerning the fans of the club.

A factor analytic approach was not appropriate here as high correlations between variables were not expected. Rather, the dimensions describe different sources from which the stimuli emanate.

The authors have this information available as they personally conducted the interviews.

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Appendix

Potential Aspects of Stadium Atmosphere Mentioned in the Delphi Survey

Fan Commissioners' Responses	
Chants	Fans of one team are put in the same seating area
Flags	Good game
Banners supported by two poles	Opponent
Drums	Team spirit
Coordinated maneuvers	Feeling of community
Megaphone	Crowd
Whistling	Entertainment
Fans cheering their team on	Rivalry, differentiation from opponent's fans and team
Progress of the game	Team spirit of home team
Chants (not insults to the away team and their fans)	Fans' role as the "twelfth player"
Use of loudspeakers	Tradition
Fireworks after the game	Music
Type of opponent team (derby)	Singing
Score	Events (special events, bands, cheerleaders)
Number of fans	Noise
Club's position in the league tables	Colors (flags, shirts, pictures)
Fans' identification with the club	Stimuli
Fans' attitude to their club	Farewell (acknowledgment) of team after the game
Clapping	Bundesliga (German premier soccer league)
Scoreboard animation (situation-dependent)	Stars
Scores of other games in the league	Opponents' fan culture
Music (situation-dependent)	Media presence
Single set of bleachers	Relevance of game, status, being there is what matters
Roofed stands	Participation, interaction

(continued)

Fan Commissioners' Responses

Standing places in the stands	Big stage
Goals	Emotion, passion
Depending on other events in the city	Spirit of fans
Lead fan with megaphone gets the fans going	Age of fans
Scoreboard	Pregame entertainment with music
Team plays well	Home team's performance
Home team's performance (current score)	Season
Team anthem/music as team walks out onto pitch	The opponent's team
Team's performance gets fans going	Uncertainty of outcome
Mexican wave	Spirit of individuals and groups of fans
A packed stadium	Particular moments during the game
Fans celebrating (after game)	Atmosphere cannot be created artificially
Vibes	Team spirit of home team
Food and drinks	Wrong decision by the referee
Pregame entertainment	Opponent is unfair and aggressive/unsportsmanlike
Entertainment during the game	Results of other matches favorable for the home team
Half-time entertainment	For some fans it's about alcohol
Waving of flags	Friendly stewards
Weather	Set maneuvers/movements by the home team's fans
PA system in stadium	Banners and flags
Club anthems	Size of stadium and capacity used during games
Singing club anthems	Stadium comfort
Victory	Number of fans
Floodlight effects	Flares (now banned)
No advertisements (during the game)	Number of "true" fans
Not excessive police presence	Lots of goals and wins
Entertainment program	Wearing of club scarves
Behavior of police and security personnel	How long it takes to get to away games
General mood in and around the club	Crowding in the bleachers and stands
Home team's performance during the season	Hall effects (roofed stands)
Fans' victory chants (when team plays well)	Unfortunately alcohol
Booing and whistling if home team is playing badly	Loud atmosphere created by as many people in as possible

(continued)

Fan Commissioners' Responses

Cheering to motivate the team (if team is playing averagely)	The fans' level of alcohol consumption probably also makes a difference
Fan-specific behaviors (e.g., all the fans jumping up and down together)	Trouble when going into the stadium (creates a negative atmosphere)
Good general vibe (in modern arenas the atmosphere is not so good)	Behavior of the away team's players (e.g., provocative behavior, delaying tactics, fouls)
Fireworks and smoke bombs create a negative atmosphere	Progress of the game—atmosphere is better if the home team is winning
Influences on the game, e.g., aggressive play, red cards, wrong decisions by referee	Number of away fans—home fans chant louder if the away fans are also vocal
Presence of a lot of fans who are prepared to join in with the chanting	Announcing other games' scores during the match (e.g., those of the home team's main rivals or friends)
Decisions by the referee or linesmen (penalties, yellow cards, red cards, etc.)	Simpler authorization procedure for movement of both home and away fans)
Number of standing places—atmosphere is better if fans are standing up	Stadium announcer warms up the fans (situation-dependent)
Live music before the game—only soccer songs connected with the club	Results of other games announced immediately after the game
Lead fan who can judge the mood of the fans and how the game's going	Fans singing warm-up songs at the beginning of games
City, club and mascot as symbols of a common identity	Authorization of flags, banners (handheld or supported by two poles)
Current performance of home team, e.g., struggle against relegation, promotion, attempt to win championship title	Time of fixture—atmosphere is better at floodlit evening fixtures, maybe also because people drink more on Friday nights and so there's more chanting
General behavior of the home team's players (if the home team shows team spirit the spectators will cheer them on, otherwise they'll boo them)	