THE RECYCLING INTENTIONS OF SPORT SPECTATORS:

A THEORY OF PLANNED BEHAVIOR APPROACH

A Dissertation

by

BRIAN PATRICK MCCULLOUGH

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2011

Major Subject: Kinesiology

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Chair of Committee,	George B. Cunningham
Committee Members,	John N. Singer
	Gregg Bennett
	Ben Welch
Head of Department,	Richard Kreider

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ABSTRACT

Recycling Intentions of Sport Spectators: A Theory of Planned Behavior Approach.

(May 2011)

Brian Patrick McCullough, B.S., Ithaca College; M.S., Texas A&M University

Chair of Advisory Committee: Dr. George B. Cunningham

Sport organizations have a negative impact on the environment but these organizations have begun environmental initiatives to decrease their impact. Introducing recycling programs not only offers visible environmental effort to decrease the organization's impact but such programs can provide financial savings for the organization. Thus, my dissertation's purpose is to understand the recycling intentions of sport spectators by the means of three studies theoretically framed using the theory of planned behavior.

Study 1 examined the recycling intentions of individuals after consuming plastic water bottles within a campus environment. Participants were undergraduate students (N = 144) enrolled in physical activity classes at a southwestern university in the United States (males n=83, 57.6%, females n=60, 41.7%; mostly White n=96, 66.7%; age M=19.6, SD=1.33). The results indicate that subjective norms ($\beta = .29$, $p < .001$) and attitudes ($\beta = .14$, $p < .05$) towards recycling significantly predicted intentions to recycle plastic bottles after consumption.

Study 2 analyzed the recycling intentions within a sport context. Participants (*N*=129) were adult spectators attending a weekend long youth baseball tournament in the Southwest United States (women *n*=85, 65.9%, men *n*=40, 31.0%; predominately White *n*=97, 75.2%; age *M*=44.47 years, *SD*=10.20). Similar to Study 1, subjective norms ($\beta = .27$, $p < .01$) significantly predicted intentions to recycle. However, unlike Study 1, perceived behavioral controls ($\beta = .21$, $p < .05$) were significant in predicting intentions to recycle.

Lastly, Study 3 augmented my investigation to understand the unique context of recycling intentions among sport spectators. I used qualitative research methods to understand recycling intentions of spectators during a large scale-sporting event. Participants (*N*=16) were adults that regularly attend college football games at a large southwestern university (men *n*=10, women *n*=6; age *M*=37.44). The results indicate that recycling within a sport context is unique considering the game day atmosphere.

Collectively, the findings from the three studies are discussed as to influence decision-making policies within sport organizations to improve recycling programs and to decrease the organization's negative environmental impact. Finally, recommendations are made for future research to understand recycling behaviors of sport spectators.

For my parents, Patrick and Mary McCullough

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and my light heartedness. Without you the process would not have been the same or as entertaining. Thank you.

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CHAPTER I

INTRODUCTION

Throughout this chapter, I will introduce the pervasiveness of waste produced by the American consumer-driven economy. This will lay the groundwork to understanding the environmental impact of service organizations, more specifically the sporting industry. A brief introduction will be provided exploring the response of corporate American to the public outcry to be environmentally friendly. Lastly, the responses and challenges that the sport industry has faced with decreasing their environmental impact through the initiation of environmentally sustainability programs will be discussed.

> [H]ouseholds and cities have become open systems rather than closed ones over the course of the twentieth century. Just as the table scraps once fed the chickens and Dad's torn trousers provided the material for Junior's new ones, so cities, too, were once systems that incorporated ragpickers and scavengers to process the detritus of others. In this respect they resembled sustainable biological ecosystems, which are general closed, or cyclical. Waste to one part of the system acts as resources to another … Industrialization broke the cycle. In an industrial system, the flow is one way: material and energy are extracted from the earth and converted by labor and capital to industrial products and byproducts,

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This dissertation follows the style of the *Journal of Sport Management.*

> which are sold, and into waste, which is returned to the ecosystem but does not nourish it. (Strasser, 1999 p. 14-15)

As illustrated by the opening quotation, American culture had shifted from its self-sustaining, self-sufficient way of life seen in the early half of the 1900s to become an industrialized and consumer-driven marketplace in the post World War II economy. Strasser goes on to explain how the consumerism of the American public in the post World War II era led to extreme consumption and waste. As a result of this heightened consumption, there were extreme amounts of waste be cycled back into the ecosystem. But unlike previous eras, the used materials make their way back to the ecosystem, whether through littering, pollution, or landfills, thereby threatening the ecosystem. These materials were manufactured products, oftentimes chemically engineered, that would take centuries to break down under the earth's soil.

To combat the excessive pollution and littering of waste, from 1950 to the 1960s, Americans changed their attitude towards public trash as part of a growing environmental movement. This was the first resurgence of environmental movements since the late 1920s (Blumberg & Gottlieb, 1989). A national campaign was launched to initiate public trash receptacles to cut down on the litter across municipalities and public areas. These receptacles came as part of a city beautification movement to decrease the visible impact of citizens on the surrounding environment (Blumberg & Gottlieb). Despite the good intentions at decreasing litter and the overall benefits to such a beautification process, non-biodegradable materials were thrown away with other biodegradable materials. As a result, these non-biodegradable materials, like aluminum,

glass and plastics, were commonly found in American landfills and the detrimental reminisce can still be found today (American Chemistry Council, 2010).

As the momentum of environmental movements increased, recycling programs began to develop across the United States. These programs were motivated through the over-consumption of American society and its over-dependences on raw and natural resources (i.e., lumber, minerals, fuel, and water). Curbside recycling programs had tremendous growth from 1988 to 1995, increasing five fold (Lousbury, Ventresca, & Hirsch, 2003). Despite the understanding of such programs and research studies conducted to increase recovery rates of recyclable materials, these non-biodegradable materials still end up in landfills. Recovery rates for aluminum and plastic containers have leveled off and remain at concerning levels, close to 50% and 25% respectively (Consumer Reports, n.d.).

The importance of recycling is highlighted by the fact that many products take years to decompose, if they do at all. Materials like glass will never decompose or biodegrade. Depending on the complexity of certain plastics, it can take nearly 1,000 years for plastics to decompose (California Department of Conservation, 1997). But even after they decompose, the chemicals that are used to create plastics present a threat to the integrity of the environment, soil integrity, and surrounding water tables (Hirshfeld, Vesilind & Pas, 1992; El-Fadel, Findkakis & Leckie, 1997). As such, some of the largest consumers and producers of municipal waste, corporate America, have been the focus of decreasing their impact on the environment by citizens and environmental groups.

Corporate greening has come under further focus within corporate America and academic research. The global warming movement has brought the most recent resurgence of the environmental movement into the new millennium. Organizations have examined ways to market and sell products that are labeled as being environmentally friendly, while others have gone further to decrease the environmental impact of their production product process and other business practices. This process has been coined as *corporate greening* or "the process by which companies can become more environmentally responsible in their operations" (Schaefer & Harvey, 1998 pp. 109).

In efforts to become better environmental stewards, American corporations have begun evaluating their environmental impacts to meet the demands of institutional pressures (McCullough & Cunningham, 2010). Such programs include, product life cycle analysis (Curran, 1996), environmental management systems (Margulio, 1991), and environmental reviews and audits (Gray, Bebbington, & Walkter, 1993; see also Garrod & Chadwick, 1996). Academic research has extensively covered the change processes (Gilley, Worrell, Davidson, & El-Jelly, 2000; McCullough & Cunningham, 2010), stakeholder expectations (Fineman & Clarke, 2007), and attraction to organizations that initiate sustainable business practices (Turban & Greening, 1996). Research also has made recommendations complementing popular practitioner greening processes (Shrivastava, 1995).

The emphasis on green management is also seen within the sporting industry. Much like other industries, both service and non-service orientated, sport organizations

are becoming more aware of their environmental impacts or at the very least their environmental reputations among consumers and within the public sector. These reputations are important to maintain because a polluted environmental reputation can potentially result in the loss customers, business relationships, or even worse being accused of green washing like the 2000 Summer Olympic Games in Sydney (Lesjø 2000).

Service industries, like the sporting industry, their product is intangible (Wright, 1995). Normal environmental assessments and environmental impact reports cannot be directly applied to an intangible product. Seemingly, one could evaluate the life cycle (Curran, 1996) of a ticket to an event and the subsequent environmental implications the holder of that ticket has from purchase to disposal. However, within the sport management field, organizations are becoming more aware of their environmental initiatives and the effect those programs may have on their fans and organizational reputation.

Furthering the difference between sport organizations and non-sport organizations revolves around the amount of spectators that attend a sporting event. The actual event has an environmental impact, whether 200 or 200,000 spectators attend. Considering this, when attendance increases, the environmental impact of the event increases as well. That is, the environmental impact of transportation, tailgating, concessions, using of restroom facilities, and waste disposal is intensified with increases in attendance beyond the event itself. As a result, sport organizations have become aware of their environmental impacts (United Nations Environmental Programme, 2008)

and can approach these impacts from a public relations or an economic savings perspective (McCullough & Cunningham, 2010).

To decrease their impact on the environment and to capitalize on the "going green" movement, sport organizations have engaged and initiated environmental sustainability programs. Professional teams such as the Seattle Mariners and Philadelphia Eagles have been the most visible teams in developing sustainable business practices (King, 2008). Through these programs, these teams try to capitalize on their investment in environmental initiatives to attract and strengthen relationships with the surrounding community and among fans (McCullough & Cunningham, 2010).

Further, these environmental initiatives can save sport organizations money. For example, the San Francisco Giants arguably are located in one of the most environmentally conscientious areas of the country. In 2004, the organization implemented a recycling and composting program that saved the organization over $100,000 (Environmental Protection Agency, 2010). The money saved was from filling fewer solid waste dumpsters that are destined for the landfill. By decreasing their solid waste through composting and recycling, the organization filled up fewer solid waste dumpsters during games at AT&T Ballpark. Despite these savings, there is still more potential for cost savings by increasing the recovery rates of recyclable materials consumed within the stadium and lessening the amount of solid waste being sent to the landfill.

In response to these attitudes and societal pressures to be environmentally friendly, sport organizations have established in stadium recycling programs. A

potential downside of these programs is the reliance of the organization on their spectators to recycle and increase the recovery rates of recyclable materials. For instance, if a spectator disposes of recycling improperly, that in turn increases the organization's impact on the environment and solid waste costs (Environmental Protection Agency, 2010). However, the higher recovery rates of recyclable materials can decrease the organization's environmental impact by depositing less waste into landfills. To increase the recovery rates of recyclable materials the value-action gap (Blake, 1999) needs to be closed. That is, the positive attitudes that citizens have towards the environment need to be translated into environmentally friendly behaviors (i.e., in stadium recycling programs).

If recyclable material is put in perspective with relation to the size of the event and attendance, there is tremendous potential to further reduce the impact on the environment and the costs to the organization by diverting recyclable material from the surrounding landfills. By understanding the recycling behavior of sport spectators, a sport organization can help save the environment while also saving money.

From this background and understanding, it is important to understand sport spectator recycling behaviors to increase recovery rates during sporting events. This insight will not only decrease their impact on the surrounding landfills but also provide economic savings for the sport organization. In this dissertation, I use the theory of planned behavior (Ajzen, 1985, 1991) to understand the recycling behaviors of sport spectators. The theory of planned behavior can lend well to understanding behaviors with incomplete volitional control (i.e., behaviors that have obstacles and challenges to

successfully complete) like recycling. This theoretical framework provides insights to influences and obstacles that can encourage or prevent sport spectators to recycle during sporting events. By using this framework the theory can help identify and eventually encourage an increase in sport spectator recycling behaviors.

Organization of the Dissertation

Throughout the remainder of this dissertation, I provide two quantitative studies using the theory of planned behavior to understand recycling intentions among college student (Chapter II) and among adult spectators during a youth baseball tournament (Chapter III) in my first and second studies, respectively. Additionally, in Chapter IV, I use qualitative methodology in the dissertation's third study to understanding the recycling behaviors of sport spectators during a southwestern university's home football games. In Chapter V, I provide a general discussion of Chapters II, III, and IV, provide implications from these studies, identify potential limitations to the research, and draw conclusions from the research. Appendix I provides a literature review of the impact of sport on the environment and a summary of the environmental initiatives made by sport organizations, including in-stadium recycling programs. Lastly, Appendix I includes a theoretical framework from the theory of planned behavior (Ajzen, 1985; 1991) and its application to environmentally friendly behaviors, including recycling behaviors.

CHAPTER II

CLOSING THE LOOP: RECYCLING ON CAMPUS AFTER CONSUMPTION

With increased focus on global warming (Union of Concerned Scientists, 2009), there has been an influx of programs to decrease the impact on our natural environment. These programs consist of reducing carbon emissions, protecting natural landscapes, reusing of natural resources, and recycling programs. This social movement to protect the environment has expanded into many industries within the United States, including household recycling (Oskamp, Harrington, Edwards, Sherwood, Okuda & Swanson, 1991) and on-campus sustainability programs (Pike, Shannon, Lawrimore, McGee, Taylor, Lamoreaux, 2003). These on-campus programs include environmentally conscience construction of building and facilities, upgrading HVAC systems that consume less energy, and recycling programs to decrease solid waste that ends up in landfills (Carlson, 2008).

One factor that has a particularly detrimental impact on global warming is solid waste disposal. The impact of solid waste on the United State's landfills is astronomical, consisting of 745.05 million pounds of waste per day, nearly 2.5 pounds per capita (Environmental Protection Agency, 2007). Once deposited into a landfill, synthetic materials take years and even centuries to completely biodegrade. Even after these materials biodegrade, chemicals and other natural, yet harmful, elements can threaten the environment. The damage of these materials can affect the soil, surrounding

communities, and even water table (El-Fadel, Findkakis & Leckie, 1997). One way to reduce the impact on the nation's landfills is to recycle.

America's waste management issues first got national attention with the Solid Waste Disposal Act, which was passed by Congress in 1965. The Act served as a springboard to initiate research programs to help states and municipalities with their waste disposal systems. Additionally, with the initiation of the first Earth Day in 1970, recycling came to the American public's attention. In that same year, Congress passed the Recourse Recovery Act, a mandate "that changed the government's focus from waste disposal to recycling, resource recovery, and conversion of waste into energy" (California Department of Conservation, 1997, no page). A noteworthy result of this act was a renewed focus on recycling paper and aluminum products. However, recycling of plastic products did not begin until the late 1980s.

Depending on the complexity of the molecular bonds of the plastic, certain plastics could take as long as 1,000 years to decompose. Newer plastics have been created that claim to decompose after three months and some up to ten years (California Department of Conservation, 1997). Fortunately, recycling of plastic products has remained high (Environmental Protection Agency, 2007). Recycling plastic products saves energy, because the energy (70% from natural gas) needed to initially create plastics has a larger environmental impact than recreating plastics from recovered plastic. In 2006, the energy wasted by creating new plastic containers from virgin materials could fulfill the entire energy needs of 3.7 million American households (Container Recycling Institute, 2008).

Despite the tremendous benefits of conserving energy through recycling of plastic products, recovery rates remain low. The low recovery rates of plastic cannot fulfill the demand of plastics needed for a wide array of products. As a result, unnecessary energy is being wasted through the production of new plastic material, and an increase in the recovery of plastic products could make the plastic industry more sustainable. Research is needed to understand consumers' recycling behaviors to potentially increase the recovery rate. Such was the purpose of this paper. Specifically, by drawing from the theory of planned behavior (Ajzen, 1985), we sought to understand the factors that influence intentions to recycler plastic bottles once they are consumed. An overview of the theory and the specific hypotheses are provided below.

Theoretical Framework

Theory of Planned Behavior

The theory of planned behavior (Ajzen, 1985) evolved from its roots in Social Psychology and developed from the theory of reasoned action (Fishbein & Ajzen, 1975) as a way to account for volitional behaviors. The theory works on the premise that particular behaviors can be predicted through specific antecedents: behavioral intentions, perceived control, and attitudes towards the particular behavior or action. Each of these is outlined in more detail in the following space.

Intentions are indicators of motivations to perform a particular behavior. Intentions describe, "how hard people are willing to try, of how much of an effort they are planning to exert, in order to engage in a behavior" (Ajzen, 1991 pp. 181). The stronger the intention the more likely the behavior is achieved. Intentions are situational

dependent, because of the availability or likelihood of the opportunity to participate in a specific action (Ajzen, 1985). As an example, Hrubes, Ajzen and Daigle (2001) demonstrated that intentions to hunt contributed to the prediction of hunting behaviors among outdoor recreationalists.

Intentions are thought to be influenced by perceived behavioral control, attitudes, and subjective norms. Perceived behavioral control measures the individual's perceptions of how easy or difficult it would be to perform an action (Azjen, 1991). Considering the scope of the theory, non-volitional behaviors like recycling can be tested. Taking into account the easy or difficulty of performing the behavior, perceived behavioral control provides an indication of motivations to translate thoughts to partake in a behavior to actual performance. For example, Ajzen and Driver (1992) noted that while trying to predict leisure activities, some activities (i.e. going to the beach) require more effort than other behaviors (i.e. jogging or biking). Attitudes are the individual's perceptions and evaluation of the specific behavior (Ajzen, 1991). All else equal, people with positive attitudes toward an event or behavior are more likely to engage in that activity. Finally, subjective norms, measure an individual's perceptions of whether significant others think he or she should perform the behavior (Ajzen, 1991). Subjective norms are commonly used as social pressures to engage in a particular behavior. These two measures provide an indication of the individual's beliefs towards the particular behavior.

Finally, Ajzen (1991) also explicated the manner in which the primary antecedents are formulated. Specifically, he argued that beliefs provide the cognitive and

affective foundations for attitudes, subjective norms, and behavioral control. Behavioral beliefs are thought to impact attitudes toward a behavior; normative beliefs are thought to relate to subjective norm; and control beliefs are thought to be associated with perceived behavioral control. By way of example, one may believe that recycling helps the environment and that helping the environment is a good practice. This composite behavioral belief might then predict positive attitudes toward recycling.

Current Study

The focus of the current study was on recycling intentions in the context of plastic water bottles within the previous month. Unlike other consumer beverages like aluminum cans, plastic bottles have a significantly lower recovery rate than aluminum. Further, plastics are more commonly used for beverage containers than aluminum or glass. Therefore, understanding recycling intentions of plastic bottles is important because of the potentially damaging effects plastics have when deposited into landfills.

Several hypotheses were developed based on the primary tenets of the theory of planned behavior. The first three hypotheses focus on the influence of the belief composites on subjective norm, attitudes, and perceived behavioral control. Previous literature indicates social pressures, obstacles, outcomes, and motivations all influence engagement in environmentally friendly behaviors (Bagozzi & Dabholkar, 1994; Davies, et al., 2002). These pressures and motivations inform the study with regards to formulating various measures (e.g., normative beliefs, behavioral control). Normative behaviors are said to be influenced by the pressures of one's family, peers, the community and overall entirety of society (Davies, et al., 2002). These connections to

social influences and affect the self-impressions of an individual. Thus, it was hypothesized that pressures from family (Hypothesis 1a), peers (Hypothesis 1b) and the media (Hypothesis 1c) to recycle plastic bottles would all influence subjective norm.

Additionally, determining behavioral controls are also influenced by the result of interest and attitudes towards the behavior (Fishbein & Ajzen, 1975). Previous literature (Bagozzi & Dabholkar, 1994) indicates that there are 19 different reasons to recycle. Of these reasons, the three most salient were selected here and hypothesized to predict attitudes toward recycling: improving the environment (Hypothesis 2a), decreasing quantity of waste in landfills (Hypothesis 2b), and decreasing individual impact on the environment (Hypothesis 2c).

There are however restrictions that can prevent individuals from recycling. These factors are measured within control beliefs. Control beliefs determine the abilities of an individual and their ability to perform a questioned behavior. Davies and colleagues (2002) mention that constraints, lack of knowledge, and accessibility can lead to inability to perform a behavior. In this study, three restrictions were identified to influence individuals not engage in recycling: time restraints (Hypothesis 3a), conscientious thoughts to recycle (Hypothesis 3b), and accessibility of recycling receptacles (Hypothesis 3c). Finally, consistent with the theory of planned behavior, it was hypothesized that attitudes (Hypothesis 4), subjective norms (Hypothesis 5), and perceived behavioral control (Hypothesis 6) would all positively influence intentions to recycle bottles after consumption.

