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“Green Hoops” a Hit, or Miss? An Examination of Eco-Sustainability of NBA Arenas as an Attendance Motivator for Fans

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**“Green Hoops” a Hit, or Miss? An Examination of Eco-Sustainability
of NBA Arenas as an Attendance Motivator for Fans**

ABSTRACT

This paper examines the relationships between 252 NBA fans in the Southwest region of the United States, their attitudes and feelings towards eco-sustainable travel practices, and environmental protection initiatives of NBA arenas. While tourists may indicate they are environmentally-conscious in their personal lives, research scrutinizing the extent to which these habits are applied during travel will be valuable to businesses seeking to identify themselves as eco-sustainable. Furthermore, this study will help to ascertain whether tourists seek out environmentally-friendly hotels and restaurants, or whether these entities are viewed as simply a convenience while traveling.

Keywords: *Eco-Sustainability, Sports Tourism, Environmental Preservation, NBA, Resource Consumption, Recycling, Tourist Behavior*

A growing phenomenon in the tourism industry is the field of sports tourism (Gibson, 2004; Hinch & Higham, 2001; Kurtzman & Zauhar, 2003). As the number of teams at both the professional and collegiate levels has grown, many host cities are recognizing substantial economic impacts through sports tourism. Sports tourism had an estimated \$51 billion earnings in 2003 (Biddiscombe, 2006). Further research found that sports tourism accounts for almost “32% of overall tourism industry receipts” (Kurtzman, 2005, p. 50). In 2008 “international tourism receipts grew to U.S. \$944 billion,” (United Nations World Tourism Organization, 2009, p. 3) which, based on Kurtzman’s findings, equates to over \$300 billion dollars of sports tourism revenue.

In today’s society, there is increasing societal interest in environmental awareness, and travelers have begun to recognize the impact their activities place on the resources of destinations (Tixier, 2009). As environmental issues are brought to the forefront of the public’s attention, many businesses are adopting environmentally sustainable programs designed to conserve natural resources, and improve their public image (Chan, 2008). Professional sports arenas have taken notice of the importance of eco-sustainability. Venues such as the American Airlines Arena, Philips Arena, and the Toyota Center have all recently achieved LEED certification from the U.S. Green Building Council (Brinkmann, 2009; Koch, 2010). Another example is the Washington Nationals Park, located in Washington, D.C., which implemented initiatives to reduce water consumption by over 3 million gallons per year (Major League Baseball, 2010).

According to the U.S. Travel Association, over 75% of adults in the U.S. believe they are eco-conscious (U.S. Travel Association, 2010). However, this same study, in addition to research conducted by Travelzoo.com and the U.N. Department of Economic and Social Affairs, revealed

consumers have difficulty finding affordable eco-friendly hotels, and are often unwilling to pay extra for green accommodations (U.S. Travel Association, 2010; U.N. Department of Economic and Social Affairs, 1999). Conversely, Mambo Sprouts Marketing, a leader in green product marketing, found up to 60% of tourists are motivated to pursue eco-friendly products and services related to travel (Mambo Sprouts Marketing, 2007). Data exemplifies eco-conscious travelers in the U.S. are “willing to spend, on average, 8.5% more for travel” on environmentally sustainable tourism operators (Wright, 2001). Similar results indicate nearly 40% of respondents to a TripAdvisor eco-sustainability survey would be willing to pay an additional premium to stay at an eco-sustainable property (Hotel-Online, 2006). Analysis of the sports tourism segment may distill such oppositional discourse and create a useful tool for further examination of the realm of athletic consumer travel.

Problem Statement

Based upon extant literature, it is postulated sports tourists switch roles while traveling and external motivators influence their decisions to attend sporting events. However, sports tourism encompasses many levels of motivation, from *casual fans* to those considered *die hard* (Hall, O’Mahony, & Vieceli, 2010, p. 329). This aspect of sports tourists creates the necessity for research, as it will be valuable knowledge for NBA arenas to ascertain whether fans are solely motivated to attend games based on a team’s performance, or if eco-sustainability initiatives influence their decision to frequent these venues. Growing consumer awareness of eco-sustainability measures in the hospitality industry merits examination into the preferences of sports tourists.

