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The green waves of environmental sustainability in sport

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ABSTRACT

The purpose of this paper is to provide a conceptual framework surrounding the typology of environmental sustainability efforts made within the sport industry. We draw from multiple theoretical frameworks (i.e. institutional theory and diffusion of innovation) to understand the increased similarities of environmental sustainability efforts through organizational learning as environmental sustainability efforts become more purposeful and sophisticated across the sport industry. The paper uses examples from various sport organizations and leagues to classify the efforts of sport organizations into waves of sport environmental sustainability efforts and important implications arising from them.

The importance of sport in societies all across the world is driven by cultural foundations that enable it to be shaped by and to shape societal issues (Horne 2006; Johnson 2001). Sport was a part of many periods of social change and upheaval, what could be deemed *waves* of change. Conceptually, examining social change issues shows how there are key elements driving change over time within the sport industry and to its structures (e.g. sport organizations). These waves of change in socio-economic or socio-political terms foreshadow that of the initiation, introduction and development of how sport manages the natural environment over time.

Other waves of social change, such as issues of race, equality and social justice, began to appear in the American consciousness in the early twentieth century (Reisler 2007). Jesse Owens' success at the Olympics in Berlin (Germany) began a wave that would see racial issues and social injustice wane just a few decades later. As this volume reached a tipping point in the mid-twentieth century, there was Jackie Robinson taking his place on the field and in history as he broke Major League Baseball's racial barriers. While much of the road has been bumpy and progress often matched by periods of regress, sport in general made significant inroads in regard to racial issues from difficult, early beginnings (Back, Crabbe, and Solomos 2001; Dimeo and Finn 2001; Edwards 2000; Entine 2000; Trujillo 1991).

We see waves of social change in other areas too, for example, the equality movement for women. For centuries, women had an inconsistent role in sport, as competitive athletes,

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recreational participants and spectators (Fuller 2006; Thibault 2009). In many eighteenth and nineteenth centuries' Western contexts, women were limited, or prohibited altogether, from participation in sport due to concerns over their perceived frailness and inability to cope with the competitive nature of sport (Coakley 2007). As sport moved into the twentieth century, women began to see increased opportunities to participate in sport, despite past stereotypes continuing (e.g. frailty and stigmas of homosexuality) (Fuller 2006). Throughout the century, athletes such as Babe Didrikson Zaharias (Olympian, multisport athlete) or Sybil Bauer (first female athlete to break a men's record in swimming at an unofficial event) drove participation and inclusion in sport forward (Gems, Borish, and Pfister 2008; Harkness 2012). As with race, women continue to challenge stereotypes and prejudices, but a new era has been entered as girls and women are participating in sport, watching it as fans and generally becoming a valued target market for sport marketers at a scale never before seen (Farrell, Fink, and Fields 2011; Hoeber and Frisby 2001; Jackson and Andrews 2005; Taylor and Toohey 1999).

Sport as a reflection and facilitator of social changes is not constrained to the USA. We see sport reflecting changes, both positive and negative, around the world. For example, the Iraqi national soccer team was caught up in domestic and international politics as a way of articulating democracy during the second war in Iraq (Butterworth 2007). Social change efforts, like those of Nelson Mandela in South Africa, too, utilized sport as a rallying point, an impetus for a society to come together and forge an identity (Billings et al. 2009; Carlin 2008; Cho 2009). Women and girls around the world, as in the USA, are participating in and becoming active fans of sport, providing further emphasis on equality in sport issues as well as those of society in general (Hartmann-Tews and Pfister 2005).

As with the waves of social change, environmental issues are part of a rising wave that swept into the world of sport in recent years (Inoue and Kent 2012; Pfahl 2011; Pfahl et al. 2015; Thibault 2009; Trendafilova, Babiak, and Heinze 2013). Environmental issues are not new to the twenty-first century nor are they confined to any political ideology, economic system, social structure or technological level; the environment is a global issue because it is a human issue (Foss 2009; Prizzia 2007; Suzuki 2007). The environmental footprint of sport is significant (e.g. venues, attendance, energy usage) (Inoue and Kent 2012; Pfahl 2011; Thibault 2009).