Methods

Participants

Participants were (N = 144) students enrolled in physical activity classes at a southwestern university in the United States. The sample consisted of 83 men (57.6%), 60 women (41.7%), and one person (0.7%) did not provide a response; 96 Whites (66.7%), 21 Hispanics (14.6%), 9 African Americans (6.2%), 4 persons who listed "other" (2.8%), and 1 person (0.7%) did not provide the information. The mean age of the responding participants was 19.6 years (SD = 1.33). The mean political affiliation of participants was 4.77 (SD = 1.63) when responding 1 (Very liberal) to 7 (very conservative) on a point Likert-type scale.

Measures

Participants were asked to complete a questionnaire, which requested them to provide their demographics, as previously outlined, and to respond to items related to the main theory of planned behavior constructs. Ajzen's (2006) guidelines for questionnaire construction were followed. When multi-item scales were used, the mean was used to reflect the final score for the construct.

Previous Behavior. Previous behavior was assessed using one item: "Please estimate how often you have recycled your plastic water bottles after consumption in the past month. Circle the number on the following scale that best represents your estimate" Participants' responses were measured using a Likert-type scale 1 (never) to 7 (always).

Attitudes. Participant's attitudes towards recycling of plastic bottles during the upcoming month were collected using a 5-item semantic differential scale (α = .75) in

response to the following item: “For me to recycle plastic bottles after consumption in the upcoming month is...” The five scales included: “harmful-beneficial”, “unpleasant-pleasant”, “bad-good”, “worthless-valuable”, and “objectionable-enjoyable”. Participants’ responses were based on an interval scale ranging from 1 to 7. Previous research has also utilized similar measures (Ajzen, 1991).

Subjective Norm. Three items were used to assess subjective norms: “Most people who are important to me think that I should-I should not recycle plastic bottles after consumption in the upcoming month”, “It is expected of me to recycle plastic bottles after consumption in the upcoming month”, and “The people in my life whose opinions I value would approve-disapprove of me recycling plastic bottles after consumption in the upcoming month”. The inclusion of significant groups in the first three items can result in lower variability (Ajzen, 2001). Because of this, descriptive norms are included. Descriptive norms refer to “whether important others themselves perform the behavior in question” (Ajzen 2001, p. 5). Further, Rivis and Sheeran (2003) describe the descriptive norm as “the opinions and actions of significant others provide information that people may use in deciding what to do themselves” (e.g., "If everyone's doing it, then it must be a sensible thing to do" cf. Cialdini, Kallgren & Reno, 1991). From this, the following three descriptive norms items were included: “Most people who are important to me recycle plastic bottles after consumption”, “The people in my life whose opinion I value, recycle-do not recycle plastic bottles after consumption”, and “Many people, like me, recycle plastic bottles after consumption”. These 6-items were

measured using a 7-point Likert-type scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). The reliability estimate (Cronbach's α) for this measure was 0.71.

Perceived Behavioral Control. As recommended by Ajzen (1991), capability and controllability items were included to capture perceived behavioral control. The included two items for capability were "For me to recycle plastic bottles after consumption in the upcoming month would be (possible-impossible)" and "If I wanted to I could recycle plastic bottles after consumption in the upcoming month definitely (true-definitely false)". Additionally, controllability items included the following: "How much control do you believe you have over recycling plastic bottles after consumption in the upcoming month? (No control-complete control)" and 'It is mostly up to me whether or not I recycle plastic bottles after consumption in the upcoming month (strongly agree-strongly disagree)". Both capability and controllability were anchored using a 7-point Likert-type scale ranging from 1 to 7. The reliability estimate (Cronbach's alpha) for these 4 items was 0.74.

Intentions. Participants' intentions to recycle plastic bottles after consumption in the upcoming month were measured using three items: "I intent to recycle my plastic bottles after consumption in the upcoming month", "I will try to recycle my plastic bottles after consumption in the upcoming month" (reverse scored), and "I plan to recycle my plastic bottles after consumption in the upcoming month". This method of measuring participant's intentions has previous been outlined by Hagger, Chatzisarantis, and Biddle (2001) and also utilized by Cunningham and Kwon (2003). These items were measured using a 7-point Likert-type scale ranging from 1 (Strongly disagree) to 7

(Strongly agree). The mean of these three items served as the final score. The reliability estimate (Cronbach's α) for this measure was 0.65.

Belief Composites. Participants' belief composites were collected as well to complete the theory of planned behavior model. Each item of the belief composites were measured using a 7-point Likert-type scale ranging from 1 to 7. Reverse coding was used to prevent response bias. Behavior beliefs were collected surrounding three areas: the environment, amount of waste in landfills, and decreasing impact on the environment. Corresponding items to each area were multiplied for a composite score as outlined by Ajzen (1991. The following three behavior beliefs pairs were included: (a) "Recycling of plastic bottles after consumption in the upcoming month will improve the environment" and "Improving the environment is extremely bad (extremely good)"; (b) "Recycling of plastic bottles after consumption in the upcoming month will decrease the quantity of waste in landfills" and "Decreasing the quantity of waste in landfills is extremely bad (extremely good)"; and (c) "Recycling of plastic bottles after consumption in the upcoming month will decrease my impact on the environment" and "Decreasing my impact on the environment is extremely bad (extremely good)".

Additionally, normative beliefs were collected and calculated in the same way. Normative beliefs concentrated on three areas, family, friends, and media. The following three item pairs were included: (a) "My family thinks that I should-should not recycle plastic bottles after consumption in the upcoming month" and "When it comes to recycling, how much do you want to do what you family thinks you should do?"; (b) "My friends think that I should-should not recycle plastic bottles after consumption in

the upcoming month" and "When it comes to recycling, how much do you want to do what you friends think you should do?"; and (c) "The media thinks that I should-should not recycle plastic bottles after consumption in the upcoming month" and "When it comes to recycling, how much do you want to do what the media thinks you should do?" Corresponding items to each area were multiplied for a composite score as outlined by Ajzen (1991).

Lastly, control beliefs were collected from participants and calculated surrounding common themes. Control beliefs focused on the following topics that can prevent people from recycling: influence of personal schedule, conscientious thought to recycle, and access to recycling receptacles. The following items were included to measure each topic: (a) "I expect that my schedule will place high demands on my time in the upcoming month" and "My schedule placing high demands on my time in the upcoming month would make it much more difficult (easier) for me to recycling plastic bottles after consumption"; (b) "I expect that it will be difficult to conscientiously think about recycling in the upcoming month " and "Conscientiously thinking about recycling in the upcoming month would make it much more difficult (easier) for me to recycle plastic bottles after consumption"; and (c) "I expect that the accessibility of recycling receptacles will make it more difficult to recycle in the upcoming month " and "The accessibility of recycling receptacles on campus it would make it much more difficult(easier) for me to recycling plastic bottles after consumption". Corresponding items to each area were multiplied for a composite score as outlined by Ajzen (1991).

Data Analysis

Descriptive statistics (means, standard deviations, and bivariate correlations) were calculated. Previous literature suggests that previous recycling behaviors, gender, and political identification can influence recycling behaviors and intentions (Davies et al., 2002; Roper Organization, 1990; Buttel, 1987; Jones & Dunlap, 1992). Thus, these variables were used as controls in the analyses. Hypothesis 1, 2, and 3 predicted that three items for behavior, normative and control beliefs would be positively related to attitudes, subjective, norms and perceived behavioral controls, respectfully. These hypotheses were tested through three hierarchical regression analyses, with the controls entered in the first step and the belief composites entered in the second step. To test Hypotheses 4, 5, and 6, the controls were entered in Step 1, the three independent variables (i.e., attitudes, subjective norms, perceived behavioral) were entered in Step 2, and intentions to recycle plastic bottles in the upcoming month served as the dependent variable.

Results

Descriptive Statistics

Correlations were computed to understand the relationship between belief composites to attitudes, subjective norms, and perceived behavioral control, respectively. These correlations are presented in Table 1. These correlations demonstrate significant relationships between belief composites and their respective independent variables. The influence of family members ($r = .50$, $p < .01$) demonstrated a strong relationship to subjective norms. The influences of peers ($r = .44$, $p < .01$) and the media ($r = .25$, $p <$

.01) were shown to have a moderate relationship with the subjective norm as well. Additionally, the correlations indicate the behavior belief related to protecting the environment was positively related to attitudes ($r = .20$, $p < .05$), as was the belief composite pertaining to decreasing landfill waste ($r = .21$, $p < .05$). However, decreasing one's impact on the environment was not related to attitudes. With regards to perceived behavior control, the influence and demands of an individual's schedule leading to time restraints ($r = .28$, $p < .01$) demonstrated a strong relationship. On the other hand, conscientiously thinking to recycle and accessibility of recycling receptacles were not associated with perceived behavioral control.

With respect to the main TPB variables, both attitudes ($r = .26$, $p < .05$) and subjective norms ($r = .55$, $p < .05$) were positively associated with intentions to recycle, though perceived behavioral control was not ($r = .12$, $p > .05$). One-sample t-tests were computed to compare the variables' mean score with the mid-point of the scale (4). Overall, participants did not anticipate recycling their bottles to a high degree, $t(144) = -2.06$, $p < .05$. However, their attitudes toward recycling, $t(144) = 15.65$, $p < .001$, the subjective norm they felt, $t(144) = 4.37$, $p < .001$, and the perceived behavioral control to accomplish such tasks, $t(144) = 10.22$, $p < .001$, were all higher than the midpoint of the scale.

Hypothesis Testing

Hierarchical regression analysis was conducted to test the various hypotheses. To test Hypotheses 1a-1c concerning the antecedents of subjective norm, I controlled for previous recycling behavior, sex, and political identification, and these variables were

entered into Step 1, while the normative belief composites (i.e., family, friends, and media) were entered into Step 2. The controls accounted for 21% ($p < .001$) of the variance in subjective norms. After accounting for these effects, the main study variables accounted for an additional 16% of the variance ($\Delta R^2 = 0.16$, $p < .001$). As seen in Table 2 in support of Hypothesis 1a and 1b, the influence of family members ($\beta = .28$, $p < .05$) and peers ($\beta = .23$, $p < .05$) demonstrated a significant contribution to subjective norms. However, Hypotheses 1c was not supported as the influences of the media ($\beta = .00$, $p > .05$) was not significant.

Hierarchical regression analysis was also used to examined the antecedents of attitudes toward recycling (Hypotheses 2a-2c). The controls accounted for 2% ($p > .05$) of the variance in predicting attitudes. After accounting for these effects, the main belief composite variables accounted for an additional 7% of the variance ($\Delta R^2 = .07$, $p < .05$). As demonstrated in Table 3, all three behavior belief composites, environment ($\beta = .15$, $p > .05$), waste ($\beta = .17$, $p > .05$), and impact ($\beta = -.10$, $p > .05$) were not significant in predicting attitudes towards the recycling plastic bottles; thus, Hypotheses 2a, 2b, and 2c were not supported, respectively.

Similar procedures were conducted to examine the antecedents of perceived behavioral controls (Hypotheses 3a-3c). Table 4 shows the controls accounted for 4% ($p > .05$) of the variance in predicting perceived behavior control. After accounting for these effects, the main belief composite variable accounted for an additional 7% ($\Delta R^2 = .07$, $p < .05$). In support of Hypothesis 3a, time restraints ($\beta = .24$, $p < .05$) significantly predicted perceived behavioral control. However, conscientious thought to recycle ($\beta =$

.01, $p > .05$) and accessibility of recycling receptacles ($\beta = .01$, $p > .05$) were not found to be significant in predicting perceived behavioral controls; thus, Hypothesis 3b and 3c were not supported, respectively.

Finally, I tested for the effects of the main TPB variables on intentions to recycle. The variance inflation factor (VIF) (≤ 1.37) and condition index (25.29) were below the recommended levels of 10 and 30, respectively (Hair, Anderson, Tatham, & Black, 1998), indicating that multicollinearity was not a problem. The controls accounted for 44% ($p < .001$) of the variance in intentions to recycle. After accounting for these effects, the main study variables accounted for an additional 10% of the variance ($\Delta R^2 = .10$, $p < .001$) in intentions to recycle plastic bottles in the upcoming month. Results indicate that attitudes ($\beta = .14$, $p < .05$) and subjective norm ($\beta = .29$, $p < .001$) were significant predictors of recycling intentions, thus supporting Hypotheses 4 and 5, respectively. Perceived behavioral control ($\beta = .01$, $p > .05$) was not significant in predicting recycling intentions in the upcoming month; thus, Hypotheses 6 was not supported.

Discussion

The purpose of this study was to examine the applicability of the theory of planned behavior in predicting intentions to recycle plastic bottles after consumption in the upcoming month. Results of the study indicate that subjective norms and positive attitudes toward recycling are positively associated with intentions to engage in that behavior. Indeed, the model was robust and explained 54% of the variance in people's intentions to recycle their plastic bottles after consumption, a proportion much higher

than those found in past studies (e.g., Tonglet et al., 2004). In the space below, I highlight the specific contributions of the study and offer implications as well.

Results of the study indicate that women, persons with a liberal political persuasion, persons who had recycled in the past, those with positive attitudes toward recycling, and persons who felt subjective norms to recycle were all more likely than their counterparts to recycle in the future. It is possible that women and more liberal persons have greater care for social justice issues in general (Jones & Dunlap, 1992); thus, as recycling can be considered a social cause, it is not surprising that these persons expressed heightened interest in recycling. That previous behaviors, positive attitudes, and subjective norms all influenced future intentions is consistent with Ajzen's (1991; 2006) work. It is unlikely, for instance, that people who had negative perceptions of recycling would choose to engage in those behaviors, and the same is likely the case for previous behaviors and subjective norms.

Interestingly, however, perceived behavioral control was not related to future behaviors—a finding consistent with other studies (Boldero 1995; Davies et al., 2002; Tonglet et al., 2004). The widespread availability of recycling containers around the campus on which the study was conducted probably influenced these findings. Students were likely to have several opportunities to recycle their plastic bottles after consumptions, so a lack of options to do so was a moot issue. The high mean score for perceived behavioral control further supports this notion. It is possible that the variable would account for stronger effects in places where recycling required more of a concerted effort on the part of the consumer.

Additionally, one of the strengths of the study relative to others adopting this approach was the inclusion of the belief composites. In this way, I was able to examine the factors that would influence the main TPB variables. Results indicate that helping peers, family, and the media all served to positively influence the subjective norms people felt to recycle. Furthermore, the beliefs that recycling would help the environment and decrease the quantity of waste in landfills by recycling were both associated with the positive attitudes people had toward recycling. These findings are important because they help provide an understanding of what shapes people's beliefs about recycling. The findings also have the potential to influence policy—a point elaborated on in the following section.

Practical Implications

These findings have several practical implications to encourage and promote recycling behaviors. Social factors that can influence recycling are encouraging and were demonstrated through the support of Hypothesis 1a and 1b. The influence of family and peers can provide insight to components to include in advertising campaigns to encourage on campus recycling programs. Partnered with the positive correlation between decreasing one's individual waste and protecting the environment to the general attitudes towards recycling, these factors can be used to encourage further recycling behaviors and give direct outcomes of recycling. Recovery rates for plastics remain considerably low as compared to the recovery rates of aluminum (Container Recycling Institute, 2008). Further developments and ideas for future recycling campaigns are needed to encourage the recycling of plastics, especially considering that a majority of

packaging for beverages and other products contains recyclable plastics. Undoubtedly, the media campaigns not only encourage recycling as a social norm but can also educate the public on the benefits of recycling. Outcomes of recycling can include the overall benefit for the environment and could also place more personal implications by stating recycling can reduce one's waste going into their local landfill (Hypothesis 2b).

Public advertising campaigns target a broad audience, but considering the sample of this study, specific audiences and populations can be targeted. The focus on this target audience can influence the "green" campaigns of university and collegiate campaigns to encourage further participation in recycling and other environmental programs on campus. Further, campuses with high institutional identification could tie in those levels of high identification to deepen the influence of social norms. Building off of the significant contributions of Hypothesis 1a and 1b, social norms could be used in advertising suggesting that "everyone is doing it" or that "everyone needs do their part" in protecting the environment or reducing "our impact on the environment" (Hypothesis 2a). Collective efforts might lend well to deepening the influence of social norms to ultimately result in higher recovery rates of recyclable materials on campus. However, these campaigns have to be matched with the accessibility of recycling receptacles for a true gauge of effectiveness of such campaigns.

Limitations and Future Directions

Despite the strengths of the study, there are several potential limitations. The biggest of the limitations comes from the use of a convenience sample. Generalizing these findings beyond the scope of campus recycling of college students should be done

with caution. Another limitation is that only intent was measured and not actual recycling of plastic bottles. No measures were taken regarding the recovery rates of plastic bottles. Research has shown through theoretical backing (Ajzen, 1991) and empirical evidence (Griffith et al., 2000) that intentions lead to behaviors, thereby assuaging these concerns. Future studies should consider monitoring recycling and waste deposal trends and rates. Knowing these behaviors and fluctuations in recycling rates and recovery percentages can further to the theory and also deepen the understanding of other influences on recycling behaviors. Lastly, the study focused on one aspect of recycling behavior, recycling plastic bottles. While recycling plastic bottles is specific, it does not all encompassing of all environmentally friendly behaviors or even more specifically recycling behaviors.

Additional research is needed to understand other situational factors on environmentally friendly behaviors including recycling of other materials. For example, certain campuses only offer recycling for paper products and cardboard. The lack of programs on campuses and lack of institutional support might influence factors within the model in particular perceived behavioral control. Thus, the lack of opportunities to recycling while on campus might negatively influence perceived behavior controls and the theory's model. Future considerations should be given to areas with established recycling programs to measure the effectiveness of such program and test additional belief composites. Ultimately the challenge remains to find significance of perceived behavioral controls in the application of the theory's model with regards to recycling behaviors.

CHAPTER III

RECYCLING INTENTIONS AMONG YOUTH BASEBALL SPECTATORS

As the green movement has gained more momentum, more Americans are now considering the environmental impacts and carbon footprints of organizations and individuals. Attitudes of the American public towards environmental issues have changed from previous environmental movements of the 1970s. Nearly 79% of Americans consider themselves environmentalists, and 83% say that they have recycled (General Social Survey, 2006). Despite these attitudes of the American public towards recycling, there seems to be a gap between attitudes towards recycling and actually recycling.

Municipal recycling programs and other civic movements have increased the ability to recycle into areas and locations not previously exposed to such programs. Despite these additional programs and opportunities to recycle, recovery rates of recyclable products fail to meet municipal expectations. As a result, recyclable products are being deposited in landfills. However, aluminum cans have a rather high recover rate of 50% and even higher rate of 78% in states with redemption value (California Department of Conservation, 1997). Even though aluminum recovery rates have remained high, recovery rates for plastic beverage containers (e.g. water and carbonated drinks) remains low at 25% (Consumer Reports, n.d.). These figures exist despite the widespread use of plastic beverage containers. Thus, recovery rates of recyclable

materials show some recycling programs can be effective, but others are in need of improvement.

Plastics are most commonly used in consumer products, such as beverage containers and packaging. When these products are thrown away and deposited into landfills, they have a detrimental impact on the environment. Depending on the specific design of the plastic, some can take up to 1,000 years to fully biodegrade (California Department of Conservation, 1997). Even if these plastics are able to biodegrade, they still pose a considerable environmental threat to the local community, soil integrity, and surrounding water tables (Hirshfeld, Vesilind & Pas, 1992; El-Fadel, Findkakis & Leckie, 1997). Considering the low recovery rates for plastic containers and miscellaneous materials, the negative environmental effects are exacerbated. From this, it is important to understand the influences that close the value-action gap (Blake, 1999), or the disconnect between people's positive attitudes toward recycling and their actual recycling behaviors.