Minimal research based data exists which pertains specifically to NBA arenas’ consumption patterns. For this study, convention center statistics serve as fair comparison to

sports event facilities due to their commonalities in hosting numerous events with several thousand attendees. Available data on convention centers provides insight into resource consumption patterns. For example, the Colorado Convention Center, located in Denver, produced nearly 1,200 tons of waste in 2008 (Denver, 2009). Single events at sizeable convention centers generate up to 16 tons of waste for events which only last a few days (Metro Toronto Convention Center, 2007). On an annual basis the amount of solid waste generated may approach closer to 4 million pounds (San Diego Convention Center, 2008). These figures justify the need for examining eco-sustainability practices because fans who are concerned about the environment may be dissuaded from attending an NBA game if the negative environmental implications outweigh the positive personal benefits.

Purpose of This Study

Sporting events exert a major economic impact upon their host cities. With eco-sustainability developing a solid stance within the tourism industry, research intended to determine the importance fans place upon the eco-sustainability measures of NBA arenas, and whether these initiatives can generate demand for arena attendance, is a significant focal segment. This study, focusing upon the Southwestern United States, aims to determine the extent of consumer interest regarding NBA arena sustainability, as well as whether the consumers themselves are concerned with environmental protection, preservation and conservation, in both everyday life and in their travels to NBA games.

Methodology

The objectives of this study are: (1) measure consumers' awareness of and concern for environmental protection and preservation; (2) determine whether consumers partake in eco-sustainable practices while traveling for pleasure; (3) determine motivations and travel habits of

fans who travel to watch NBA games; (4) determine whether consumers deem recycling to be important and what external factors could influence a higher participation rate for recycling programs; and (5) measure consumers' views on current NBA eco-sustainability measures.

Sample

Due to the exploratory nature of this study, this research utilized purposive sampling. Purposive sampling involves random selection of respondents in a particular group within the population of interest (Guarte & Barrios, 2006). Purposive sampling was selected with the understanding that it is not representative of a general population. As the research aimed to identify the behaviors, attitudes, and motivations of sports tourists, professional level basketball teams' fans were identified as being representative of the intended population. The subjects for this study consisted of self-indicated NBA fans residing in seven predetermined cities. Residents of Dallas, Houston, San Antonio, Salt Lake City, Oklahoma City, Denver, and Phoenix were targeted due to their relative proximity to one another. Each city was evenly represented in terms of the number of responses. This sample was chosen as it is indicative of NBA fans which live in the southwestern region of the United States.

Data Collection & Analysis

This study utilized a survey distributed via Qualtrics Labs. The survey contained 72 questions, of which 61 pertained to eco-sustainability practices. Questions concentrated on aspects of environmental preservation, protection, and concern. Additionally, respondents were presented with topics regarding current NBA eco-sustainability performance, their personal motivations for eco-sustainability, and travel motivations. The remaining 11 questions asked demographic information.

After extensive examination of extant literature, existing constructs, and scales of measurement in previous studies, it was determined the most appropriate scale of measurement for this study was a Likert-type scale for the majority of questions. This study was exploratory and quantitative in nature. Thus, providing respondents with answer choices which carry numerical significance was imperative for determining results. For questions pertaining to environmental preservation, eco-sustainable travel habits, recycling behavior and attitudes, environmental concern, and eco-sustainability measures, a 7-point Likert-type scale was used. The measurements for the Likert-type scale ranged from 1 = Strongly Disagree to 7 = Strongly Agree. Demographic questions were categorical or dichotomous in nature.