The socially significant role of sport necessitates a response to environmental issues by sport personnel. To this end, this paper provides a conceptual framework from which to understand the evolution of the place of the natural environment within the world of sport. To explain this theoretical frame, a review of the contextual literature is conducted. Derived from this review is the conceptual framework and attendant propositions. The conceptual framework is exemplified through the notion of *environmental waves* in sport as way to understand the past, present and future of environmental sustainability in sport. To achieve this end, examples of environmental efforts are used in order to highlight and to define the waves themselves and not the individual sport organization shown. By reviewing multiple incidents of environmental engagement globally and across organizations, the framework can be derived from evaluating commonalities in the ebbs and flows of decision-making. The waves will be examined as individual contextual levels in this study in order to explain and to define them clearly. With progress and regress a part of the process as meta and micro levels, we utilize contextual examples to show that the waves exist independently

and to demonstrate the types of activity(ies) in each. Finally, a discussion focusing on the implications of this perspective is offered.

Contextual literature review

The issue of environmental sustainability is one that is stained by the politicizing of its understanding and management of its related activities. The present understanding has not dramatically changed from the observations made by Doyle and Kellow (1985), who noted that the care of environmental issues is narrowly managed. This has since continued to today's stigma-laden association of environmental sustainability as an issue that the *government will manage* versus one that can be addressed by the private industry and other influential industries, such as sport. The next section will provide a general understanding of the linkages between sport and the environment.

Strategic activities involving sport and the natural environment: the environmental impact

By its very nature of being highly dependent on the natural environment, sport is reliant on and is known to contribute to environmental degradation. In the past decade, this volume moved from the periphery of sport issues to an important part of strategy and actions by sport personnel (Babiak and Trendafilova 2011; Babiak et al. 2009; Pfahl 2011; Thibault 2009; Trendafilova, Babiak, and Heinze 2013). All levels and types of sport create environmental issues and contribute to the larger societal need to examine human behaviour in relation to the environment (Thibault 2009). However, the issues at hand are complex and filled with a variety of complementary, causal and competing elements in terms of environmental issues themselves as well as the theoretical or ideological approaches for addressing them (Chard, Mallen, and Bradish 2013; DeLuca 2005; Mallen, Stevens, and Adams 2011; Walters Coppola 2007).

Systematically and globally, sport industry personnel acknowledged the environmental impact of sport, and in some instances are actively addressing the recognized contribution (Inoue and Kent 2012; Pfahl 2013). The Olympic Games in Beijing, for example, spent over US$17 billion to address environmental issues from 2001 to 2007 (United Nations Environmental Programme 2009). This money was spent on traditional areas of Olympic Games' preparation including transportation infrastructure upgrades, energy development, water protection and treatment (e.g. over 120,000 solar-powered streetlights and 1.8 million energy-efficient lights in schools, government buildings and restaurants) (United Nations Environment Programme 2009). However, given the size and energy demands of Beijing, and China in general, this is a beginning rather than an end. Yet, it does illustrate the impact that major sport events can have on the environment.

In another example, the Fédération Internationale de Football Association (FIFA) developed and implemented the *Green Goal* programme in 2006 for the World Cup held in Germany. Subsequently, FIFA enacted environmentally related changes to its headquarters and the *Green Goal* programme is now a driving force behind the bidding for, planning of, holding of and evaluating of the success of World Cup events (FIFA 2013). While major sporting events (i.e. mega events) have a substantial impact on the environment, these head organizations (e.g. FIFA and IOC) place importance on environmental sustainability during

the bidding process, but these organizations lack the enforcement of such policies once the bid for hosting has been issued by the organization and accepted by the host committee.