Several researchers have sought to address this paradox (Cheung, Chan & Wong, 1999; Davies, Foxall & Pallister, 2002; De Young, 2000; Goldstein, Cialdini & Griskevicius, 2008; Knussen & Yule, 2008; Lam, 1999; Martin, Williams & Clark, 2006; Tonglet, Philips & Read, 2004). For example, Davies et al. (2002) found that simply having the requisite knowledge and ability to recycle did not lead to individuals to recycle. Their results demonstrate that for recycling programs to be successful, programs need to be convenient, visible, and rewarding. Further, Davies et al. (2002) concluded that recycling behaviors should be separated into two components, affective

(i.e., feelings towards recycling) and cognitive (i.e., awareness of outcomes and consequences of recycling) representations. Likewise, Tonglet et al. (2004) found that positive attitudes towards recycling and previous recycling behavior were main predictors of recycling behavior. Additionally, other research has suggested that descriptive norms (Goldstein, et al., 2008) and the convenience to recycle (Martin et al., 2006) also influence recycling behaviors.

While the aforementioned studies have greatly contributed to the understanding of recycling behaviors, there is still need for further research. Investigators have afforded little attention to understanding recycling behaviors outside of the workplace or home (Goldstein, et al., 2008). Calls for research to incorporate environmental impacts and its relation to human behavior have been heard across various academic fields, including sport management field (Frisby, 2005; Hums, 2010; Thibault, 2009; Ziegler, 2007); specifically, researchers have called for an examination of the environmental impact of sport. Considering these gaps, developing an understanding between the relationship of recycling intentions and the sport industry is needed. The influences of sport have different effects than other contexts. The influence of social and descriptive norms can be more salient in social settings that might not commonly be found within the household or workplace.

As such, the purpose of this study was to examine factors that influence recycling intentions within a sport context. Specifically, we drew from the theory of planned behavior (see Ajzen, 1985, 1991) to explain the value-action gap between individuals' favorable attitudes towards the environment and the lack of action to protect it (i.e.

recycling). This theory holds that one's actions are influenced by attitudes toward a behavior (i.e., attitude), the degree to which others expect the behavior to occur (i.e., subjective norm), and the degree to which one has volitional control over completing the task (i.e., perceived behavioral control). These antecedents are then expected to influence intentions to engage in the activity and subsequent behaviors. Indeed, researchers have effectively applied the theory to other environmentally responsible behaviors such as: water conservation (Lam, 1999), paper recycling (Cheung, Chan & Wong, 1999), household recycling (Tonglet, et al., 2004; Knussen, 2008), and other environmentally friendly behaviors (Davies, et al., 2002). In the following space, we provide an overview of the theoretical tenets and present our hypotheses.

Theoretical Framework

Ajzen (1985, 1991) developed the theory of planned behavior (Ajzen, 1985, 1991) as an extension of the theory of reasoned action (Fishbein & Ajzen, 1975). The theories of reasoned action and planned behavior are both based on the foundation that attitudes and subjective norms can predict an individual's intention to partake in a particular activity. *Attitudes* are the individual's personal perceptions and evaluations of a specific behavior (Ajzen, 1991). That is, the individual evaluates the value, benefit, and the consequences of performing a particular behavior. If the individual evaluates the outcome and values of a particular action, subsequent attitudes towards the behavior will be most likely be positive. *Subjective norms* examine the level of influence that a "significant other" has on an individual to perform or not perform a particular action.

When subjective norms are high, then intentions to perform the specific actions should follow.

Researchers have shown that both attitudes and subjective norms hold significant associations with subsequent behaviors and behavioral intentions. For example, Lam (1999) demonstrated the significant influence of attitude and subjective norms in predicting the intention to conserve water. Additionally, Sparks and Shepherd (1992) demonstrated that subjective norms were significantly related to an individual's intentions to consume organic vegetables. Further, these variables have significantly explained intentions in various studies including attending a sporting event (Cunningham & Kwon, 2003), hunting behaviors (Hrubes, Ajzen & Daigle, 2001), and leisure activities (Ajzen & Driver, 1992).

In this study, we sought to extend the application of these constructs to incorporate environmentally friendly behaviors (i.e., recycling plastic bottles after consumption) within a sport context (i.e., youth baseball tournament). Within this study, we expected that people who held positive attitudes toward recycling would have greater intentions to do so. The same was expected for persons who perceived support to recycle from those around them. More specifically, we hypothesized:

H1: There will be a positive relationship between attitudes towards and intentions to recycle plastic bottles after consumption.

H2: There will be a positive relationship between subjective norms and intentions to recycle plastic bottles after consumption.

The primary difference between the theory of reasoned action and its predecessor, the theory of planned behavior, is the importance placed on volitional control by the latter. Specifically, the theory of planned behavior incorporated the volitional control an individual has to engage in the particular behavior. Incorporating volitional controls lead to the introduction of *perceived behavioral control*, or "the perceived ease or difficulty of performing the behavior" (Ajzen 1991, p. 188). When people believe they have the ability to perform a given behavior (e.g., recycling), they are more likely to do so. As an example, Taylor and Todd (1995, 1997) demonstrated that attitudes and perceived behavior control were positively related to individual's composting intentions. In a different context, Cunningham and Kwon (2003) found that a lack of time was significantly and negatively associated with intentions to attend a sport event.

Collectively, this literature suggests that when people have control over recycling, they might have greater inclinations to do so. Thus, we predicted:

H3: There will be a positive relationship between perceived behavioral control and intentions to recycle plastic bottles after consumption.

Belief Composites

There are antecedents that lead to the formation of attitudes, subjective norms, and perceived behavioral controls called *belief composites*, which comprise an individual's salient beliefs regarding a specific action or behavior. These belief composites influence the individual's attitudes towards a specific behavior (Ajzen, 1991). Belief composites are designed specifically for the population in the study. That

is, they include the costs and the benefits for engaging in a particular activity. As a result of the formation of belief composites to coincide with the study population, motivations and outcomes can be customized to match a specific population or setting for each respective direct measures (i.e., attitudes, subjective norms, perceived behavioral control). In our current study, we examined people's intentions to recycle plastic bottles while attending a youth baseball tournament, and as such, we developed belief composites specific to this context.

Attitudes towards the questioned behavior are preceded by the behavior belief composite or the behavioral outcomes to a particular behavior. For instance, people might have positive attitudes toward recycling based on the belief that doing so will reduce their carbon footprint. In the current study, we considered three belief composites particularly relevant to attitudes toward recycling: protecting the environment, decreasing landfill waste, and decreasing one's carbon footprint (Bagozzi & Dabholkar, 1994). To the degree that people value these outcomes *and* believe that recycling will result in these outcomes, then their attitudes toward recycling should be positive. For instance, attitudes toward recycling might be positive when people value protecting the environment *and* believe that recycling will result in this outcome. Similar patterns would be expected for decreasing landfill waste and decreasing one's carbon footprint. As such, we predicted that:

> **H4**: Beliefs that recycling will protect the environment (H4a), decrease landfill waste (H4b), and decrease one's carbon footprint (H4c) will be positively associated with attitudes toward recycling.

Normative beliefs serve as antecedents of subjective norms and illustrate the normative expectations of significant others (Ajzen, 1991). In the current study, we examined the influence of fellow families on a youth team, host sites of a tournament, and the surrounding community. These groups were chosen based on Ajzen's (2001) suggestion that such groups "should elicit an identity of a referent group or individual" (p. 11). As an illustrate example, people's subjective norm should be high to the degree that fellow families on the team think they should recycle *and* they value such perspectives. We expected a similar pattern for the influence of the host site of the tournament and pressures from the surrounding community. Thus, we predicted that:

> **H5**: The degree to which fellow families on a youth baseball team (H5a), the host site of the tournament (H5b), and the surrounding community (H5c) value recycling, subjective norms to recycle will be high.

Lastly, perceived behavioral control is preceded by control beliefs, or the ease to which an individual believes to have the ability, accessibility, and resources to perform the questioned behavior (Ajzen, 1991). Previous literature has demonstrated that accessibility, knowledge of recycling, and additional resources (e.g. availability of time) are strong determinates to facilitate recycling behaviors (Taylor & Todd, 1995), and we used these antecedents in the current study. From this and the previous literature, the following hypothesis were formed:

> **H6:** People's beliefs that they have the time to recycle (H6a), knowledge about recycling (H6b), and the available resources (H6c) will be positively associated with perceived behavioral control.

Methods

Participants

Participants (N = 129) were adults attending a weekend-long youth baseball tournament in the Southwest United States. The sample consisted of 85 women (65.9%), 40 men (31.0%) and 4 persons (3.1%) who did not provide a response; 97 Whites (75.2%), 16 Hispanics (12.4%), 3 African Americans (2.3%), 3 Asians (2.3%), 2 Native Americans (1.6%), 2 persons listed "other" (1.6%) and 6 persons (4.7%) who did not provide the information. The mean age of the responding participants was 44.47 years (SD = 10.20).

Measures

Between games, participants completed a questionnaire, which requested them to provide their demographic information, as mentioned above, and to respond to the main constructs of the theory of planned behavior. The questionnaire reflected the guidelines set forth by Ajzen (2006). We used the mean to reflect the final score for multi-item constructs. The following belief composites and main constructs are discussed below. Examples of the survey measures are also provided below (see Appendix 3 for survey items).

Previous Behavior. Following Ajzen (2006), we assessed previous behavior using a direct question: "Please estimate how often you have recycled your plastic water bottles after consumption during the tournament. Circle the number on the following scale that best represents you estimate." Participants' responses were measured using a Likert-type scale 1 (*never*) to 7 (*always*).

Attitudes. Following Ajzen (1991), participants' attitudes towards recycling plastic bottles during the tournament were collected using a 5-item semantic differential scale ($\alpha = .80$) in response to the following items: "For me to recycle plastic bottles after consumption during the tournament is…" A sample response is "harmful-beneficial".

Subjective Norm. Three items were used to evaluate subjective norms. The following is an example of one included item, and the remaining subjective norm items can be seen in Appendix 3: "Most people who are important to me think that I (should – should not) recycle plastic bottles after consumption during the tournament." The 6 items were measured using a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The reliability estimate for this measure was acceptable ($\alpha = 0.78$).

Perceived Behavioral Control. Previous literature (Ajzen, 1991, 2006) suggests capability and controllability measures should be included to capture the perceived behavioral control beliefs an individual has over the behavior in question. Both pairing of items for controllability and capability utilized a 7-point Likert-type scale, 1 to 7. The reliability estimate (Cronbachs' α) for the 4 items was marginal ($\alpha = .60$). The two items for capability and the two items for controllability can be found in Appendix 3.

Intentions. Participants' intentions to recycle plastic bottles after consumption during the tournament were collected using a common methodology outlined by previous literature (Hagger, Chatzisarantis, & Biddle, 2001) and further tested and utilized by Cunningham and Kwon (2003). A sample item is: "I intend to recycle my

place bottles after consumption during the tournament." The reliability statistic ($\alpha = .95$) for these three items was acceptable.

Belief Composites. Belief composites were tested in paired items as recommended by Ajzen (1991). The corresponding items for each pair were multiplied for a composite score for analysis, and each product term was treated as an antecedent variable of attitudes (see Ajzen, 2006). An example of one of the three behavioral belief parings included in the questionnaire was as follows: "recycling plastic bottles after consumption during the tournament will help the environment (extremely unlikely-extremely likely)" and "helping the environment is extremely bad (extremely good)". The remaining two pairs of belief composites can be found in Appendix 3.

Normative beliefs were calculated in a similar way as compared to the behavior beliefs. That is, as recommended by Ajzen (1991, 2006), the responses for corresponding pair were multiplied together for a composite score, and each composite score served as an antecedent of subjective norm. An example of a normative belief paired item included in the survey is as follows: "The fellow families on the team think that I should (I should not) recycle plastic bottles after consumption during the tournament", and "when it comes to recycling, how much do you want to do what the fellow families on the team think you should do? (not at all-very much)". The remaining two pairs of normative beliefs can be found in Appendix 3.

Finally, 6-items were included to collect the participants' controls beliefs surrounding common themes. The control beliefs focused on themes that might limit an individual from engaging or participating in recycling their plastic bottles after

consumption during the baseball tournament. The following is an example of paired items that were included: “I expect that my schedule will place high demands on my time during the tournament (strongly disagree-strongly agree)” and “My schedule placing high demands on my time during the tournament would make it much more difficult (much easier) for me to recycle bottles after consumption”. The remaining two pairs can be found in Appendix 3. Like the previous belief composites, the paired items for control beliefs were multiplied together for a composite score for each respective pair as recommended by Ajzen (1991, 2006).

Results

Descriptive Statistics

Descriptive statistics (means, standard deviations and bivariate correlations) were calculated and are shown in Table 6. Significant relationships can be seen between belief composite variables and their corresponding independent variable in the correlation table. The influence of reducing one’s impact on the environment ($r = .32$, $p < .01$) and decreasing the quantity of waste in landfills ($r = .31$, $p < .01$) both demonstrated a significant relationship to attitudes towards recycling. The influence of family members ($r = .36$, $p < .01$) and the surrounding community ($r = .23$, $p < .05$) verified a significant relationship of the influence of subjective norms. However, the demands of one’s schedule, conscientious thought to recycle and access to recycling receptacles did not show a significant relationship to perceived behavioral controls.

With regards to the prescribed TPB’s variables, both subjective norms ($r = .31$, $p < .01$) and perceived behavioral controls ($r = .19$, $p < .05$) demonstrated a significant

relationship to intentions to recycle plastic bottles after consumption during the tournament, though attitudes towards recycling did not ($r = .11$, $p > .05$). Additionally, one sample t-tests were run to compare the means of the main TPB variables against the scale mean (4). In general, the participants did not anticipate recycling their plastic bottles, $t\ (128) = -2.49$, $p < .05$. Conversely, participants' attitudes towards recycling, $t\ (125) = 14.98$, $p < .001$, the influence from subjective norms they felt, $t\ (126) = 5.44$, $p < .001$, and the perceived behavioral controls needed to recycle the plastic bottles after consumption during the tournament, $t(125) = 4.11$, $p < .001$, were all significantly higher than the midpoint of the scale.

Hypothesis Testing

Hierarchical regression analysis was used to test hypotheses 1, 2, and 3, which predicted that attitudes towards recycling (H1), subjective norm (H2), and perceived behavioral control (H3) would be positively associated with intentions to recycle, respectively. As recommended by Ajzen (1991), the belief composites were controlled for to examine the influence of the theory's main variables on intentions to recycle. The belief composites were entered into Step 1, the main theory variables were entered into Step 2, and the mean for intentions to recycle was entered as the dependent variable. The variance inflation factor (VIF) (≤ 1.82) and the condition index (24.78) were below the recommended levels of 10 and 30, respectively (Hair, Anderson, Tatham & Black, 1998), indicating that multicollinearity was not a problem.

As seen in Table 7, the control variables accounted for 32.5% ($p < .01$) of the variance in intentions to recycle. After accounting for these effects, the main variables of

the theory accounted for an additional 10.5% ($p < .01$) of the variance in explaining intentions to recycle plastic bottles after consumption during the tournament. Attitudes towards recycling ($\beta = -.09$, $p > .05$) was not significant in predicting intentions to recycle; thus Hypothesis 1 (attitudes towards recycling) was not supported. However, subjective norms ($\beta = .27$, $p < .01$) and perceived behavioral controls ($\beta = .21$, $p < .05$) were significantly predicted intentions to recycle, thus supporting Hypothesis 2 and 3, respectively.

The next set of hypotheses was concerned with the antecedents of attitudes towards recycling. We entered the respective belief composites—helping the environment (H4a), decreasing the quantity of waste in landfills (H4b), and decreasing one's impact (carbon footprint) (H4c)—as independent variables, while attitudes toward recycling served as the dependent variable. As seen in Table 8, the belief composite variables accounted for 14.5% ($p < .001$) of the variance in attitudes towards recycling. Hypotheses 4a and 4b, decreasing one's impact on the environment ($\beta = .27$, $p < .01$) and decreasing the quantity of waste in landfills ($\beta = .22$, $p < .05$), were significant in influencing one's attitudes towards recycling plastic bottles after consumption, respectively. However, reducing one's impact or carbon footprint ($\beta = -.07$, $p > .05$) was not significant in predicting attitudes towards recycling plastic bottles; thus, Hypothesis 4c was not supported.

The next set of hypotheses was concerned with the influence of normative beliefs on subjective norms. We entered the influence of fellow families (H5a), the host site (H5b), and the surrounding community (H5c) as independent variables, while

subjective norms served as the dependent variable. Shown in Table 9, the main belief composite variables accounted for 11.9% ($p < .01$) of the variance in explaining subjective norms. The influence of fellow families on one's baseball team ($\beta = .27$, $p < .01$) had significant influence on subjective norms and pressures to recycle supporting Hypothesis 5a. However, the influence of the host site of the tournament ($\beta = .08$, $p > .05$) and the surrounding community ($\beta = .10$, $p > .05$) were not significant in predicting the influence of subjective norms to recycle; thus, hypotheses 5b and 5c were not supported, respectively.

Similarly, to test for Hypotheses 6, regression analysis was used to examine the influence of control beliefs (i.e., Hypothesis 6a, personal schedule; Hypothesis 6b, conscientious thought to recycle; Hypothesis 6c, access to recycling receptacles) on perceived behavioral controls. Table 10 shows that the composite belief variables accounted for 2% ($p > .05$) of the variance explaining perceived behavioral controls that might be obstacles for an individual to recycle. The influence of the demands of one's personal schedule ($\beta = .01$, $p > .05$), conscientious thought to recycle ($\beta = -.04$, $p > .05$), and access to recycling receptacles ($\beta = .15$, $p > .05$) did not significantly predict perceived behavioral controls of recycling. As a result, Hypotheses 6a, 6b, and 6c were not supported.

Discussion

The purpose of this study was to examine the application of the theory of planned behavior in predicting the recycling intentions of spectators over the course of a weekend-long sporting event. Results of the study suggest that subjective norms are

positively associated with intentions to recycle during the baseball tournament. This study is consistent with previous studies (Davies et al., 2002; Tonglet, et al., 2004) that have utilized the theory of planned behavior to predict recycling intentions in its predictive power ($R^2 = 0.44$). However, unique to this study as compared to others is the significance in the relationship of perceived behavioral controls and the intentions to recycle ($\beta = .21$, $p < .05$). Another distinctive element of the study was the context of examining recycling intentions, in that, it is one of the first known studies to examine recycling intentions in a sporting context. In the space below, we discuss the specific contributions and offer implications based on the findings in this study.

The results of the study suggest that people who previously engaged in recycling, those who felt social pressures to recycle, and those who perceived to have control over their ability to recycle were more likely to do so than their counterparts. The influence of previous behaviors and social norms on intentions to perform a specific action is consistent with Ajzen's theoretical framework (1991; 2006). In keeping with the theory, people who negatively view a specific behavior would be less likely to engage in that behavior. For instance, in this context, those who do not see value in recycling or do not have positive attitudes towards recycling would be less likely to engage in such a behavior, just as with the lack of previous behavior and the absence of social norms.

Notably within this study, perceived behavioral controls were related with future intentions to recycle is also consistent with Ajzen's (1991; 2006) work. The interesting fact is that the significant contribution of perceived behavioral controls in this study as it has not been consistently significant in previous studies involving recycling intentions

(Davies et al., 2002). This significant relationship is especially interesting considering the lack of accessibility to recycling receptacles at the tournament site. Perhaps the influence and pressure for increased personal investment to protect the environment was salient during this baseball tournament, since the site did not provide opportunities to recycle for a population who generally has recycled in the past. Further, the influence of social norms on the spectators could have influenced them to keep the plastic bottles until they could be exposed of properly, thus influencing the perception of personal control.

