Testing the External Validity of Sport Stadium Atmosphere (SSA)

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Kotler (1973) initially coined the term ‘atmosphere’ to describe the surroundings of a place that provides service. Bitner (1990) suggested service atmosphere framework to measure consumers’ holistic experiences in the context of a retail shop. Further, previous research has adopted and developed factors or dimensions aimed at measuring sport stadium atmosphere (Wakefield & Blodgett, 1996, 1999; Wakefield & Sloan, 1995), yet the scales employed have not fully examined the unique features associated with sport stadium atmosphere because the scales focused solely on the stadium environment's physical stimuli.

Still, the influence of sport stadium atmosphere on consumer behavior has been of relatively little interest to researchers. Uhrich and Koenigstorfer (2009) introduced a theoretical concept that suggests that both the physical stimuli within an atmosphere and human perceptions of atmosphere stimuli should be considered along with emotional response. Uhrich and Benkenstein (2010) developed conceptual framework that includes the physical stimuli within an atmosphere, human-approach, and social elements of group consumption. While there is a theoretical soundness, the scale was developed based largely on qualitative procedure. As such, Chen, Lin, and Chiu (2013) developed the SSA scale that included ten factors assessing stadium atmosphere in the context of professional basketball in Taiwan.

However, the problem remains that the SSA conceptual framework may lack external validity. Although, the SSA scale was tested via empirical study regarding a professional basketball league’s games in Taiwan, the generalizability could be limited as the scale has not been validated in other sporting context. In order to test its external validity, the SSA scale needs to be tested in different regions, in different sport contexts, and in different stadium environments (Calder, Phillips, & Tybout, 1982).

The purpose of this study is to examine the external validity of the SSA scale. The current study not only examined the SSA model via a different type of league (i.e., college), different type of sport (i.e., football games), and different region (United States), but it also collected data based on spectator segmentations determine by event admission price to further test the viability of the scale. Brown, Nagel, McEvoy, and Rascher (2004) suggested that spectators’ experiences within the stadium atmosphere might differ based on price of admission at the same stadium for same sport event. Testing of SSA scale on different segmentations in the spectators that attended at the same stadium could enhance the external validity of SSA scale.

The data were collected from two home games of a major college football event using a quota sampling method. Based on the admission price, we developed two segments: (a) student section and (b) non-student section. As a result, a total of 235 were collected. A total of 32 items with ten dimensions were adapted from the SSA scale (i.e. entertainment (4 items), electronic (4 items), facility (3 items), team traditions (3 items), team performance (3 items), spectator passion (3 items), professional staff (3 items), spectators behavior (3 items), team competition (3 items), cheering group (3 items). The items were randomly placed in the questionnaire to avoid the order bias. Confirmatory factor analysis was used to test the external validity of the scale.

The results showed that the SSA dimensions’ model fit was not acceptable in the context of the current study. Specifically, the normed chi-square (2.89) was under the cut-off value (i.e. <3.0). However, the values of RMSEA (.09) showed that the model fit was not acceptable (i.e. <.08). The value of CFI (.72) was also not acceptable (i.e. >.90). The CFA results of the separate two groups based on admission price were also not of acceptable fit. For the both groups, the normed chi-square (student section = 2.33; non-student section = 2.44) were acceptable. However, the values of RMSEA (student section = .12; non-student section = .10) indicated that the value was not adequate. The both groups’ CFI values (student section = .65; non-student section = .65) were not acceptable (i.e. >.90).
An explanation for these results might have to do with the context of this study. For instance, the characteristics of a college sport context might be very different than those associated with a professional sport context. The types of sport also might serve to explain the results because different sport spectators may have different needs (Quick, 2000). The results indicated that the SSA scale might be a useful to measure stadium atmosphere in specific context (i.e., Taiwan basketball), but might not an effective scale in assessing venue atmosphere of college football event in United States, showing a lack of external validity.

A criterion of a good theory is that a model/scale/index should work in more diverse context. Thus, refining the SSA scale by incorporating such procedures as (a) identifying theory-driven factors, applying rigorous qualitative and quantities content validity test (Wynd, Schmidt, & Schaefer, 2003), using advanced interdependence analyses of exploratory factor analysis, confirmatory factor analysis, multi-group analysis, and item response theory (Girron, 2013; Devellis, 2016).