Questions were formulated to address seven aspects pertaining to eco-sustainability and sports tourism: *environmental preservation, eco-sustainability motivations, travel habits/motivations for travel, recycling, environmental concern, NBA eco-sustainability, and environmental protection*. Questions were grounded in literature addressing the seven topics described above. Previous research which focused on eco-tourism and eco-sustainability issues within the hospitality industry (Barnes, 1996; Goodwin & Francis, 2003; Rees, 2003; Wallace & Russell, 2004) served as development models for questions regarding environmental preservation, protection, concern, and recycling. Studies conducted in sporting industry research publications (Collins & Flynn, 2008; Gibson & Yiannakis, 2002; McCartney, 2005) provided a foundation for queries pertaining to travel habits/motivations for travel, and guidance for questions which addressed NBA arenas current eco-sustainability initiatives. Data analysis incorporated statistical examination including Importance Performance Analysis (IPA), and mean variable calculation for demographic questions.

Results

A total of 252 usable surveys were collected during a two week period. All respondents had attended an NBA game within the previous twelve months, as determined by a filter question in order to guarantee a sample consisting of spectators with recent NBA arena experience. Importance Performance Analysis (IPA), and mean variable calculation for demographic questions was carried out utilizing PASW 18, which also allows for the testing of reliability and validity, which are measured utilizing Cronbach's Alpha. Reliability testing alpha coefficients ranged from .790 to .947, indicating an internally consistent and reliable survey instrument (Santos, 1999). The sample was evaluated for missing data, and no question contained more than 5% of missing data. Thus, no inquiries were dropped as response rates are high enough to be considered significant.

Table 1 provides demographic information related to age, ethnicity, education, and income of respondents. A preponderance of participants (70.2%) fell between the ages of 18 and 45 years of age, with 26-35 year olds representing 29.3% and 36-45 year olds made up 27.8% of the sample. The sample was comprised of 132 males (54.8%) and 109 females (45.2%), with 11 respondents failing to indicate their gender. The difference in response rate between genders was narrower than anticipated considering the survey topic. Marital status results indicated 149 respondents were married (60.1%), 81 were single (32.6%), and 18 provided the answer of other (7.3%) as their matrimonial categorization.

Individuals within the study were predominantly Caucasian ($n = 195$), with other ethnicities accounting for 22.6% of the sample. Commonalities existed pertaining to education and income. Eighty-three persons (32.9%) stated they had a bachelor's degree, with an additional 96 subjects (38.1%), maintained an education level which included some college.

Table 1
 Respondents' Demographic Information (N = 252)

Variable	Frequency	Percent
Age		
18-25	33	13.1
26-35	74	29.3
36-45	70	27.8
46-55	43	17.1
56+	32	12.7
Gender (N=241)		
Male	132	54.8
Female	109	45.2
Marital Status (N=248)		
Single	81	32.6
Married	149	60.1
Other	18	7.3
Education		
Beyond Masters Degree	11	4.4
Some Masters Coursework	9	3.6
Masters Degree	20	7.9
Bachelors Degree	83	32.9
Some College	96	38.1
High School Graduate	29	11.5
Some High School	1	.4
Annual Income		
Less than \$24,999	32	12.7
\$25,000 - \$49,999	72	28.6
\$50,000 - \$74,999	53	21.0
\$75,000 - \$99,999	45	17.9
\$100,000 - \$124,999	22	8.7
Greater than \$125,000	28	11.1

Research Findings

A series of 14 questions were presented to the sample requiring them to rate NBA arenas' current performance on eco-sustainability issues. Identical questions were then presented, asking respondents to rate the importance of these topics on a personal level. This type of questioning allowed for the use of an Importance Performance Analysis (IPA). Means for *performance* based questions serve as X variables on a Cartesian coordinate plane, while *importance* means serve as

Y variables. Table 2 displays the questions and mean scores associated with performance and importance.

Table 2

Importance Performance Analysis of NBA Arenas Eco-Sustainability Measures

Category	Performance Mean (X)	Importance Mean (Y)
1. Recycling programs	4.41	5.36
2. Efforts to reduce water consumption	4.22	5.28
3. Offering discounts on food or merchandise as a reward for recycling	3.31	5.35
4. Offering discounted rates on public transportation when you show a valid game ticket	3.73	5.32
5. Utilizing landscaping other than grass to conserve water	4.65	5.19
6. Availability of recycling bins	4.49	5.64
7. Availability of motion sensor activated appliances (examples: restroom lights, sinks, paper towel dispensers, auto flush toilets)	4.78	5.35
8. Availability of organic concession items	3.38	4.36
9. Availability of waterless hand sanitation stations	4.06	5.15
10. Utilizing ticket-less entry (example: swipe a credit card to gain entry)	3.68	4.89
11. Use of re-usable utensils	3.28	4.27
12. Use of recycled materials (examples: cups or napkins which claim to be from recycled materials)	4.16	5.21
13. Paper cups instead of plastic cups	4.10	5.07
14. Plastic souvenir cups which can be taken home and re-used	5.20	5.46