Additionally, unique to this study and adding to its strength was the inclusions of descriptive beliefs that can further the understanding of the basic tenets of the theory of planned behavior. This was in support of Hypothesis 4a and 4b, demonstrating a significant relationship with the belief that recycling protects the environment and decreases landfill waste positively influence individual's attitudes towards recycling. Moreover, there was a significant relationship between the influence of fellow families on a team and social norms, which supported Hypotheses 5a. These findings are meaningful, as sport organizations can incorporate these findings as they move to incorporating recycling and other environmentally responsible programs into their events and facilities. The influence on social norms and attitudes towards recycling can influence policies and procedures that municipalities and sport organizations institute to become environmentally friendly – these policies and procedures are discussed further in the next section.

Practical Implications

The significant relationships between behavioral beliefs and tenets of the theory of planned behavior can influence public and organizational policy in the development of recycling and other environmentally friendly programs. The influence of fellow families of a team, as introduced above, can provide insight for advertising campaigns and PSA announcements within a municipality to professional sport organizations. As city governments move to improve their environmental programs, public grounds and facilities seem to be passed and forgotten to improve their environmental standing, which is consistent with the setting where this study's data was collected. Despite residential and household recycling programs coordinated in this city, the public sport complex did not offer any opportunities or solutions for proper waste disposal. Sites like these are untapped for potential revenue sources of recyclable materials (e.g., aluminum, plastic, and glass).

Even further, advertising and promotional materials on site can promote recycling. Messages that surround the influence of a larger social group (i.e., one's family or fellow members of the community) can influence people to recycle consistent with previous findings by Goldstein, Cialdini, and Griskevicius (2008). More to the point, the outcomes of such behaviors should be further promoted. The influence on attitudes towards recycling can further encourage environmentally friendly behaviors. Such outcomes were demonstrated in this study through the support of Hypotheses 4a and 4b. Reducing one's impact on the environment and reducing the amount of landfill waste can be used to further promote and encourage environmentally friendly behaviors

like recycling. Considering the lack of access to recycling receptacles on site at the tournament, host sites prevent these messages from truly being effective and immediate. Messages of reducing one's impact on the environment and decreasing waste entering public landfills should be backed by the inclusion of recycling receptacles. This can further establish the partnership with the host site, whether a public (e.g., publically funded sport complex) or a private (e.g., collegiate or professional) facility and the spectators attending an event. The associations created through the development of recycling programs with the host site can boost goodwill perceptions and fan identification of the spectator towards the host site (McCullough & Cunningham, 2010).

Together these three findings can be quite influential in developing recycling programs within a sporting facility or complex. Considering spectators attend events in groups, the significant influence of social groups can influence the behaviors of the entire group. Despite the fact that recyclable recovery rates within sporting facilities are not known, national recovery rates of plastics and aluminum remain low, plastics remaining close to 50%, (Consumer Recycling Institute, 2008). As recycling behaviors become more normalized within society, the organization or at a specific site can use the influence of social norms to increase recovery rates high. Adding personal responsibility and accountability can potentially influence and increase recycling behaviors. It is reasonable to argue that this can be applied to volitional behaviors as well. These factors can lend well to the overall recovery rates of recyclable materials within sport facilities.

Limitations and Future Directions

While there are many strengths of this study, there are also some potential limitations. First, we measured intentions rather than actual recycling behaviors. Despite this limitation, previous literature provides theoretical (Ajzen, 1991) and empirical (Griffith, et al., 2000) backing that intention to recycle lead to actual behavior. Thus, there is evidence to suggest that people who intended to recycle their products were likely to actually do so. Future studies should examine the recovery rates on site for sporting events and measure the influences of recycling behaviors among sport spectators. Further, this study focuses on a specific behavior (e.g., recycling plastic bottles) and is not inclusive of all recyclable materials that could be disposed of during a sporting event. These concerns can be addressed in more comprehensive studies to examine the general recycling behaviors. However, these insights might be compared to communities and at facilities with preexisting recycling programs.

Additional research is needed to understand the influences on recycling behaviors. Since recycling is a volitional behavior, mood, emotional and other social-psychological influences might block the intention to recycle with actually recycling. This gap is commonly referred to as the value-action gap (Blake, 1999). Further understanding of the social-psychological influence of fluctuations in spectator recycling, can potentially deepen the understanding of this gap. Further, having controlled environment to assess the recovery rates of recyclable materials within a facility can lend well to the understanding of recycling within sporting facilities and the effectiveness of such recycling programs. This understanding can help sport

organizations maximize their cost savings by ensuring recycling programs and other sustainability initiatives are successful. This can also maximize the overhead costs associated with solid waste disposal versus the savings by recycling materials or the potential of reusing materials for future events. Recycling can provide cost savings for an organization; however, these programs have to be monitored just like any other department to ensure the maximization of cost savings and the efficiency of the overall program.

CHAPTER IV

RECYLING BEHAVIORS OF SPORT SPECTATORS: A QUALITATIVE APPROACH

The sport management field has been encouraged to investigate timely matters of importance, one of which is the impact that sport organizations have on the natural environment. In her Ziegler Address, Hums (2010) notes that the environmental implications that come as a result of the sporting industry have not yet been investigated. She advises that these environmental impacts include those listed by the United Nations Environmental Programme (2008, ¶ 2),

> [The] development of fragile ecosystems or scarce land for sport, noise and light pollution from sport, consumption of non-renewable resources (fuel, metals, etc.), emission of greenhouse gases by consuming electricity and fuel, soil and water pollution from pesticide use, soil erosion during construction and from spectators, and the waste generated by facility construction as well as spectators.

Each aspect of a sport organization can have an adverse effect on the environment. It is not appropriate to do a one-time evaluation into an organization's environmental impact. As Jermier and Forbes (2003) indicate, becoming environmentally friendly is an ongoing process, where an organization is never green but, rather, continuously "going green."

As part of "going green," sport organizations have implemented several popular and universal environmental sustainability programs and initiatives. Recycling and composting programs represent some of the most popular initiatives (Lease, 2000;

Muret, 2008; Williams & Sherman, 2005). These programs not only offer visual cues to spectators that the organization is making steps towards becoming environmentally friendly, but they are also relatively easy to implement because of preexisting programs within the larger municipal area. Further, these recycling programs can offer an economic benefit for the sport organization. For example, the San Francisco Giants saved over $100,000 in solid waste disposal costs because of recyclable materials diverted from landfills through a stadium wide recycling program (Williams & Sherman, 2005). Additionally, the Memphis Grizzlies are making money by reselling used cardboard – totaling $6,000 to $10,000 annually (Muret, 2008). Likewise, Penn State's athletic department made close to $30,000 during the 1997-1999 football seasons by recycling recovered materials (Lease, 2000).

Considering these benefits, there is one considerable problem that limits a sport organization from fully capitalizing on recycling programs: the spectator. A sport organization is fully reliant on spectators to recycle their recyclable waste. This presents a challenge to the organization because the potential to reap the benefits of recycling is literally in the hands of the spectators attending the athletic event. Despite the primacy of spectator, no published work could be identified that examined the recycling behaviors of persons attending sport events. As such, the purpose of this study is to understand the factors that shape spectators' decisions to recycle (or not) at sport events. Understanding these specific behaviors can help sport organizations maximize the effectiveness of their environmental initiatives while also maximizing their economic savings from such programs.

To achieve this end, I draw from the theory of planned behavior (Ajzen, 1985, 1991) to understand the recycling behaviors of sport spectators. Researchers have used this theory extensively to understand people's behaviors, including those related to hunting (Hrubes, Ajzen, & Daigle, 2001), exercise (Blue, 2007), and attendance at sport events (Cunningham & Kwon, 2003), among a host of other activities. In the current analysis, I adopt a qualitative approach—something unique to the theory of planned behavior literature, particularly among environmental-related studies (Cheung, Chan, & Wong, 1999; Lam, 2006; Tonglet, Phillips, & Read, 2004)—to investigate the degree to which people's attitudes toward recycling, the social norms for doing so, and the ease with which they can recycle all contribute to their recycling behaviors. In the space below, I provide an overview of the theory and present my specific research questions.

Theoretical Framework

Theory of Planned Behavior

An extension of previous work (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1977), the theory of planned behavior (Ajzen, 1985, 1991) holds that three person-cognitive variables—attitudes, subjective norms, and perceived behavioral control—as well as behavioral intentions all explain people's choices and behaviors. I outlined each of these in the following space.

Intentions. Seen as the most proximal antecedent of actual behavior, intentions refer to the degree to which people plan to, will try to, and are determined to perform a particular activity (Hagger, Chatzisarantis, & Biddle, 2001). That is, they represent the effort an individual is willing to exert to complete that task. As Ajzen (1991) mentions,

the higher the intent to complete the task, the higher likelihood of success. As an example, Rise, Thompson, and Verplanken (2003) showed that intentions were strongly related with people's actual recycling behavior.

Perceived Behavioral Control. Perceived behavioral control refers the confidence an individual has to overcome the challenges and barriers that might exist to complete a task (Ajzen, 1991). It takes into account that notion that people do not always have volitional control over the activities they might otherwise intend to accomplish. Ajzen (1991) suggested that the variable is both an antecedent of intentions and directly related to actual behaviors. Chueng, Chan, and Wong (1999) empirically demonstrated that individuals with the knowledge and the ability to recycle are more likely to actually perform recycling behaviors.

Attitudes Toward the Behavior. Individuals automatically form attitudes towards any behavior or task, and as might be expected, these attitudes shape one's intentions to perform the task (Ajzen, 1991). Individuals evaluate the cost of performing the task against the reward of successfully completing the task. If the outcome is seen as positive, an individual will form positive attitudes towards the behavior, and vice versa. For example, Schultz and Oskamp (1996) found that, even in the face of obstacles, people with high environmental concern were more likely to recycle than their peers.

Subjective Norms. Subjective norms relate to the salient social groups that can influence an individual to engage in a specific behavior (Ajzen, 1985, 1991). An individual evaluates whether salient social groups believe that the individual should perform the questioned behavior, and these pressures create a socialized norm of

behavior within a specific context. That is, individuals will be more likely to engage in a behavior if it is seen as socially acceptable among the salient social group. For example, Oom do Valle, Rebello, Reis, and Menezes (2005) found that individuals are more likely to internalize the social norms to engage in recycling behaviors if salient significant others, such as peers or family members, recycle as well.

Current Study

As previously noted, the purpose of the current study was to draw from the theory of planned behavior to better understand recycling among sport spectators. To do so, I interviewed a variety of college football spectators. Conducting the study in this setting is ideal because of the impact large scale sporting events have on the environment (see McCullough, 2010). Interviewing participants that actively attend large-scale sporting events provide rich data into recycling behaviors of sport spectators.

By way of contextualizing the study, the university (PCU) at which the examination took place is a staunchly conservative, predominately White institution. The campus has initiated recycling programs over the past three to four years. However, most recycling programs are simplistic (e.g. cardboard, aluminum, and plastic recycling) due to the lack of recycling capabilities of the surrounding municipalities. The athletic department has contracted with an outside entity to dispose of the recycling, but the athletic department is responsible for collection efforts.

Based on the aforementioned theoretical framework, I developed the following research questions, which served to guide the analysis:

RQ1: What are the attitudes of sport spectators towards recycling during sporting events?

RQ2: What are the subjective norms that influence sport spectators to recycle during sporting events?

RQ3: What are the perceived behavioral controls of sport spectators to recycle during a sporting event?

Methods

This section outlines the methodology used in the study. It provides a summary of the choice of participants, the techniques used for data collection and data analysis. As outlined above, this study uses the theory of planned behavior to understand the recycling behaviors of sport spectators. The theoretical frame of the theory of planned behavior (Ajzen, 1985; 1991) can lend well to understanding environmentally friendly behaviors (for a review see Davies, et al., 2002).

Qualitative methodology has been used when examining the theory of reasoned action and the theory of planned behavior, as recommended by Ajzen and Fishbein (1980) to develop interview guides to initially understand the questioned behavior. This approach can create salient beliefs about the advantages and disadvantages of recycling during a sporting event (behavioral beliefs), groups or individuals that would approve or disapprove of recycling during a sporting event (normative beliefs), and factors that would make recycling during a sporting event easy or difficult (control beliefs). However, this qualitative approach can add further understanding, value, and richness to

the phenomenon of sport spectator recycling by exclusively taking a qualitative research approach (Lincoln & Duba, 1985).

Participants

In depth, semi-structured interviews were conducted with sixteen persons, identified as regular attendees of PCU's (a pseudonym for the actual university) home football games, a public institution in the United States: six PCU students, five non-students adults without luxury seats, and five non-student adults with luxury seats. As recommended by Ajzen (1991) and Stake (2000), specific stakeholders need to be identified to gain full understanding of salient beliefs surrounding the questioned behavior (i.e., game day recycling behaviors of sport spectators). Additionally, the purposeful recruitment of participants was assisted by a technique commonly referred to as "snowballing" or "chain sampling" (Patton, 1990).

Participant selection was based on three criteria: willingness to participate in the study, regular attendance of PCU's home football games (3 or more games in the previous season), and knowledge or awareness of PCU's in stadium recycling program. Participants were given the option to keep their identity confidential. As a result, names and other potentially identifying information were given a pseudonym.

Data Collection and Analysis

The interview guide was formed by the theoretical model of the theory of planned behavior (Ajzen, 1985; 1991) and based on previous literature surrounding the recycling behaviors of individuals (Davies, et al., 2002; Chapter II) and of sport spectators (Chapter III), motivations to recycle and the outcomes and benefits of

recycling (Bagozzi & Dabholkar, 1994; DeYoung, 1986). The theory of planned behavior informed the questions in the interview guide, which include the following questions: Do you regularly recycle? Do you recycle when you attend PCU's home football games? What are your attitudes towards recycling? What are your attitudes towards in-stadium recycling programs at PCU's home football games? What are the benefits of recycling? What would the consequences be if you recycled all the time during PCU's football games? Why would you not recycle? Why do you recycle at PCU's home football games? Who expects you to recycle? Do you believe that people important to you would approve or disapprove of you recycling during football games? How easy is it to avoid recycling every time at football games? Is there anything, or anybody, which could make you not recycle every time at football games?

In keeping with a constructivist (interpretivist) paradigm the interviews were conducted as to allow for the participants to recreate their own reality while reflecting on their experience with recycling while attending PCU football games (Ponterotto, 2005) Participants in general were asked the same questions in the interview guide. Questions varied depending on the responses of the participants based on their candidness. It should be noted that the participants interviewed in the later stages of the data collection were asked to provide their opinion on how to get PCU football spectators to recycle more. These responses provided additional rich data lending well to the theory. Additionally, these additional responses provided data that did not necessarily fit into the theoretical framework; this data is discussed in the following section.

All interviews were conducted the same week before a home football game. Interviews lasted 20 to 45 minutes in length, recorded using a digital audio recorder, and transcribed verbatim for data analysis. An additional contact with the participants was made after the football game to ask the participant if they recycled while attending the game.

The raw data was analyzed and broken down into emerging themes and then categorized respectively according to the theory of planned behavior, a process referred to as a priori content-specific coding (Schwandt, 2007).

> A priori, content-specific scheme is first developed from careful study of the problem or topic under investigation and the theoretical interests [theory of planned behavior] that drive the inquiry. The codes are derived directly by the social inquirer from the language of the problem area or theoretical framework. Data are then examined and sorted into this scheme" (Schwandt, 2007 p. 32).

That is, the formation of themes and the interpretation of the data were all informed by the theory of planned behavior. Data was sorted into themes corresponding with the theory's antecedents (i.e., attitudes towards the behavior, subjective norms, and perceived behavioral control) and themes that did not fit within the theoretical framework, as aforementioned.

Trustworthiness

The purpose of establishing trustworthiness is to satisfy the question, "how can an inquirer persuade his or her audiences that the findings of an inquiry are worth paying attention to, worth taking account of?" (Lincoln & Guba, 1985 p. 301). Lincoln and

Guba outline four criteria for trustworthiness including creditability, transferability, dependability and confirmability.

Credibility. Steps were taken to enhance trustworthiness and creditability through the use of peer debriefers and by providing member checks (Lincoln & Guba, 1985). This process increases the likelihood that the findings and interpretations produced using qualitative methods can be creditable.

Peer debriefing is defined as "a process of exploring oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspect of the inquire that might otherwise remain only implicit within the inquirer's mind" (Lincoln & Guba, 1985). As such, peer debriefers were not involved in the data collection process nor did they have any direct involvement in the study. The debriefers provided an audit of codes, themes, and interpretations of data. Overall, they provided an audit to the collection, categorization, and interpretation of the data.

Member checking gave participants an opportunity to review and verify data and the interpretations of the researcher of such data (Lincoln & Guba, 1985). Each participant was sent a written transcript to review and to provide clarification and suggestions for potential changes to the transcript. If changes were needed, transcripts were resent to the participants for final verification.

Transferability. The strength of qualitative research methods is dependent on the presentation of a thick description of research data to increase transferability (Patton, 1990). In order for other researchers to apply the findings of this study, a thick

description of recycling behaviors of sport spectators is provided in the following section.

Dependability and Confirmability. Dependability and confirmability can be verified through the use of a proper audit of the research process, interpretation, and research findings. An auditor is needed to evaluate the research steps to determine uniformity of the research methods across the entire process. This was be fulfilled by the use of peer debriefers as mentioned above. To further the confirmability of the study, the research notes, interview tapes, and transcripts of the interviews were maintained.

Results and Discussion

Only 6 of the 16 participants, or 37.5%, indicated that they had recycled during football games. Using the theory of planned behavior (Ajzen, 1985; 1991) as a theoretical lens, I examined the degree to which attitudes, subjective norms, and perceived behavioral control impacted their recycling decisions. I present the specific findings in the following sections.

Attitudes Towards Game Day Recycling

The first research question was concerned with participants' attitudes toward recycling. According to the theory of planned behavior (Ajzen, 1985; 1991), attitudes are categorized as the positive or negative feelings an individual has towards a specific behavior. The majority of participants in this study had favorable attitudes towards recycling before, during, and after home football games. They also expressed the need to have more opportunities to recycle. The participants seemed to be willing to recycle if given the opportunity. However, some participants indicated that those positive

attitudes might become secondary when consuming the game day atmosphere (e.g., tailgating, walking into the game, watching the game, and leaving the stadium).

Analysis of the data suggested a more nuanced view of the influence of attitudes on recycling. Specifically, some participants recognized a change in their attitudes (for the positive), while others' positive attitudes toward recycling wavered. I discuss both themes in the subsequent sections.

Change of Attitude. Despite the conservative nature of the participants and the university as a whole, the participants voiced a positive attitude towards game day recycling whether at tailgates or in the stadium. Several participants indicated the changing attitude of sport spectators toward recycling and environmentally friendly behaviors. The increase in awareness and positive attitudes toward environmentally friendly behaviors, more specifically recycling, has been documented in previous research (Arcury, 1990; Derksen & Gartrell, 1993). John noted the following when responding to recycling initiatives taken by PCU's athletic department during home football games:

> I love it, kind of helps us compete with our big brother [rival school] in [city of rival]. I say that facetiously. Going back to where are you on the political spectrum, I am a 7 [1 = liberal, 7 = conservative] on all the moral issues but then you get into an environmental-tree hugging green aspect, I am more on the what would be perceived more on the liberal end of the spectrum, just because it is important. I think a lot of people are moving that way. You know if you were to

> say this like 10 years ago, you would kind of be what tree huggers were kind of made of. [pause] I think a lot of people are, there's a demographical shift.

This thought of changing perceptions or attitudes toward recycling was also echoed by another participant, which is discussed further below. It is interesting to note the distinction of political identification with various morality issues and social issues. This comment is consistent with previous research conducted by Thogersen (1996), who found that recycling behaviors are grouped as right or wrong behaviors. However, John's comment indicates that recycling at sporting events might not necessarily be categorized as a moral issues, but more so as a duty.

The change in attitudes towards environmental issues (e.g., recycling programs) may come as a result of increased awareness to the impact that humans have on the natural environment. This increased attention towards negative environmental outcomes can make an individual's attitudes towards recycling more positive. Ken notes the increased awareness of the environmental impact of not recycling:

> Some people might not do it, but at home it's no effort. At [home football games] it might be different. I think most of the old [alumnae] would do it, I think we could be trained. I'd say if it were five years ago it would be tougher, but I think there is too much evidence now and I think you would have to be brain dead. Pardon the pun, but all the old [alumnae] they are all loyal to the University, they are all loyal to the United States. I just think that they could see, hell we need to do this. I think the problem is that the younger people are more

> likely to do it than those old people. The older you get the more you bag your things [not recycle].

Ken's comment not only indicates the unique context of recycling at sporting events as compared to household recycling, but also points to the generation gap in the attitudes towards recycling.

The generational gap was also demonstrated by several of the older participants in the study. Garth refers to of the differences in his attitudes as compared to his daughters. As a father, Garth notes the positive attitudes and commitment to environmentally friendly behaviors of his daughters because of their exposure to the benefits of recycling:

> I think there would be a benefit to it. I think this younger generation, like my daughter, she graduated from there in '07, and my other daughter, is there right now, are big into that. They will walk you know, 50 yards to throw plastic bottles into something that is recyclable. Where you know, I won't do that. I think that for the younger generation in college see that there is a true benefit there. I think that with older people in my category never grew up with it, never saw benefit from it. So it's kind of like, "oh man", and forget about it.

Research has supported these comments that age has slight, albeit significant, explanatory power for individuals' attitudes towards environmentally friendly behaviors, including recycling (Samdahl & Robertson, 1989; Van Liere & Dunlap, 1980). Sport organizations should recognize the age differences in the attitudes towards

environmentally friendly behaviors. As such, programs and marketing should target older generations of spectators to influence their attitudes to be more positive.

Wavering Attitudes. On the contrary to the positive attitudes towards recycling, there was a contingent of participants who did not have overwhelming positive attitudes towards game-day recycling or recycling as a whole. This is not to say that they believe recycling is worthless, but rather is inconvenient or unbeneficial to them. These individuals seem as though they are intrinsically motivated and want personal benefits for recycling. Some of the participants voiced their dissatisfaction with recycling programs within their neighborhood communities, citing those dissatisfactions as the main reason for their lack of participation. Jason spoke of these mixed attitudes towards recycling:

> You know, I don't mind doing it if it's convenient for me to go out of my way. I just have never been presented enough evidence that it's that good for the environment or it's not someone else making money. Therefore, it's better for their pocketbook. I have never seen enough evidence to convince me to go out of my way to recycle.

Note too that, in addition to be skeptical of a sport organization's motives for recycling, Jason's attitudes were shaped by the ease of the activities, or the perceived behavioral control. Ajzen (1985, 1991) also recognized the relationship among these constructs, and I discuss the influence of the latter in subsequent sections.

As mentioned previously, negative experiences or outcomes from a particular behavior can create negative attitudes towards the behavior. From these negative

behaviors, an individual will be more likely to avoid the behavior (i.e., not recycle). This brings up an area of concern for sport organizations when implementing recycling programs to combat these negative feelings. George only furthers this concern:

> I would be how is it going to affect me? Is it going to affect me? Is the price of my drink going to go up 25 cents, because you figure you have to pay more for? To be honest with ya, how's that going to affect me? Is it going to be what I would assume most people are going to say? I don't care if they are green, brown, yellow, purple or whatever. If they are doing what they are doing and it isn't affecting me then I really don't care what you do. Does it affect me because I pay two and now pay two fifty or two and a quarter or something like that? That might make a difference as far as that goes. Do I care if I sit there and you say [PCU] is a green school, I don't care. I still want those guys [football team] to go knock the other guys' heads off. If they do that job, then I am ok with that. I don't want to sit there and necessarily become a liberal school from the standpoint, and I don't think we would, but if they said we are going to green and start recycling and paying attention to these things then great. But again how is it going to affect me?

Both these concerns are important to consider when implementing recycling programs and as sport organizations implement green initiatives to spectators. It is important to consider how the message of such programs is delivered and understood by spectators. A negative response to these messages could develop negative attitudes and thus lower participation in recycling programs and efforts made by the sport organization or athletic

department. Even further, sport organizations should frame messages that show the benefits of participating in recycling programs. This frame can eventually change negative or neutral attitudes to be positive, leading to increased participation and recovery rates of recyclable materials.

To create more positive attitudes towards environmental programs, sport organizations should provide more transparency and correspondence with fans. This should increase the potential for positive attitudes towards environmental and recycling programs by providing reasoning and justification behind the organization's decision to promote and engage in environmentally friendly programs. Even further, it is important to relay the expectations of spectators with regards to these programs. For example, the Philadelphia Eagles have an entire website dedicated to their environmental initiatives (see www.philadelphiaeagles.com/gogreen). Other sport organizations, such as PCU athletics, could engage in similar endeavors.

Subjective Norms to Recycle at Sporting Events

The second research question was concerned with the subjective norms that influenced recycling behaviors. Participants in the study cited several groups that would influence their recycling behaviors while attending sporting events. These influences were broken down into three themes: influences by the athletic department, one's family, and the influence of one's friends/groups.

Influence by the Athletic Department. Larger institutions have considerable influence on an individual's beliefs and attitudes (Wood, 2000). This is certainly the case in the current study. In a response from Garth, it is clear to see the influence of his

association with the PCU football team would influence him to engage in recycling and other environmentally friendly programs.

> Well, I am a redneck and if the football team says that we need to recycle, I am probably going to start recycling, just out of respect for the football team. If PCU says we are going to recycle 100% of what we can, then out of respect for the school, I would do it. If it is left as an option, I am still looking for the closest hole to throw my stuff in.

It is important to note from Garth's comment that athletic departments and sport organizations should not half-heartedly take on the issue of environmental sustainability; rather, they should strongly convey the importance of recycling and the athletic department's commitment to these programs. Likewise, Ken echoed these sentiments: "But all the old [alumnae] are loyal to the University…I just think that they could see, hell we need to do this." These comments convey the power that large institutions, such as the athletic department in the current study, have on shaping people's beliefs and behaviors.

The relationship between green initiatives and identification was also highlighted by McCullough and Cunningham (2010), who theorized that an organization's green initiatives can influence and increase fan identification. Interestingly, however, the interviews conducted in this study suggest that the relationship might not be one-directional. Specifically, fans' identification with the team seemingly plays a key role in their willingness to abide by and follow a team's green initiatives.

Family. In other research studies utilizing the theory of planned behavior, family and friends are commonly seen as significant influences to engage in certain behaviors (Ajzen 1985; 1991). The same was found from the interviews conducted in this study, particularly with the older participants. Participants suggested that the younger generation influences older generations to engage in recycling behaviors. When asked who influences his recycling behaviors, Garth replied:

> The younger generation, yeah I get grief all the time. The older guys that we tailgate with, they are like me, the game is over at 10 and we got to get back home [200 miles away] and we are looking for a place to stick the stuff. My daughter and her friends they are out there separating them into separate bags and all that crap and hauling that and stuff like that…These younger kids, the younger generation, they have been told so much that, you know, our generation is killing the planet. They are going to the opposite extremity to try to save it for their kids, which is positive. But I really see the kids doing more than the older people.

Garth explains the influence of younger generations on him comes through the education that they received. This is a constant theme of trying to "teach an old dog new tricks" and getting older generations to recycle during sporting events. Sara, a mother of four, furthers explains the influence from her children:

> I would expect, Brian and Colleen [participant's children], the younger ones, because they hear so much about that in school now. We [the participant and her husband] weren't raised like that. We weren't raised with computers. Now that

> is second nature to them. Recycling seems to be the thing … actually Colleen just wrote a speech, she's running for student council in her class and that was her big thing, recycling. She wants to encourage teachers to recycle more.

Sara was not the only one in the family that noticed the influence of their daughter Colleen. George, Sara's husband, also noted that, "She [Colleen] is more in tune with things like that than the older ones or we are for sure."

Friends. As previously mentioned, significant others such as friends commonly serve as significant influences for an individual to engage in a specific behavior. Just as with family members, participants' friends influence their attitudes and behavioral intentions to recycle during sporting events. Younger participants in the study commonly referred to friends and social groups as influences to engage in game day recycling. Paul mentions that his friend influences him, but also describes their interaction:

> I have a really good friend and he is actually an environmental studies major. He is actually one of the biggest influence on me, because in high school I used to be one of those, no it's a pain, it's annoying. See him doing those actions, it's like it really isn't that big of a deal. … He expects me to recycle just because he lets me know it's annoying. He gets irritated if I don't recycle in front of him.

Not only does Paul recognize this subjective influence, but he also realizes the influence that his friend has on him. Beyond these influences of specific individuals, younger participants in the study also commonly referenced social groups as subjective norms. Stacy describes how being within a social group can influence her one way or another,

depending on the attitudes of the group towards recycling: “I guess if you are with people or your group that recycle then you will follow their trends. You are not going to go, ‘oh I don’t recycle’ and go on your way.” The social influence is important in establishing and encouraging recycling programs whether in the stadium or while tailgating.

Perceived Behavioral Controls

The final research question was focused on the linkage between perceived behavioral control and recycling behaviors. What makes the theory of planned behavior unique is that it takes into account volitional behaviors, or those that require an individual to overcome obstacles to successfully complete a task at hand (Ajzen, 1985; 1991). In the current study, I identified two primary themes regarding perceived behavioral control: misinformation related to recycling programs, and the ease and accessibility of recycling.

Misinformation Related to Recycling Programs. The context of recycling during a sporting event varies from other situations where someone may recycle. For example, an individual is continually exposed to recycling receptacles whether within their workplace, school, or house. This awareness and comfort with recycling decreases the obstacles that may prevent them from recycling. However, during a sporting event, whether tailgating or in the stadium, participants in this study were not familiar with recycling programs introduced by the athletic department, nor did they believe that they were easily accessible or convenient to their location.

When asked about their attitudes towards the current recycling programs at PCU's home football games, many participants reflected and could not recall if they saw recycling bins around the stadium. Stacy commented, "There is no real opportunity to recycle at [home football games] that I know of … If I don't know, then I am sure none of the other students know of it." The lack of awareness served to limit the likelihood that spectators will recycle during or after the game.

The lack of opportunities to recycle around the stadium also creates confusion among the participants. John also was confused at what exactly could be recycled at football games:

> The only thing I noticed is the bin for plastic bottles. Is there more than that? They just say plastic bottles only, they don't say plastic cups and we [concession stands] are selling these huge plastic cups. I like the fact that they are thinner now, at least apparently more disposable as opposed to the big heavy thick ones, which we take home and they become China for us.

As a way of alleviating this confusion, sport organizations can use signage that not only relays what is and is not recyclable but also has pictures of recyclable items sold in the stadium. Lack of knowledge of what to recycle and where to recycle can prevent sport spectators from recycling. This gap in communication can lead to an increase the amount of waste that is thrown away in the trash destined for landfills, thereby increasing the organization's impact on the surrounding environment.

In addition, a majority of participants responded that is was very easy to avoid recycling. Tying into the previous theme of not recognizing the opportunities to recycle,

Billy, a PCU student, responded quickly when asked how easy is it to avoid recycling opportunities at home football games:

> Avoid?! Especially on the student side I don't think I have ever seen, "put your recycling here." It's real easy [to avoid recycling] on the student side, especially just to not recycle and throw something in the same pile or just leave it at your seat.

Paul also thought it was easy to forget about recycling or disposing of trash properly while leaving an event:

> How easy would it be? Extremely, it would be extremely easy. I mean, for me perfect example, if it's hot and I leave the game early, I will just walk out and not even think about that the water bottle is under the bleachers and just leave. Not even think twice about it.

Participants leaving trash under their seats was commonly mentioned throughout the interviews. It is easier for a spectator to purchase concessions and leave the trash beneath their seats than to take their trash and recyclables out to the concourse to dispose of them properly. However, if sport fans leave their trash under their seats, this is not necessarily bad from an environmental sustainability standpoint. Maintenance crews, or volunteer groups as is the case at PCU, will go through the stadium collecting trash and recyclables. Since the spectator did not deposit the recyclable material in the trash receptacles, the recyclable material still has an opportunity to be deposited properly. From an efficiency standpoint, leaving trash is a common problem for facility managers and maintenance crews. Having to separate and perform two clean up swoops around a

facility creates more work that requires more time (Environmental Protection Agency, 2008).

Convenience and Accessibility to Recycling Receptacles. When responding to what prevents them from recycling during home football games, participants overwhelming pointed to convenience and accessibility to recycling receptacles. As previously mentioned, participants want to dispose of their trash quickly, whether that is in a trash or recycling receptacle. Older participants in the study commonly shared these feelings.

Unique to the sport context, sport organizations have to consider the spectator's enjoyment of the event. As demonstrated here, Jason believed recycling should be convenient but also should not impede on his enjoyment and viewing of the game:

> For me its all about convenience, if I am there watching a football game. If it's going to make me take time away from the game or make me look for something or walk further than I normally would, I am not, I am not into the game of recycling. If it's something that is just as easy as throwing away and just put it in a different bucket then I am cool with that.

This is consistent with recommendations made by the Environmental Protection Agency (2010) that recycling receptacles should be placed next to or near by trash receptacles to maximize recovery rates of recyclable materials. In line with this notion, Major League Baseball recommends that teams use Green Teams, or people who walk through the aisles between innings collecting recyclable waste (i.e., empty aluminum beer bottles,

plastic cups) from spectators (Stephens, 2010). In this way, the fans are not inconvenienced, nor do they have to search out recycling receptacles.

Garth, who previously stated that his daughters influenced him to recycle, also noted why he does not recycle and what it would take for him to recycle more:

> I think the reason you wouldn't do it is because there's nothing close enough to you. After a game, when you are trying to get out of there. You're not looking, at least on our side, we are over at [tailgating location], there are a couple of barrels up and down the street and there is everything possible … I think if they were spread out close enough, more recyclable containers, I think I would be more apt to throw something in there … I think if there were enough of the deals then surely people would do it.

The convenience and accessibility becomes even more important at a sporting event. At PCU, the home football games can attract up to 100,000 people for a game weekend to tailgate and attend the game. Without recycling programs in place, such gatherings can leave a tremendous carbon footprint on the environment (see McCullough, 2010). When these spectators enter or leave the stadium, large crowds form, congesting the concourse, slowing walkways, and clogging exits. The necessity to have recycling receptacles spread throughout the stadium and tailgating areas are critical.

Oftentimes, disposing trash is not on the forefront of a spectator's mind when going to the concourse or exiting the stadium. Stacy explains the –all-so-common experience when leaving a crowded game and what it is like to recycle:

> It is crowded, so when you see a trash can you just use it. It's not like you have the opportunity to think, "Oh, I got to save these bottles because I need to recycle." It's just, you know, the crowd management. You are just going so [pauses] You just, I mean, if there was "please recycle" then you would just throw it in that one. But if there is a trashcan then you'll just use that.

Stacy brings up an important point to consider: simply because trash and recycling receptacles might be placed strategically, facility managers need to consider the accessibility for spectators to recycle when the concourses are filled.

Lastly, despite providing opportunities for fans to recycle before or during an event, sport organizations also need to consider drunken fans. George mentions the problem of inebriated fans:

> If they put a trashcan by every recycling bin perhaps they would do better. But still at that point, you're talking about drunk [fans], they aren't going to be paying attention as much. I did whenever I was inside. It was right next to the trashcan, I was like I can put it in here or throw it in there… It doesn't really require a whole bunch of extra effort to put it in the recycling part so that we did, or I did.

Recycling might become more challenging or even less of a priority among inebriated spectators. Obviously, impairment due to drunkenness presents a challenge to behaviors such as driving, walking and recycling. Sport organizations need to consider this aspect as well: impairment of spectators can lead to the decrease of recyclables recovery rates.

Additional Information

Considering the nature of connecting the data to higher order themes (Ponterotto, 2005), conversations with some participants provided rich data that did not necessarily fit with the theory of planned behavior (Ajzen, 1985; 1991). This section addresses the additional information that is pertinent to the topic of sport spectator recycling but goes beyond the theory of planned behavior. The most interesting was the recommendations the participants had for implementing opportunities or programs during PCU's home football games to increase spectator recycling. Participants in the study were very creative in recommending ways to encourage spectators to recycle through normative behavior transmission, behavioral prompts, and incentives to recycle.

Norm Transmission. Related to subjective norms, participants recommended ways to persuade spectators to recycle. Garth provided an example to transmit normative behavior by recommending that if spectators see the football team recycling they would be more apt to recycle:

> I watch the guys on the sidelines, and they are always drinking their Gatorade and stuff. And I think of one of those subliminal messages things, if you have had recycle bins on the sidelines with the football team and they drink their Gatorade. Or the trainers, if they carry all that, dump those in the recycle bins. I think there will be something said to the fans that, "hey look we are going out of our way to help, and you should too."

Seeing football players model positive behavior can influence sport spectators. This is referred a norm transmission (Cialdini & Trost, 1998). The basic assertion of social

norms is that if a norm is not transmitted from one person to the next then the norm is nonexistent. Norms can be transmitted from "anyone in one's social-sphere, including children, partners, family, friends, coworkers, strangers, and the media" (Cialdini & Trost, 1998, p. 154). In this suggestion, seeing football players recycle on the sidelines, the normative behavior of recycling is transmitted without explicit messages or implicit endorsement. Previous research (Cialdini, Reno, & Kallgren, 1990) has demonstrated the effectiveness of such messages.

Behavioral Prompts. Another suggestion common among participants was to implement more recycling bins. Recycling bins are commonly seen at professional stadiums. Debbie, a PCU student, recommended bins that she saw while interning for a professional football team.

> At home football games I think if there [pauses] I work for the [an NFL team], and they have these huge can or bottle looking recycling things. It's easy to spot those, and people are like "oh okay, I will just put that in here." At PCU I haven't seen anything that big, that is eye catching. So I think if we have something related to those terms it would be easier for people to recycle and more people probably would. So I mean it would probably be helpful.

Bins like this can be used as behavioral prompts to increase recycling. Also, several participants recommended the use of advertisements or public address messages throughout the game to bring awareness and encourage spectators to recycle. Kilee, a PCU student, suggests these cues would help to increase spectator recycling:

> Even on the jumbo-tron, before, after, and even in-between, having a short advertisement in-between plays or timeout showing PCU student-athletes go green or recycling. People are always watching that, and people will pay attention to that. Maybe even having things in your concessions, like having things in your concessions saying something like this amount of trash creates … showing the benefits of it in an advertisement that is short and sweet. And it really makes you think. Like at concessions or in the restroom [in the stadium]. People will see that, and I mean, when I see that it makes me think. It makes me more willing, I am always willing, I mean more purposefully going over to find a different bin.

Previous research concerning the effectiveness of prompts to promote recycling has been mixed (for a review see Hopper & McCarl-Nielsen, 1991). Research to increase recycling—whether successful (Jacobs & Bailey, 1982; Luyben & Bailey, 1979; Luyben & Cummings, 1981-1982) or unsuccessful (Jacobs, Bailey, & Crews, 1984; Witmer & Geller, 1976)—has focused on pamphlet handouts and neighborhood leader intervention. However, these studies did not specifically examine the use of recycling bins as a behavioral prompt. In their review of the literature, Hopper and McCarl-Nielsen found that prompts and providing information successfully led to an increase in recycling behaviors but did not affect norms or attitudes. They did find, however, that human communication had the greatest impact on recycling behavior, followed by prompts, and information.

Sport organizations should implement several levels of prompts to increase spectator recycling. These outcomes can let spectators know how they have contributed to reducing PCU's environmental impact through their participation. Also, verbal messages from the public address announcer and cues on recyclable materials to recycle should convey the importance of recycling in the stadium while also letting spectators know what, where, and how to recycle while attending a football game at PCU. Adding such messages can provide new opportunities for athletic departments to incorporate sponsors to such programs. The increase of sponsorship opportunities gives the athletic department more opportunities to benefit financially from green initiatives (McCullough & Cunningham, 2010).