Note. Scores based on 7-point Likert-type scale with 1 = Strongly Disagree to 7 = Strongly Agree

Once mean scores were calculated for individual importance and performance questions, an overall mean score was determined for each category (X, Y). In this case, the mean score for the performance (X) was 4.10. The importance category (Y) scored an overall mean of 5.14. These overall mean scores serve as the X and Y axis for the Cartesian plane. The responses from each question were then graphed accordingly in relation to the new X and Y axis. For example, question 1, *Recycling programs*, demonstrated X and Y values of 4.41 and 5.36, respectively.

Thus, based upon the X axis of 4.10 and Y axis of 5.14, *Recycling programs* is plotted in Quadrant I. Figure 1 exhibits the results of the importance and performance measures and plots each category on the IPA.

Results demonstrate half of IPA topics fall into the quadrant which signifies High Importance/High Performance. These results indicate customers are concerned with these sustainable practices and believe venues are adequately addressing this issue. Statements which elicited scores in the High Importance/High Performance quadrant include: *recycling programs* (1), *reducing water consumption* (2), *utilization of landscaping other than grass* (5), *availability of recycling bins* (6), *motion sensor activated appliances* (7), *use of recycled materials* (12), and *plastic souvenir cups* (14). Responses demonstrate consumers preference for these categories and indicate arenas are performing to survey takers' expectations.

The sample identified the use of re-usable utensils (11), availability of organic concession items (8), and the utilization of ticketless entry (10) at NBA arenas as having little personal significance. Two variables: offering discounts as a reward for recycling (3) and discounted rates on public transportation (4), exhibited responses which indicate higher levels of personal importance with low performance grades for current arenas. The desire for incentive based recycling programs has the propensity to lead to higher recycling rates at these venues if such initiatives are undertaken. Offering discounts on public transportation for fans with a game ticket may encourage the use of public transportation, thus easing the environmental impact and traffic burden surrounding arenas during games.