Improved Image. Participants in the study recognized that being forward-thinking when it came to environmental issues would potentially improve the image of the athletic department. George commented:

> The athletic department to the university as a whole, it seems that the athletic department are typically considered the Neanderthals anyways. The people that (sic) are running the university are considered the smart ones. The bow tie guy [PCU President], whatever his name is… if you can turn around and prove that it works here, I think it would be easy to get the university to do it. They definitely would want to be considered green and friendly whereas the athletic department could careless one way or the other…

George's comments also point to some potential challenges that athletic departments and sport organizations may have when conveying the sincerity and commitment to fans. It

is imperative that athletic departments convey to their fans that department personnel genuine in their approach to decrease their environmental impact by introducing initiatives like recycling programs. If fans do not feel as though the athletic department is taking these programs seriously, the athletic department can suffer financially through by lower recovery rates of recyclable materials.

George indicates the influential power an athletic department can have on the rest of campus. Indeed, there are calls for sport management research to create social good (Ziegler, 2007). Sport, in this case, can be used as a vehicle to promote environmental stewardship and responsibility. This is particularly the case for athletic departments—entities that are often considered the "front porch" on an institution (see Buer, 2009; Suggs, 2003).

Summary and Conclusions

In this study, I qualitatively examined recycling behaviors of sport spectators. The theory of planned behavior (Ajzen 1985; 1991) undergirded the process, serving as the theoretical foundation and the lens through which the data were coded. Overall, participants in this study had positive attitudes towards game-day recycling. The participants were commonly influenced by their family and friends to recycle while tailgating and attending the game. This is consistent with the theoretical framework and empirical research involving the theory of planned behavior. Despite these influences, participants were mixed in their actual behaviors of recycling during such events. They citied that lack of recycling opportunities, confusion with the recycling programs, and the lack of convenience of recycling receptacles—all related to their perceived

behavioral control—as preventing them from recycling while tailgating or while in the stadium.

Participants suggested that they would partake in these programs if they were informed and reminded to participate by the athletic department to recycle. As such, athletic departments should improve the success of recycling programs by conveying to spectators what can be recycled, indicating where the spectators can recycle, and providing reminders to participate and help reduce the athletic department and university's overall environmental impact. Consequently, athletic departments are challenged to reduce their game day operation costs by increasing the recovery rates of recyclable materials. Athletic departments may need to financially invest in these programs to ultimately save on dumpster fees for landfill waste.

Future research should examine the influence of norm transmission concerning recycling behaviors within a sport context. Norm transmission can potentially increase recovery rates of recyclable materials at a low cost to the athletic department. Additionally, the changing culture towards environmental initiatives, like recycling, among sport spectators should be examined through the introduction, growth, and maturity of these programs. Additionally, other contexts should be studied during this examination for external validity purposes. This study was conducted on a conservative collegiate campus. Other contexts, such as professional sporting events or in a more politically liberal area, might offer additional information into the recycling behaviors of sport spectators. Indeed, given the importance of recycling, any and all efforts to better understand those efforts are both needed and welcome.

CHAPTER V

GENERAL DISCUSSION AND CONCLUSIONS

Sport organizations can have a detrimental impact on the environment, and this is only by the sport spectators attending these events (see McCullough, 2010). One such environmental impact that can be reduced by the organization is the amount of solid waste that is deposited into landfills (Environmental Protection Agency, 2010). Recycling programs can reduce the impact that sport spectators contribute to the organization's overall environmental impact while also saving the organization financial resources. Despite the introduction of recycling programs, national recovery rates for recyclable materials remains around 50% (California Department of Conservation, 1997). These programs and the recycling behaviors need to be further understood to increase the recovery rates of recyclable materials consumed during sporting events. As a result, the organization can reduce its environmental impact and while saving financial resources (McCullough & Cunningham, 2010).

To this end, my dissertation sought to understand sport spectators' recycling behaviors. I assessed these behaviors in three studies. In Study 1, I examined the on-campus recycling behaviors among college students. In this study, I found that there is a significant influence in the attitudes and subjective norms individuals have towards their intentions to recycle. Perceived behavioral controls were not significant when predicting intentions to recycle – a finding consistent with previous literature (Boldero 1995; Davies et al., 2002; Tonglet et al., 2004). Behavioral beliefs did provide deeper

understanding into the antecedents (i.e., attitudes, perceived behavioral controls, subjective norms) of the individual's intentions to recycle plastic bottles after consumption. The influence of family members and peers were significant in explaining subjective norms of individuals. Likewise, the time restraints individuals have to recycle was significant in predicting perceived behavioral beliefs; whereas, conscientiously thinking about recycling and accessibility to recycling receptacles was not perceived to be an obstacle to recycle. However, none of the behavioral beliefs (i.e., helping the environment, reducing landfill waste, and reducing one's impact on the environment) were significant in explaining an individual's attitudes towards recycling. The convenience sample within this study led to further inquiry to understand actual sport spectator recycling behaviors while attending sporting events.

As such, I examined the same phenomenon within a sport context, specific to the driving purpose of this dissertation. In Study 2, sport spectators were surveyed using the theory of planned behavior (Ajzen 1985; 1991) to understand their recycling behaviors while attending a weekend long youth baseball tournament. In this study, I found that subjective norms significantly predicted intentions to recycle during the weekend-long tournament. Unlike Study 1, perceived behavioral controls were significant in predicting recycling intentions among the participants. Similarly, attitudes towards recycling were not significant in predicting recycling intentions among the participants.

Further, belief composites (i.e., decreasing the quantity of waste in landfills, decreasing one's impact on the environment) were significant in predicting attitudes towards recycling; whereas, reducing one's carbon footprint was not significant in

predicting attitudes towards recycling. Of the normative beliefs, only fellow families on an individual's team significantly predicted subjective norms. However, the influence of the host site and the surrounding community was not significant in predicting subjective norms. Lastly, none of the control beliefs (i.e., time constraints, conscientious thought to recycle, accessibility to recycling receptacles) were significant in predicting perceived behavioral controls.

To examine this issue more closely, in Study 3, I qualitatively examined the recycling intentions of sport spectators who attend collegiate football games at a large midwestern university (PCU). Unlike the preceding studies, Study 3 offered a balanced mix of female and male participants and also had a wide range of ages (i.e., 21 – 69 years of age). Additionally, the qualitative inquiry provided an opportunity to explore the richness of data that participants provided about their experiences while attending home football games. Combined with this methodology and unique context of attending a large-scale sporting event, the participants provided rich data that can lend well to the implementation and improvement of preexisting sport facility recycling programs.

Study 3 provided a unique understanding of the participant's attitudes towards recycling. Due to the conservative atmosphere of the university, participants were more politically conservative but had favorable attitudes towards recycling. Some participants, however, questioned the benefits of recycling programs and the motivations to get people more involved in such programs. This study demonstrated, consistent with Studies 1 and 2, that subjective norms from family members and social groups are salient in influencing recycling decisions. Participants also mentioned the influence the

athletic department can have to influence spectators to recycle. Lastly, there were data that did not necessarily fit into the theoretical model for the theory of planned behavior (Ajzen, 1985; 1991) but nevertheless contributed to ways in which the athletic department could improve recycling efforts. Specifically, participants mentioned the potential influence of norm transmission (Cialdini & Trost, 1998), the influence of behavioral prompts to recycle (i.e., signage or public announcements), and the improved image of the athletic department by engaging in environmentally friendly initiatives like recycling.

Implications

These studies have implications that can benefit sport organization as they implement environmentally friendly programs. For example, athletic departments need to establish a clear plan for implementing environmentally friendly programs, including recycling. As seen in Study 3, participants explained their confusion regarding the recycling programs implemented at PCU. Additionally, fans voiced their opinion that if the athletic department encouraged spectators to recycle and help in the department's greening efforts that fans would be more apt to participate in such programs. As such, an athletic department needs to be proactive when initiating these programs to encourage and to increase participation among spectators. Athletic departments should avoid haphazardly piecing together programs that are not coordinated among all aspects of the game day experience. That is, all elements of the game day experience, including public address announcements, signage, placement of recycling receptacles, and athletic department endorsement, need to support efforts to recycle.

Furthermore, coordinating efforts of the various athletic department entities with those of outside entities (e.g., surrounding municipalities, additional institutional support) can improve the implementation and effectiveness of such programs. Coordination with facility managers is needed to understand the placement of signage and recycling receptacles throughout the event facilities. Further, spectators need to be reminded of the recycling initiatives at the facility. These reminders can come through signage, as previously mentioned, but also through public address announcements and advertisements on the facility's jumbo-tron. These coordinated efforts also can incorporate the marketing and sponsorship department. Additional signage and receptacles offers more possibilities to increase revenues through additional sponsorship opportunities.

Limitations

Despite the strengths of this line of research, there are some limitations that prevent its applicability. Due to the conservative nature of the samples in all three studies, discretion should be used to convey these findings in a practical way. Further, in Study 1, I used a convenience sample that is oftentimes criticized due to its lack of external validity (Sears, 1986). These concerns are allayed given the samples in Studies 2 and 3. Finally, I did not assess actual recycling in Studies 1 and 2. While intentions are the most proximal antecedents of behaviors (Ajzen, 1985, 1991), only measuring intentions does not provide a true estimate of behavior.

Future Directions

As demonstrated in Chapter IV, recycling during a sporting event presents a unique context. Due to the nature of a sporting event with regards to recycling, further research is needed. One such area is to examine additional factors that influence sport spectator recycling. Affective mood, implementation of programs, and tenure of programs might influence whether or not sport spectators recycle. These areas, among others, should be explored to increase the recovery rates of recyclable materials consumed before, during, and after a sporting event.

Second, the influence of social factors should be isolated and tested. Social groups (e.g., family members, friends, social groups) have a significant influence on individuals to engage in recycling programs. Understanding ways to make those influences salient while attending a sporting event are important to discover and to eventually implement into the organization's environmental initiatives program. Studying these influences can increase the social pressure to recycle and ideally the attitudes towards recycling.

Additionally, from an organizational perspective the commitment of athletic departments or professional sport organizations should be examined with regards to their influence on participation and the extent of the implementation of environmentally friendly programs. Understanding the level of commitment can be related to the engagement of spectators in such programs. Moreover, it would be interesting to examine the return on investment, whether tangible (i.e., financial benefit) or intangible (i.e., increased fan identification), based on the commitment to environmental initiatives.

This would provide empirical evidence confirming what McCullough and Cunningham (2010) theorized that engaging in environmental initiatives would provide such benefits.

Lastly, environmental impact formulas need to be developed to specifically evaluate the environmental impact of sport organizations and events. Developing such measures can bring uniformity to the process of analyzing environmental impacts of these organizations. Further, such uniform measures can help sport organizations to identify areas that require improvement to further reduce the organization's environmental impact. The International Olympic Committee (IOC) has mandated the incorporation of environmental sustainability into its events. However, the evaluation methods used by the IOC have yet to be adapted by professional sport organizations or collegiate athletic departments.

Conclusions

The purpose of my dissertation was to understand sport spectator recycling behaviors. The findings indicate that spectators are oftentimes influenced by social groups (i.e., family members, friends, and other social groups) to recycle during such events. However, the accessibility and familiarity of recycling programs and the locations of recycling receptacles presents challenges for spectators to recycle. Additionally, spectators find it difficult to recycle with congested concourses commonly found at sporting events. Drawing from these findings and conclusions should be done with caution given the conservative political views and narrow samples used in the studies. Lastly, it would behoove sport researchers to examine other contexts within other sports (i.e, profit vs. non-profit sports, male vs. female sports), contexts (i.e.,

politically liberal areas, municipalities with large scale recycling programs), and organizations with varying levels of commitment to environmental programs.

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APPENDIX 1

REVIEW OF THE LITERATURE

> There, Mother Nature designed the links – grasses on sandy stretches were fertilized by the droppings of breeding seabirds and cut short by grazing rabbits. Bunkers were allegedly formed by sheep and other animals burrowing into the turf. The result: wide open playing areas with random clumps of razed grass, the perfect terrain for thumping a small, hard ball across the countryside. (Keast, 2001, p 37)

Concerns over the environmental impact of sport have been voiced since the 1960s starting with the golf and ski industries. Part of these concerns surrounds the fact that the average 18-hole golf course consumes 75 to 150 acres of natural, sometimes untouched, landscape. In America alone, US golf courses amass the size of Delaware and Rhode Island combined (see McCullough, 2010). Because of the expansiveness of these courses, natural populations of wildlife are often times displaced or perish. After the natural environment is demolished and often times customized to meet the designs of the course developer, non-native plants are introduced into the landscape. As a result of these non-native plants being planted, extreme amounts of water are used to sustain these plants.

New courses are oftentimes designed with the golfer in mind instead of the environment and natural landscape. The focus on the golfer and their high expectations has caused golf courses managers to take these extreme measures to meet and even

surpass those expectations and to sustain their profits. All the while, the environment suffers. Wildlife populations are threatened. Local water tables are infiltrated with toxic chemicals from pesticides and fertilizers (Wheeler & Nauright, 2006). Natural landscapes are destroyed in order to make room for another golf course thus compromising the health of the environment. These threats on the environment happen to simply meet the expectations of their customers and members.

As with the management of golf courses, the business practices of other organizations, including sport organizations, inherently have a negative impact the surrounding environment. An organization's environmental impact will differ from industry to industry and even from organization to organization. Like with the golf courses, business organizations and human activity impact the environment. Seen in the opening example, sport organizations can have a tremendous impact on the environment and these impacts need to be considered. Examination of the organization's impact on the environment could be quite revealing. These examinations commonly focus on the product life cycle but can also include organizational internal operations as well (Angell & Klassen, 1999; Shrivastava, 1995). Considering the environmental impact of organizational processes can reduce the organization's carbon footprint and overall impact on the natural environment.

It is unreasonable and naive to believe that changes can be made to completely eliminate an organization's environmental impact. However, just because an organization cannot altogether eliminate its impact on the environment does not mean that these considerations should be neglected or ignored. This perspective or stance to

ignore and neglect an organization's impact on the environment has fueled a backlash from environmental groups to community stakeholders. These inspired stakeholders encourage organizations do minimize their impact on the environment and move towards more environmentally sustainable business practices and procedures. Reducing an organization's environmental impact is an on going process (Jermier & Forbes, 2003). It cannot be limited to a one time evaluation and modification. The process of becoming environmentally friendly needs to continually adapt to new technologies and introduced into all aspects of the organization.

The purpose of this review of literature is to demonstrate the negative impact the sporting industry has on the environment. I will provide background into the social movements that lead to the greening of the sporting world. Further I will discuss, various green initiatives that have been created in sport. The discussion will then turn to future opportunities for sport organizations to decrease their environmental impact by through in-stadium recycling programs will be discussed. Lastly, I will introduce the theory of planned behavior (Ajzen, 1985; 1991) and its application to environmentally friendly behaviors. Specifically, I draw from this theory to examine the influences and potential obstacles involved with recycling intentions of sport spectators.

Sustainability

In order to understand environmental aspects of sport organizations, it is important to understand an operational definition of environmental sustainability. The following are similar yet distinct definitions of sustainability as cited from Gatto (1995, p. 1181):

- Applied biologist definition – “sustained yield of resources that derive from the exploitation of populations and ecosystems”
- Ecologist definition – ‘sustained abundance and genotypic diversity of individual species in ecosystems subject to human exploitation or, more generally, intervention”
- Economist definition – “sustained economic development, without compromising the existing resources for future generations”

There are several key points that can be demonstrated through these definitions. First, sustainability focuses on the exploitation and the overconsumption of natural resources. Second, the exploitation of these recourses comes as a result of human activity. For example, the use of natural resources such as petroleum, which is used in the production of plastics. If virgin plastics are created, production requires a substantial amount of petroleum as compared to processing new plastics from recycled materials. Third, the overconsumption of natural resources can have detrimental effects on future generations. Damaging ecosystems due to human activity does not necessarily have a quick fix to recover and reestablish environmentally sustainability. This can be seen with the result of overconsumption and the waste that is created from such a consumer driven society. That being said, actions are needed to evaluate the degree of environmental damage human activity might cause.

The concept of sustainability extends from this need for the natural environment to provide for future generations. But as person kind and business organizations recklessly consume natural resources, the overall wellbeing of the environment is

threatened. This threat has oftentimes been ignored. Discussion over how to neutralize and even reverse society's effect on the environment has often times been avoided or underestimated. It may be simple to see the effects human activity has on the environment. Simply looking at the skylines of major metropolitan areas to see the smog hovering over these cities can show the effects of waste and destructive behavior. Landfills filling up with of post-consumption waste cover the globe. Raw and untreated sewage is often times dumped offshore into the ocean threatening the health of water sources. Pollution and other results of our insensitivity to the environment show the impact that we have on the environment through our behavior and current ways of life. These behaviors impact the world and its future generations.

Environmental Impacts of Sport Organizations

Just as with business organizations and their daily practices, sport organizations of all sizes have an impact on the environment. However, unlike business organizations, sport organizations rely on attracting thousands of customers and fans to consume an intangible product. Because sport organizations typically provide a service rather than a tangible good, the environmental impact of sport organizations is different than non-sport organizations. The following section outlines various aspects to consider when evaluating the environmental impact of a sport organization.

Facility Construction and Management

As the opening example to this review of literature demonstrated, the construction of golf courses, other sport facilities and venues can have a considerable impact on the natural environment. Also, construction is inevitable when older facilities

are replaced. Substantial consideration should be given to the construction of new facilities because of the financial investment in construction and the lifespan of sport venues. Investing in environmentally friendly construction practices can increase the building costs roughly 1% for major projects (Bartlett & Howard, 2000). Given that major facilities range from hungers of millions of dollars to over a billion, 1% savings can be substantial. These aspects can include energy saving lights, low flow water features, and updated HVAC (heating and air condition) systems. This small investment into energy efficient aspects and other environmentally friendly features can have substantial long-term benefits, cutting organizational operational expenses.

Audubon International has introduced a certification process for golf course and wildlife management. This certification process provides a benchmark for golf courses to compare their business practices. Just like this certification process for golf courses, there is a certification for buildings and sport venues as well. The Leadership in Energy and Environmental Design, or LEEDs program, is a renowned program developed through the US Green Buildings Council. Through this certification various environmental aspects are considered. Most importantly, building strategies, materials, energy saving, water usage, carbon emissions, and consumption of additional resources are evaluated. There are multiple levels of certification from its highest level of platinum down to silver. The Washington Nationals were one of the first Major League Baseball teams to achieve this distinction (MLB Advanced Media, 2009). Additionally, higher education institutions are mandating that new sport and non-sport facilities achieve at a minimum silver certification under the LEED guidelines.

Transportation

One of the major considerations with any event is dealing with an increase in spectators. Sport venues are used throughout the year and can attract more than 200,000 people per event. Obviously, the more people that attend an event, the more money can be made off an event. However, considerations are needed to manage the increase in spectators and the impact that those people have on the surrounding area. More people result in more cars and, hence, more pollution. As discussed later, transportation can contribute about 30% to an event's carbon emissions (Centre for Business Relationships, Accountability, Sustainability, and Society, 2007).

Public education campaigns are commonly used and recommended. These programs can educate the public on transportation alternatives. However, these alternatives are only used if they are efficient and are seen as an easier alternative to using private transportation. It is inevitable that a number of spectators will choose private transportation. Considering this, facility managers are encouraged to have transportation procedures for entering and exiting vehicles.

Additionally, infrastructures are commonly redesigned and adapt to accommodate new sporting venues. Public railways and extensions of freeways and highways are used to ease traffic congestion at new facilities. Improvements to a city's infrastructure are more commonly seen in metropolitan areas. However, for smaller cities that host mega-events, parking programs to ease traffic are used to facilitate traffic congestion. For example, programs offered at Texas A&M University during football games are called "Get to the Grid." This program allows fans to park away from the

stadium but close to the highway. Public transportation brings fans from the offsite location to the stadium before and after the game and offers a quick and easy way to get home while decreasing traffic and the impact on the environment.

Foot Traffic

Professional sport facilities and venues, like football and baseball stadiums, are designed to accommodate spectators and increased traffic. However, some facilities are designed for participatory sports, like golf and skiing. That is to say, these facilities are designed to accommodate the people who will be using the facilities for recreational use. When being designed, these facilities may not be considered for hosting a larger event, such as a golf tournament or ski competition. Hosting such events attracts more spectators than the venue may have been designed to accommodate. Increased foot traffic from spectators can ruin the natural landscape and integrity of the surrounding environment.

During ski competitions and golf tournaments, spectators are sometimes granted unlimited access to their respective venues. This free access can threaten the surrounding environment as a result of meandering spectators. Major PGA golf tournaments like the Masters held annually at Augusta National can attract upwards of estimated 35,000 spectators per round (Harig, 2008). The influx of people on the course at major golf tournaments like the Masters can cause tremendous harm to the already altered landscape. Because of this increased traffic of spectators, these golf courses are normally closed for three months after a major event.

Responses by the Sport Industry

Previous literature has examined the effects sport has on the environment. In addition to offering an overview of this literature, I will outline the response that sport organizations, leagues, and individuals have taken to decrease their environmental impact. As previously mentioned, organizational behavior and human actions will have an inevitable impact on the environment. Before modification can happen, awareness is critical. As part of a social movement, environmentalism and environmental awareness hit mainstream media during the 1960s. All industries, including the sport industry, were criticized for their environmental impacts. The following sections outline various aspects within the sport industry from mega-events to individual participation sports like golf and alpine skiing.

Mega-Events

Mega-events are large social or sporting events that are designed to attract large amounts of people and media attention. Obviously, events like the summer or Winter Olympics and FIFA's World Cup are mega-events. There is a tremendous amount of research surrounding these events and the economic impact that the participants, fans, and tourists can inject into the local economy. It was not until recently that environmental impacts were estimated before or after such events. These impacts are only increased with the size of the events. Events like the Olympic Games can attract more than 11,000 athletes and sell more than 6.8 million tickets (like the 2008 Games in Beijing). With this many fans and the construction of new facilities, these events have a tremendous environmental impact.

Olympics Takes Charge. The Olympic Games have exploded in the amount of athletes that participate and the amount of fans that attend each Olympiad. As a result of the increased popularity and a heightened awareness to environmental issues, the International Olympic Committee has come under fire to improve its environmental reputation. Preliminary studies commonly focus on the economic benefits for the host city and country, but before the 1990s the cost to the environment for hosting such events was not common practice among bidding or host cities. The same is not the case today. In the following sections, I provide an overview of the changes that resulted in a more eco-conscious Olympics.

Protests developed in North America against Olympic bids in both Canada and the United States with concerns regarding the environmental implications of hosting the Games. The Olympics began to grow exponentially from one Olympiad to the next, thus increasing the environmental implications for the host community. The first Olympic bid lost because of an environmental protest in 1966 during the bidding process for the 1972 Winter Games. Banff, in the Canadian providence of Alberta, was figured to be the running favorite, as Calgary finished second for the 1968 Winter Games. However, the Canadian Wildlife Association actively protested Canada's bid to host the 1972 Winter Games, mainly because of the relation of Olympic venues in proximity to Lake Louise in Banff National Park (Chappelet, 2008).

Instead, Sapporo, Japan received the winning Olympic bid for the 1972 Winter Games. The Japanese bid did not win solely because the bid did not face resistance like the Canadian bid. On the contrary, the Japanese bid consisted of many environmental

considerations that were typically unseen in Olympic bids. The Japanese town of Sapporo supported and promoted its newly developed infrastructure. This was much stronger than Banff could offer. This infrastructure included "metro, a railway station, new roads, and improved urban heating systems, water supplies, and sewage treatment facilities" (Chappelet, 2008 pp. 1889). Another feature that the Japanese bid promoted was the proximity of venues. All venues were within a 35-kilometer (22 miles) radius. The close proximity of all the facilities reduced the need for transportation, reducing traffic congestion and increased usage of public transportation within the radius. Interestingly, the one site that was located outside of the 35 kilometer radius, the downhill run for skiing, had to be relocated to The Mount Eniwa in Shikotsu National Park because of necessary gradient of the mountain. After the completion of the 1976 Winter Games the slopes were removed and trees were replanted on the ski runs developed for the Olympiad.

Within the United States, the Citizens for Colorado's Future was one of the first social groups that successfully politicized the environmental impact of the Olympic Games (Chappelet, 2008). After Denver had been granted to host the 1976 Winter Games, this collective group of Colorado residents protested over concerns regarding the impact that the Winter Games would have on the over-development of Denver and its impact on Colorado's natural environment. There was much debate over the benefits of hosting the Games versus the tangible and intangible costs. As a result, the state of Colorado put a ballot measure to vote on whether the state would accept the Olympic bid. In 1973, 93% of voters overwhelmingly turned out to vote on the measure to keep

the Games or reject the offer for the Games. The voters rejected the Olympic bid by a three to two margin. Denver then withdrew its acceptance to be the host city of the 1976 Games. On such short notice the IOC awarded the Games to Innsbruck, Austria, because they previously hosted the Winter Games.

Further protests surrounded the 1980 Winter Games in Lake Placid with regards to the conditions of the bobsled and luge run. These runs require enormous amounts of ammonia to refrigerate the ice. The use of ammonia is tremendously damaging to the surrounding environment, especially when the runoff from the course goes directly into the ground and into the natural water table. This became an issue as the Lake Placid Games approached. The Lake Placid Organizing Committee was able to upgrade their facilities from hosting the Games in 1932. Additional concerns surrounded the use of ski runs used for short and long distance jumping. These runs were located in a New York state park run by New York State Department of Environmental Conservation, but these protests were eventually dropped. One major problem surrounding the 1980 Games was that the infrastructure originally created for the 1932, and the subsequent tourism to the region did not keep pace with the necessities of the Winter Games. The increased traffic to the region could not withstand the increased traffic for the 1980 Games (Chappelet, 2008).

Protests surrounding the environmental impact of the Olympics became commonplace since the Winter Olympic Games were hosted in Sapporo, Japan. These protests developed into losing bids by potential host cities based on their poor environmental management. Subsequent bids for the 1976 and 1988 Winter Games

were rejected because of the lack of environmental considerations. But even the winning bid cities that hosted the Olympic Games in Sarajevo (1984) and Calgary (1988) did not follow through on environmental promises (Chappelett, 2008). As a result the IOC decided to focus on developing an environmental aspect to the Olympic charter. As part of this development, the IOC wanted to focus on the legacy of the Olympic Games. This would be demonstrated in Lillehammer during the 1994 Winter Olympic Games. The IOC included the environment as the third pillar of the Olympic movement. This includes incorporating environmental aspects to sport federations, national Olympic committees, and all Olympic sponsored events. The IOC was able to further develop their environmental programs through a partnership with the United Nations.

Six Nations Rugby World Cup. While the Olympics garner considerable attention, other mega events also have the potential to negatively impact the environment. Rugby's Six Nations tournament represents one example, as event organizers must consider not only the economic benefits but also the environmental costs of hosting such an event.

A study, from Centre for Business Relationships Accountability, Sustainability and Society (2007), examined the environmental impact of a 2006 Rugby match during Rugby's Six Nations Tournament. The researchers found that hosting the event required extreme amounts of energy and natural resources. In fact, hosting more than 85,000 fans for one rugby match consumed natural resources and produced massive amounts of carbon emissions. To offset the resources that were consumed and CO_2, it would take

nearly 3,600 rugby pitches, meaning that the energy and resources consumed at one rugby pitch produced such a large carbon footprint it takes over 3,000 times the land to offset the environmental impact.

The Centre for Business Relationships Accountability, Sustainability and Society (2007) encouraged large sporting events like Six Nations to consider alternatives to decrease their environmental impact. Basic elements surrounding the event such as concessions and transportation had the largest impact on the event totaling 60% and 31% of the carbon footprint, respectively. The study suggested simple solutions such as encouraging the use mass of public transit. If 50% of the spectators took a public or private bus or took the train to the event the event's carbon footprint can decrease by as much as 15%. However, many solutions to decrease the environmental impact of sporting events have not been explored or possibly discovered.

Sport organizations such as the Welsh Rugby Union have called upon their fans and followers to help these sport organizations and events to decrease their environmental impacts. This call can also be seen within American professional sport organizations and collegiate athletic departments through the introduction of in-stadium recycling programs. Nonetheless, it is clear to see that even one sporting event as seen in this example can have a significant impact on the surrounding environment. Only imagine the compounding effects of repeating sporting events of a collegiate football team with seven home games to a Major League Baseball team who has 81 home games. The environmental impacts of these events are even more significant than a weekend rugby match.

Opportunities for Green Sport

With more organizations implementing environmental programs, businesses will start to lose their competitive edge for implementing and introducing environmental programs to their customers as these programs will be seen as commonplace. These organizations face several challenges to legitimize their environmental credibility during the transformation into a "green" organization. The environmental movement has expanded into many industries including the sport industry. More and more sport organizations are starting to implement environmental policies and programs as a result of social, functional and political pressures (McCullough & Cunningham, 2010). Public concern comes from the environmental impact of not only the construction of sport facilities (e.g. stadiums, arenas, practice facilities) but also regular use of those facilities that can attract thousands of people to the area. Although there are economic benefits for constant crowds, with these crowds come environmental impacts.

McCullough and Cunningham (2010) argue that environmental programs are implemented due to the overwhelming necessity to avoid criticism from public outlets for degrading the environment and to avoid governmental regulations mandating environmental initiatives. However, some organizations proactively and strategically implement environmental or green programs. Despite introducing such programs, some sport organizations are being criticized for the lack of environmental integrity, a phenomenon commonly referred to as green washing (Hartman & Stafford, 1997). These green washing claims discredit not only the organization's environmental policies but also can hurt the overall image and brand that an organization has established.

As a way to neutralize green washing claims, sport organizations have partnered with environmental groups such as the Environmental Protection Agency, United Nations Environmental Program, Greenpeace, and other governmental or nonprofit environmental agencies (Hartman & Stafford, 1997). These partnerships, also referred to as alliances (Hartman & Stafford), have legitimized environmental programs and bring a certain level of expertise to initiatives taken by a sport organization. Also, through the alliances between the two organizations, image transfer is possible between the sport organization and environmental agency/organization. These image transfers can create win-win situations that can further organizational objectives.

These alliances can also assist in market entry for both environmental agencies and sport organizations (Cornwell, 2008). Sport organizations can assist environmental agencies as certification programs expand into new industries. Likewise, environmental agencies can add legitimacy to a sport organization's efforts to establish environmentally friendly business practices and how to properly convey those changes to stakeholders. Despite the benefits from these partnerships, there are negative aspects that need to be considered by both the sport organization and environmental agency.

Much like the challenges marketers have with effectively conveying sponsorships to sport fans, sport organizations face the same problems with conveying their environmental responsibility partnerships with outside organizations. However, there are some concerns (i.e., green washing, self serving partnerships) regarding the depiction of alliances between an organization and an environmental group (i.e., Greenpeace & Sydney Olympic Games). One of the important perceptions to keep in

mind is to ensure that the alliance is seen as a partnership rather than an economic tradeoff. Social aspects are important to convey to establish an effective association between a sponsor and host organization (Meenaghan, 2001). By establishing a strong alliance, goodwill can be created for both organizations. However, if the alliance is weak, both risk damage to their respective organizational reputations, image, and legitimacy.

One way that organizations can promote their environmental programs in a visible way to their fans is to promote recycling programs. Within the sport management research, environmental sustainability, including recycling programs and increasing recovery rates of recyclable materials, has not received the proper attention it deserves (Hums, 2010). The potential for decreasing an organization's environmental impact can start with recycling and composting programs. These programs add extra incentive for sport organizations to adopt because of the open visibility of such programs, ease of initiating such programs because of preexisting recycling initiatives within surrounding municipalities, and the chance to decrease solid waste disposal costs. For instance, the San Francisco Giants saved over $100,000 in 2004 by introducing stadium wide recycling and composting programs (Environmental Protection Agency, 2010).

In-Stadium Recycling Programs

Recycling rates nationally have peaked and have settled in relative terms for both aluminum and plastic materials at 50% and 25%, respectively (California Department of Conservation, 1997; Consumer Reports, n.d.). Recovery rates of recyclable materials are

also low at special events because these events offering single use products and food discards (Lease, 2000). This presents a problem to increase recovery rates and decrease an organization or event's environmental impact. Some athletic events have implemented recycling and composting programs. As previously mentioned, the San Francisco Giants have implemented such programs and have decreased their solid waste disposal costs. There are, however, other organizations that have implemented similar programs whether based on state legislative requirements (e.g., Carolina Panthers, Carolina Hurricanes; King, 2008) or to decrease their environmental impact by increasing their recovery rates.

Events like the Common Grounds County Fair in Unity Maine attract nearly 50,000 attendees. These attendees produced on average .56 pounds of waste totaling nearly 14 tons over the course of the event. More specifically, Penn State's football team attracts nearly 110,000 spectators each home game throughout the season. It is estimated that the ticket holders and tailgaters at each Penn State home game together produce 22 tons of recyclables and trash at each home game (Lease, 2000). However, Penn State's recovery rates have remained below national averages, hovering at 33%. During the 1997-1999 football seasons, Penn State saved over $5,000 in trash tip fees and earned over $27,800 in revenues from recycling the recovered materials (Lease, 2000).

There is little research surrounding recycling among sport spectators. In stadiums, recycling programs are becoming more common among sport organizations and athletic departments. Despite the widespread nature of such programs, there is little

understanding of the recycling behaviors of the spectators attending the event. These recycling initiatives and programs can become more efficient by examining these programs and the recycling behaviors of sport spectators. Even further, through the benefits of applying theoretical frameworks these behaviors can be understood and even predicted. As such, the likelihood of recycling can be increase therein by increasing the recovery rates of recyclable materials and ultimately decreasing solid waste disposal costs and the organization's environmental impact. One such theory that can lend will to understanding and ultimately predicting environmentally friendly and recycling behaviors is the theory of planned behavior (Ajzen, 1988; 1991).

The Theory of Planned Behavior

The theory of planned behavior (Ajzen, 1988; 1991) evolved from its roots in social psychology and through the development of its preceding social-psychological theory, the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The model of the theory of reason action did not account for behaviors over which people have incomplete volitional control. It is reasoned that behaviors have obstacles that can prevent an individual from successfully completing a particular behavior. As intentions decrease or circumstances change, this would make it more challenging for the individual to complete the task. For example, if an individual were looking to get her driving license, she would plan accordingly. However, there might be challenges that create difficulty in completing that task. One would have to schedule a time for the test, arrange a ride to the test, have a car, and successfully complete the requirements of the driving test. Any one of these steps can provide a challenge to successfully complete

the task and points to the need to take into account volitional control. Because of this major limitation, the theory of planned behavior was developed to extend the preceding theory. The theory consists of several constructs each of which is outlined in the following space.

Intentions

Originating from the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), a central focus of the theory of planned behavior (Ajzen, 1988; 1991) is the intention of an individual to engage in a specific behavior. Intentions indicate the willingness of an individual to engage in a specific behavior and the amount of effort he is willing to exert to engage in such a behavior. As mentioned by Ajzen (1991), the higher the intention of the individual, the higher likelihood they will perform the behavior. However, the individual must have a certain level of volitional control over the behavior in question (i.e., the individual must have a choice to engage or avoid the questioned behavior). Further, the opportunity and availability of the resources needed to engage in the questioned behavior are needed to successfully complete the task.

Intentions have been argued to influence motivations to engage in specific behaviors. But one must also consider the influence of perceived behavioral controls. Related to intentions, perceived behavioral controls will influence the perception by the individual as to the ease of successfully completing a task to the level of which an individual is motivated to attempt to complete the task.

Perceived Behavioral Control

Perceived behavioral controls determine the challenges an individual might encounter that might prevent successful completion of the questioned behavior. Perceived behavioral control originates from self-efficacy (see Bandura, 1982, 1991), or the confidence an individual has in their ability to perform an action. However, as Ajzen (1991) acknowledges, "the theory of planned behavior places the construct of self-efficacy belief or perceived behavioral control within a more general framework of the relations among attitudes, intentions, and behavior" (p. 184). The likelihood of successful completion of a behavior will increase with the increase of an individual's perceived behavioral control of the task at hand. This demonstrates, assuming intention remains constant, that an individual will successfully complete a task when they perceive to have enough control to overcome the barriers and challenges that it might take to successfully complete the task. However, perceived behavioral control may not necessarily be relevant when the individual lacks the proper resources to complete the task (i.e., information, knowledge; Ajzen, 1991). Ajzen and Driver (1992) demonstrate the application of perceived behavioral controls when examining the difficulty of completing leisure behaviors such as going to the beach (low perceived behavioral control) as compared to jogging or running (high perceived behavioral control).

Attitudes Toward the Behavior

An individual's attitudes towards a specific behavior are determined by exploring the favorable or unfavorable evaluation of the particular behavior. That is, an individual will evaluate the 'cost' of performing a particular behavior and compare that to the

potential benefit coming as a result of the behavior. Depending on this evaluation, an individual will deem the behavior as favorable or unfavorable.

An individual will determine based on salient beliefs of the context of the current situation, if the behavior is good or not. Each of these salient beliefs has a predetermined outcome, whether negative of positive. For instance, an individual might exercise to increase their aerobic capacity. However, other individuals might exercise to benefit in other ways such as the desire to lose or maintain their weight, to increase their exercise endurance to run a marathon, to decrease stress, or to improve their coordination. Counter to these positive outcomes of exercise, others who have negative attitudes towards exercise might concentrate on the negative outcomes of running (e.g., running takes up too much time, "I do not like sweat").

Subjective Norms

Subjective norms refer to the external social pressures to engage in or to abstain from performing a behavior (Ajzen, 1985; 1991). Much like attitudes towards a behavior, subjective norms can influence individual intentions to perform or abstain from a particular behavior. With regards to subjective norms, significant social pressures result causing salient feelings from social groups that the individual associates with according to the situation. People will engage in a specific behavior if they view the behavior positively and perceive that significant others to the individual think they should perform the behavior. An example used by Ajzen (1985) exemplifies the influence of subjective norms on females to use the contraception birth control pill. As Ajzen (1985) explains, women who chose to use the pill as a contraceptive measure

generally were encouraged by the doctor and their significant other (i.e., husband or boyfriend). Whereas, women who were discouraged from using the pill, by their doctor or significant other, as their contraceptive method did not choose to take the pill. The example has empirically demonstrates the influence of subjective norms on individuals.

Belief Composites

Ajzen (1991; Ajzen & Driver, 1991) suggests that the theory of planned behavior's primary constructs (i.e., attitudes toward the behavior, subjective norms, and perceived behavioral control) predicting intentions can be better understood through the inclusion of belief composites. Attitudes toward the behavior are preceded by behavioral beliefs, subjective norms by normative beliefs, and perceived behavioral controls by control beliefs. These belief composites lead to the formation of an individual's salient beliefs that influence the proceeding tenets of the theory of planned behavior.

Attitudes, as mentioned above, are influenced by the potential outcomes of a behavior. These outcomes, whether deemed favorable or not, will influence an individual to engage in that behavior or not. Behavioral beliefs can capture the details of an individual's attitudes by examining the outcomes of a specific behavior. These behavioral beliefs can determine if certain aspects are salient when an individual engages in a specific behavior. For example, by exercising one might believe that they will become more fit and by becoming more fit their blood pressure and risk of heart disease will decrease.

Normative beliefs serve as an antecedent to subjective norms. As mentioned earlier, subjective norms measures the influence of social pressure from significant others on an individual to engage or abstain from the behavior in question. These social groups elicit salient feelings of influence. An individual will refer to these salient social groups on what would be deemed an acceptable behavior given the current situation. That is, an individual will do the socially accepted behavior based on their salient social influences. Normative beliefs take subjective norms a step further. As subjective norms examine whether or not social pressures influence an individual to engage in a behavior, normative beliefs examine if the individual believes these social groups will engage in the questioned behavior themselves. This can provide a deeper understanding into the social pressures to engage or to disengage from the questioned behavior.

Lastly, perceived behavioral control is preceded by control beliefs. Control beliefs "have to do with the perceived power of each control factor to impede or facilitate" the behavior in question (Ajzen, 2008 p. 538). Control beliefs can examine what salient restrictions an individual believes that they can overcome to engage in a particular behavior. For instance, if the examined behavior is for an individual to go to the beach, getting transportation, the distance to the beach, and one's availability in their schedule can potentially be restrictions to going to the beach. These control beliefs can provide further understanding into the obstacles that an individual may encounter to successfully complete the questioned behavior.