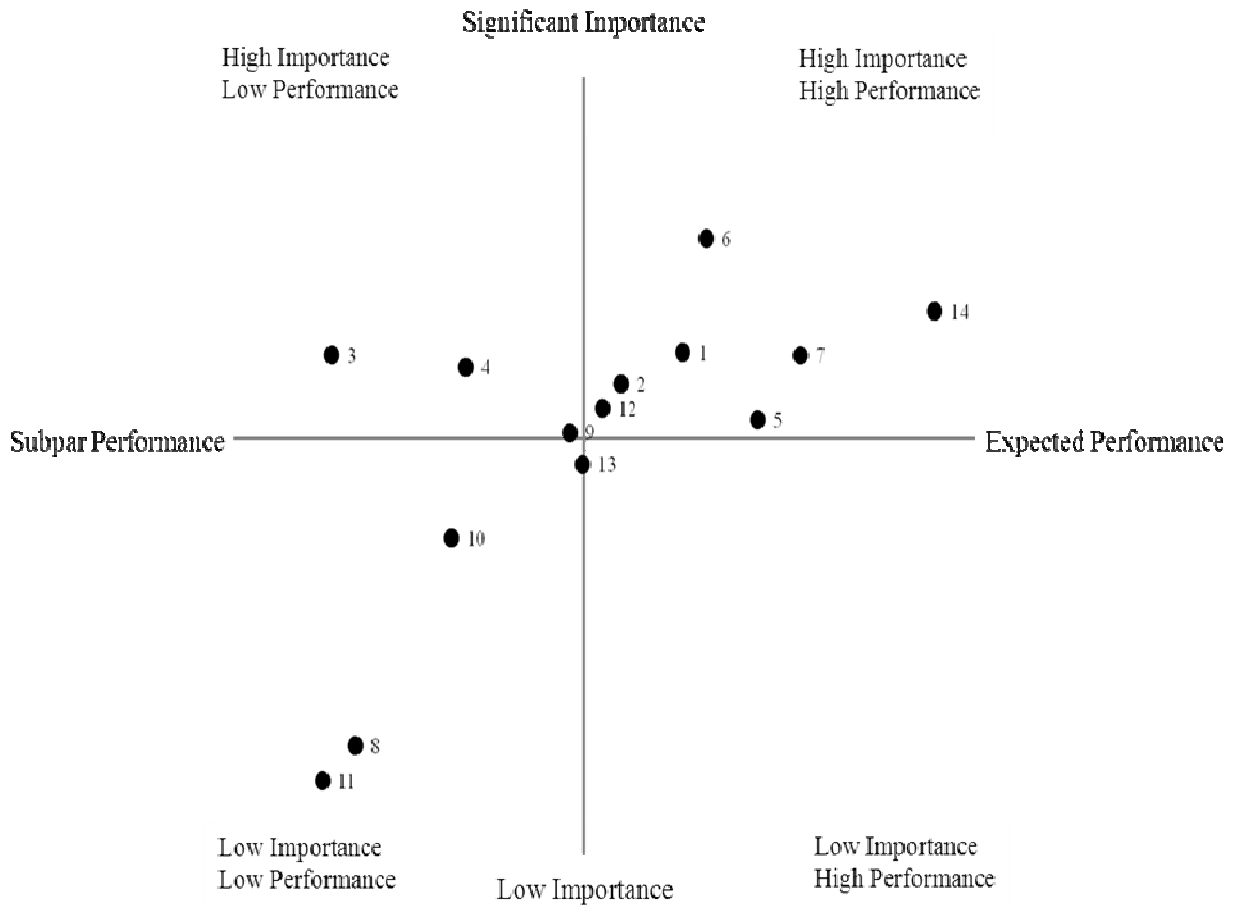


Figure 1. Results from Importance Performance Analysis displayed in their respective quadrants. This figure aids in conveying the correlation between respondents' feelings towards performance and personal importance of eco-sustainability issues pertaining to NBA arenas. The scores in this figure relate to the following categories from Table 2: (1) recycling, (2) water consumption, (3) discounts for recycling, (4) discounted public transportation, (5) landscaping, (6) recycling bins, (7) motion sensor activated appliances, (8) organic concession, (9) waterless sanitation, (10) ticket-less, (11) re-usable utensils, (12) recycled materials, (13) paper cups, (14) souvenir cups.

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Discussion

Analysis from the IPA determined the *use of recycled materials* and the *availability of organic concession items* at NBA arenas indicate low importance to respondents. Food and beverage operations of NBA venues may find this information valuable when evaluating eco-sustainable initiatives which will prove beneficial as operations managers avoid focusing on these two areas. Individuals indicated seven areas of *high importance* and *high performance* through the IPA. *High performance* and *importance* scores demonstrated arenas are meeting or exceeding customer expectations pertaining to issues such as *plastic souvenir cups*, *utilization of landscaping other than grass*, and *availability of motion sensor activated appliances*. These high ratings may be of significant importance to arenas, as they indicate areas where the venue is performing particularly well. Managers may find it beneficial to identify why customers are satisfied with the performance in these specific areas and adopt these best practices to other segments of the operation.

The IPA demonstrated fans desire an incentive based recycling program. Implementing such an initiative may result in higher recycling rates at NBA arenas, and would provide financial benefits to the venue while preserving the environment. Respondents indicated a desire for more convenient placement of recycling bins, thus, managers should identify high foot traffic areas of arenas and provide ample containers for recyclable products. NBA arenas may consider establishing programs with local public transportation sources which allow passengers showing a

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valid game ticket to utilize the service at a reduced cost. This has the propensity to reduce traffic congestion around stadiums, allowing for easier access to the venue for all attendees.

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