Theory of Planned Behavior and Recycling Behaviors

The theory of planned behavior (Ajzen, 1985, 1991) has been applied to environmentally friendly behaviors such as recycling behaviors. Recycling behaviors fit perfectly with the theory of planned behavior because of the incomplete volitional control that is apart of recycling behaviors. As Davies et al. (2000) notes, "knowledge is needed to know how to perform the intended behavior, to determine responsibility for the intended act and to evaluate the perceived effectiveness of the behavioral act" (p. 50). Recycling behaviors require certain level of resources to dispose of recyclable material in an appropriate manner (Pieters, 1991). As such, there is empirical precedent to use the theory of planned behavior to examine recycling behaviors (Boldero, 1995; Cheung, Chan, & Wong, 1999; Davies, Foxall, & Pallister, 2002; Knussen & Yule, 2008; Lam, 2006, Tonglet, Phillips, & Read, 2003).

Previous studies have examined environmentally friendly behaviors ranging from more general behaviors, such as household recycling (Knussen & Yule; Tonglet, et al., 2004) and water conservation (Lam, 2006), to more specific behaviors, such as wastepaper recycling (Chuen, et al., 1999) and newspaper recycling (Boldero, 1995). Cheung and colleagues (1999) found that all three antecedents of intentions to recycle wastepaper were significant in predicting intentions to recycle. Likewise, intentions were significant in predicting actual wastepaper recycling. These findings are consistent through several other studies using the theory of planned behavior to predict environmentally friendly behaviors (Boldero, 1995; Terry, Knussen & Yule, 2008; Hogg, & White, 1999). Further, Tonglet and colleagues (1994) in their study examine

household recycling within the United Kingdom. In the study, the researchers demonstrate that influence of the individual's surrounding community can serve as a subjective norm to recycle. Through these studies the research shows that recycling behavior is consistent. However, there are studies that conflict with backing the theory.

Lam (2006) conducted a study examining water conservation behaviors among Chinese residents to install dual-flush controlled toilets in their household bathrooms. Lam's findings were inconclusive to predict the intention or actual behavior of installing such toilets. Lam identifies the questionnaire design and the perceived behavioral controls as potential limitations of the study to adequately measure the intention and subsequent behaviors to install dual-flush toilets. Such a behavior is rather invasive, whereas there are alternative behaviors that could conserve water just as easily that were not examined in the (2006 pp. 2820).

Despite these inconsistencies, there is encouragement reaching back to the original theory and its adaptability to specific contexts. Just as Ajzen (1985) suggested behaviors would vary from context to context, the same reasoning should be applied to recycling behaviors.

Also lending well to the theory of planned behavior's application to the recycling behaviors is research conducted by DeYoung (1986) and Bagozzi and Dabholkar (1994). These two studies can provide insight to the belief components to further examine recycling behaviors. DeYoung's study examines the positive benefits people get from recycling. In this study, conservation efforts of recycling were identified as being beneficial by both recyclers and non-recyclers. Further, the study indicated that

individuals believed that recycling could be both beneficial considering economic (cost saving) and non-economic (feel good factor) perspectives. DeYoung also identified restrictions to individual's recycling behaviors by concluding that individuals might believe that time restrictions, access to recycling programs, and conscientious thought to recycle might prohibit consistent recycling behaviors.

Bagozzi and Dabholkar (1994) also identified the potential outcomes individuals perceive would result by recycling. In their study, they identified 19 different positive outcomes of recycling behaviors. These outcomes include as listed by Davies and colleagues (2002): reduce waste, reuse materials, save the environment, save the planet, avoid landfills, reduce cost of living, save resources, conserve energy, help the community, reduce pollution, enhance aesthetic nature of the land, it is the right thing to do, save and ear money, reduce trash, help the economy, provide for future generations, and promote better health, and sustain life. These factors can lend well to understanding the behavioral beliefs to enhance the predictive power of attitudes towards the recycling behaviors to further explain intentions to recycle.

Considering these previous studies, the theory has not been applied to examine recycling behaviors within a sport context. The importance of such studies can be seen in a general environmental sense to decrease the impact of humankind on the environment, but also through a managerial perspective. By understanding the recycling behaviors of sport spectators, sport organizations can decrease their solid waste disposal costs. Higher recovery rates of recyclable materials will decrease the amount of waste in

the trash bins. As a result, less trash bins are needed and filled, decreasing the associated costs with non-recyclable waste disposal.

Summary

It is inevitable that an organization and its daily operations will have an impact on the environment. The sporting industry is no different. This is reflected by the questioned environmental integrity regarding the environmental impacts of golf and skiing during the 1960s and 1970s (Adams, 1995). *All* sport organizations have an impact on the environment (McCullough & Cunningham, 2010), which is further exacerbated with increases in attendance at such events. The impact on the environment results from an increase in transportation, energy consumption, water usage, and increases in municipal solid waste (Centre for Business Relationships, Accountability, Sustainability, and Society, 2007).

To combat the negative effects on the environment and appease public outcry to become more environmentally friendly, the sport industry has begun to implement environmentally sustainable business practices (McCullough & Cunningham, 2010). One such program sport organizations have easily implemented is in-stadium recycling and composting programs (Lease, 2000). These programs decrease solid municipal waste disposal costs by increasing recycling recovery rates (California Department of Conservation, 1997; Consumer Reports, n.d.).

It would be naïve to assume a sport organization could completely eliminate their impact on the environment. In fact, "going green", is just that, it is a process that can never totally be achieved (Jermier & Forbes, 2003). That is, going green is a process

that is never ending, but provides opportunity to continually finding new ways of decreasing the organization's environmental impact. Understanding the recycling behaviors of sport spectators is one such way that sport organizations can continue their process of going green by increasing the effectiveness of such in-stadium recycling programs.

Despite the advantages of recycling programs, national recovery rates of recyclable materials remain considerably low. Further challenging these programs is the dependence on sport spectators' participation in recycling programs. Thus it is important to understand the recycling behaviors of sport spectators to increase recovery rates, which in turn will decrease the organization's impact on the environment, increase the organization's environmental reputation, and decrease waste disposal costs of the organization. Understanding the recycling behaviors and the potential barriers to recycle can be understood by using the theoretical framework of the theory of planned behavior (Ajzen, 1985; 1991).

The theory of planned behavior originated from another social-psychological theory, the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Unlike the theory of reasoned action, the theory of planned behavior takes into account behaviors with incomplete volitional control, or those behaviors that have perceived obstacles to successfully complete. The theory of planned behavior also examines an individual's attitudes towards the questioned behavior and the subjective norms that might influence an individual to engage in the questioned behavior. The theory has been used to understand a wide range of behaviors including leisure activity behaviors (Ajzen

& Driver, 1990), sporting event attendance (Cunningham & Kwon (2003), and environmentally friendly behaviors (Davies, et al., 2002). Throughout this dissertation, all three studies use the theory of planned behavior as the framework for understanding the recycling behaviors of individuals including sport spectators.

APPENDIX 2

FIGURES AND TABLES

Table A.1: Means, Standard Deviations and Bivariate Correlations of the Control Variables, Belief Composites and Theory of Planned Behavior Variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Sex	1.58	0.50	-														
2. Political Identification	4.77	1.63	.026	-													
3. Previous Behavior	2.46	1.81	-0.17*	-0.10	-												
4. Attitudes	5.46	1.12	0.01	-0.02	0.11	-											
5. Belief - Environment	37.49	12.62	-0.10	-0.07	0.08	0.20*	-										
6. Belief - Landfill Waste	38.01	11.89	-0.17*	-0.20*	0.12	0.21*	0.57**	-									
7. Belief - Impact	25.9	17.45	-0.05	-0.08	0.03	-0.04	0.18*	0.24**	-								
8. Social norm	4.37	1.00	-0.29**	-0.01	0.40**	0.26**	0.12	0.17*	0.27**	-							
9. Normative Belief - Family	24.03	11.23	-0.34**	-0.04	0.33**	0.19*	0.10	0.24**	0.09	0.50**	-						
10. Normative Belief - Friends	19.92	9.87	-0.28**	-0.11	.20*	0.10	0.14	0.19*	0.07	0.45**	.56**	-					
11. Normative Belief - Media	22.11	12.14	-0.22**	0.04	0.10	0.05	0.18*	0.21*	0.15	0.25**	.39**	0.42**	-				
12. Perceived Behavior Control	5.15	1.35	-0.05	-0.06	.19*	0.12	0.16	0.19*	0.02	0.01	0.12	0.21*	0.15	-			
13. Control Belief - Time Constraints	16.03	8.93	-0.12	-0.15	.23**	0.07	0.09	0.07	-0.02	0.16	0.21*	0.21*	0.13	0.28**	-		
14. Control Belief - Thought	22.31	10.97	-0.02	-0.08	-0.11	0.08	-0.07	0.01	0.09	0.08	0.15	0.21*	0.09	0.04	-0.07	-	
15. Control Belief - Access	23.65	15.18	-0.03	-0.01	-0.03	0.03	0.13	0.16	.23**	0.10	0.08	0.15	0.23**	-0.13	-0.02	0.27**	-
16. Intention	3.74	1.51	-0.24**	0.11	0.63**	0.26**	0.22**	0.26**	0.08	0.55**	0.35**	0.17*	0.17*	0.12	.17*	-0.08	0.02

Note: * $p < 0.05$, ** $p < 0.01$ level

Table A.2: Hierarchical Regression Analysis Testing the Normative Behavior Composites Variables on Social Norms

		B	SE	β
Step 1	Sex	-.46	.16	-.23*
	Political	.02	.05	.03
	Previous Behavior	.20	.04	.37**
Step 2	Family	.02	.01	.28*
	Peers	.02	.01	.23*
	Media	.00	.01	.00

Note: $R^2 = 0.21$ for Step 1, $p < 0.001$; $\Delta R^2 = 0.16$, $p < 0.001$; * $p < .05$, ** $p < .001$

Table A.3: Results of Hierarchical Regression Analysis Testing the Behavior Belief Composite Variables Attitudes Towards Behavior

		B	SE	β
Step 1	Previous Behavior	0.08	0.05	0.14
	Sex	0.10	0.19	0.05
	Political	0.00	0.06	0.01
Step 2	Environment	0.01	0.01	0.15
	Waste	0.02	0.01	0.17
	Impact	-0.01	0.01	-0.10

Note: $R^2 = 0.02$ for Step 1, NS; $\Delta R^2 = 0.07$, $p < 0.05$; * $p < .05$, ** $p < .001$

Table A.4: Results of Hierarchical Regression Analysis Testing the Control Behavior Composite Variables on Perceived Behavioral Controls

		B	SE	β
Step 1	Sex	-.08	.23	-.03
	Political	-.03	.07	-.04
	Previous Behavior	.15	.07	.19*
Step 2	Time Restraints	.04	.01	.24*
	Conscientious Thought	.01	.01	.10
	Accessibility	-.01	.01	-.15

Note: $R^2 = 0.04$ for Step 1; $\Delta R^2 = 0.07$, $p < 0.05$; * $p < .05$, ** $p < .001$

Table A.5: Results of Hierarchical Regression Analysis Testing the Effects of the Theory of Planned Behavior Variables on Intentions to Recycle

		B	SE	β
Step 1	Sex	-.42	.20	-.14*
	Political	.16	.06	.17*
	Previous Behavior	.52	.05	.62**
Step 2	Social norm	.44	.11	.28**
	Attitudes	.19	.08	.14*
	Perceived Behavior Control	.01	.07	.01

Note: $R^2 = 0.44$ for Step 1, $p < 0.001$; $\Delta R^2 = 0.10$, $p < 0.001$, * $p < .05$, ** $p < .001$

Table A.6: Means, Standard Deviations and Bivariate Correlations of the Control Variables, Belief Composites and Theory of Planned Behavior Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1) Previous Behavior	-													
2) Intentions	.515**	-												
3) Attitudes	0.032	0.106	-											
4) Environment	-0.057	0.034	.319**	-										
5) Landfill	0.098	.218*	.306**	.466**	-									
6) Impact	0.15	0.11	0.131	.375**	.515**	-								
7) Subjective Norm	.319**	.308**	.368**	.218*	.228*	0.156	-							
8) Families	0.029	0.159	.190*	.188*	.289**	.208*	.355**	-						
9) Host Site	.212*	0.136	0.064	-0.101	0.004	-0.019	0.16	0.169	-					
10) Community	0.118	0.031	0.079	.236*	0.167	.291**	.226*	.373**	.272**	-				
11) Perceived Behavior Control	0.173	.185*	0.145	0.083	-0.002	-0.071	0.16	0.009	.291**	0.157	-			
12) Schedule	.202*	.297**	0.092	0.13	0.08	.221*	.219*	0.108	0.097	.196*	0.034	-		
13) Conscientious Thought	0.059	-0.044	-0.065	0.124	-0.041	0.093	-0.022	0.011	-0.032	-0.022	-0.037	0.163	-	
14) Access	0.065	0.085	0.047	-0.094	-0.054	0.073	0.004	0.032	0.133	-0.046	0.134	0.159	.274**	-
Mean	1.81	3.46	5.87	43.99	43.76	37.52	4.69	25.75	17.36	27.57	4.61	17.98	19.78	19.30
SD	1.65	2.43	1.40	11.77	10.99	15.12	1.42	16.61	15.05	16.92	1.67	13.17	13.85	17.94

Note: * $p < 0.05$, ** $p < 0.01$ level

Table A.7: Results of Hierarchical Regression Analysis Testing the Effects of the Theory of Planned Behavior Variables on Intentions to Recycle

		B	SE	β
Step 1	Time Restraints	0.06	0.02	0.32*
	Conscientious Thought	-0.01	0.02	-0.08
	Accessibility	0.01	0.01	0.10
	Environment	-0.01	0.02	-0.05
	Waste	0.06	0.03	0.27*
	Impact	-0.03	0.02	-0.15
	Family	0.03	0.02	0.21*
	Host Site	0.02	0.02	0.11
	Surrounding Community	-0.03	0.02	-0.21
Step 2	Attitudes	-0.15	0.17	-0.09
	Subjective Norm	0.48	0.18	0.27*
	Perceived Behavioral Control	0.31	0.14	0.21*

Note: $R^2 = 0.33$ for Step 1, $p < 0.01$; $\Delta R^2 = 0.11$, $p < 0.01$, * $p < .05$, ** $p < .01$

Table A.8: Results of Hierarchical Regression Analysis Testing the Behavior Belief Composite Variables Attitudes Towards Behavior

		B	SE	β
Step 1	Environment	0.03	0.01	0.27**
	Waste	0.03	0.01	0.22*
	Impact	-0.01	0.01	-0.07

Note: $R^2 = 0.145$ for Step 1, $p < .001$; * $p < .05$, ** $p < .01$

Table A.9: Results of Hierarchical Regression Analysis Testing the Normative Behavior Composites Variables on Social Norms

		B	SE	β
Step 1	Family	.02	.01	.27**
	Host Site	.01	.01	.08
	Surrounding Community	.01	.01	.10

Note: $R^2 = 0.12$ for Step 1, $p < 0.01$; * $p < .05$, ** $p < .01$

Table A.10: Results of Hierarchical Regression Analysis Testing the Control Behavior Composite Variables on Perceived Behavioral Controls

		B	SE	β
Step 1	Time Restraints	.01	.01	.01
	Conscientious Thought	-.05	.01	-.04
	Accessibility	.01	.01	-.15

Note: $R^2 = 0.02$ for Step 1, NS; * $p < .05$, ** $p < .001$

Table A.11: Demographic Information of Participants

Pseudonym	Group	Gender	Age	Recycled at Game
Scout	Luxury Seating	Female	27	No
Jason	Luxury Seating	Male	47	No
Ken	Luxury Seating	Male	66	No
Dwight	Luxury Seating	Male	69	No
John	Luxury Seating	Male	44	Yes
Steve	Non-Luxury Seating	Male	40	No
Garth	Non-Luxury Seating	Male	50	No
Sara	Non-Luxury Seating	Female	38	Yes
George	Non-Luxury Seating	Male	41	Yes
Matthew	Non-Luxury Seating	Male	51	Yes
Kilee	Student	Female	21	No
Stacy	Student	Female	22	No
Billy	Student	Male	21	No
Paul	Student	Male	21	No
Nicole	Student	Female	20	Yes
Debbie	Student	Female	21	Yes

APPENDIX 3

SURVEY ITEMS

Previous Behaviors

During this tournament, how often have you recycled plastic bottles after consumption?
Every time I use a plastic bottle, almost every time I use a plastic bottle, seldom after I use plastic a bottle, never after I used a plastic bottle

Intention

I intend to recycle my plastic bottles after consumption during the tournament. (extremely unlikely – extremely likely)
I will try to recycle my plastic bottle after consumption during the tournament. (definitely false – definitely true)
I plan to recycle my plastic bottles after consumption during the tournament. (strongly disagree – strongly agree)

Attitudes Toward Behavior

For me recycling plastic bottles after consumption during the tournament is:
Harmful – Beneficial
Pleasant – Unpleasant
Good – Bad
Worthless – Valuable
Enjoyable – Objectionable

Subjective Norm

Most people who are important to me, think that (I should – I should not) recycle plastic bottle after consumption during the tournament.
It is expected of me to recycle plastic bottles after consumption during the tournament. (extremely likely – extremely unlikely)
The people in my life whose opinions I value would (approve – disapprove) of me recycling plastic bottles after consumption during the tournament.

Descriptive Norm

Most people who are important to me recycle plastic bottles after consumption. (completely true – completely false)
The people in my life whose opinions I value (recycle – do not recycle) plastic bottles after consumption.
Many people, like me, recycle plastic bottles after consumption. (extremely likely – extremely unlikely)

Perceived Behavioral Control – Capability

For me recycling plastic bottles after consumption during the tournament would be (impossible – possible).

If I wanted to I could recycle plastic bottles after consumption during the tournament. (definitely true – definitely false)

Perceived Behavioral Control – Controllability

How much control do you believe you have over recycling plastic bottles after consumption during the tournament? (no control – complete control)

It is mostly up to me whether or not I recycle plastic bottles after consumption during the tournament. (strongly disagree – strongly agree)

Behavioral Control

Recycling plastic bottles after consumption during the tournament will improve help the environment. (extremely unlikely – extremely likely)

Improving/helping the environment is (extremely bad – extremely good).

Recycling plastic bottles after consumption during the tournament will decrease the quantity of waste in landfills. (extremely unlikely – extremely likely)

Decreasing the quantity of waste in landfills is (extremely bad – extremely good).

Recycling plastic bottles after consumption during the tournament will decrease my impact (carbon footprint) on the environment. (extremely unlikely – extremely likely)

Decreasing my impact (carbon footprint) on the environment is (extremely bad – extremely good).

Normative Beliefs

The fellow families on my team think that (I should – I should not) recycle plastic bottles after consumption during the tournament.

When it comes to recycling, how much do you want to do what the fellow families on your team think you should do? (not at all – very much)

The host site thinks that (I should – I should not) recycle plastic bottles after consumption during the tournament.

When it comes to recycling, how much do you want to do what the host site thinks you should do? (not at all – very much)

The local community thinks that (I should – I should not) recycle plastic bottles after consumption during the tournament.

When it comes to recycling, how much do you want to do what the local community thinks you should do? (not at all – very much)

Control Beliefs

I expect that my schedule will place high demands on my time during the tournament. (strongly disagree – strongly agree)

My schedule placing high demands on my time during the tournament would make it (much more difficult – much more easier) for me to recycling plastic bottles after consumption.

I expect that it will be difficult to conscientiously think about recycling during the tournament. (strongly disagree – strongly agree)

Conscientiously thinking about recycling during the tournament would make it (much more difficult – much more easier) for me to recycling plastic bottles after consumption.

I expect that the accessibility of recycling receptacles will make it more difficult to recycle during the tournament. (strongly disagree – strongly agree)

The accessibility of recycling receptacles would make it (much more difficult – much more easier) for me to recycling plastic bottles after consumption during the tournament.

VITA

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