While the examples above involve major international sporting events, the environment also impacts local sport and recreation activities as well. Nature-based sports such as skiing and golf see environmental impacts each day. Artificial snow, water usage, pesticides, air pollution and many more are endemic to the operations of these sports (Buckley, Pickering, and Warnken 2000; Wheeler and Nauright 2006). Sport facilities are operated by sport organization personnel at all levels of sport and have an environmental impact. In the end, it is important to note that all aspects of sport have a link with the natural environment. While sport personnel can take action to address adverse environmental issues, they cannot do everything (Porter and Reinhardt 2007). A strategic approach to environmental issues is required as it can approach environmental issues from a variety of angles including resources available (Aragón-Correa and Sharma 2003; McCullough and Cunningham 2011; Pfahl 2011; Hart 1995; Hart and Milstein 2003), planning and engagement, establishing relationships, partnerships (e.g. Natural Resources Defense Council) and many others.

Sport organizations present an interesting competitive mix that is unlike other industries. Although sport teams compete in games, sport organizations are ultimately reliant upon each other to maintain viability because without competition, there would be no league (Grundy 2006). Institutional theorists define this mutual relationship as symbiosis or 'the relations of organizations that do not compete for similar recourses but often develop exchanges that are mutually advantageous' (Oliver 1988, 547). As a result, sport leagues and conferences will launch and support league- or conference-wide initiatives (i.e. environmental sustainability) to boost the credibility of the league's environmental efforts and to stave off threats (e.g. accusations of green washing; perception of unauthentic or dubious intentions and motivations) to the legitimacy of these organizational practices (i.e. environmental sustainability) (Bortree 2009; Dacin, Oliver, and Roy 2007; Suchman 1995). Environmental efforts are one of those sport industry-wide initiatives that illustrate this progression.

Despite the symbiotic relationship of sport organizations, sport personnel address the environmental issue in a variety of ways. Since each context to implement environmental sustainability initiatives is unique, and while principles might be developed for inter-context use, it is important to remember that there is no single way to address environmental issues. Environmental change is found throughout all levels of sport, as different levels of sport personnel work to understand and to address environmental issues facing their event or organization (McCullough and Cunningham 2011; McCullough 2013; Mallen and Chard 2011; Natural Resources Defense Council 2013; Pfahl 2013). Further, the manifestation of actions may differ, but its level of complexity and integration may reflect the stage at which an organization is in relation to environmental consciousness. This movement is driving conceptualizations of how sport and the natural environment can and should work in harmony.

Theoretical foundations of sport and the environment

Within the sport management literature, environmental sustainability has developed as a defined research focus, but one with numerous departure points (Mallen and Chard 2011; Thibault 2009). Initial research (Babiak and Trendafilova 2011; McCullough and

Cunningham 2010) provided theoretical frameworks using institutional theory to understand the emergence of environmental sustainability initiatives within the sport industry. The conversation about sport and the natural environment cuts to the core of sport operations and planning because, as Mallen and Chard (2011) noted, there are a variety of issues in play that can be examined from an equal number of analytical lenses.

Babiak and Trendafilova (2011) examined the motives of sport organizations to implement environmental management initiatives (see also McCullough and Cunningham [2011] and McCullough [2013] in this subject). Their framework specifically is framed within the context of corporate social responsibility, but is intrinsically linked to strategic efforts across a variety of organizational levels (Hart 1995; Hart and Milstein 2003; Nuguyen, Trendaflova and Pfahl 2014; Russo and Fouts 1997; Wernerfelt 1984). Likewise, institutional theory has been used to examine the deinstitutionalization (Oliver 1992) of environmentally degrading organizational behaviours that lead to the implementation of green initiatives (i.e. environmental sustainability) and subsequent outcomes (McCullough and Cunningham 2010). The current study addresses issues of the environment within sport through a multifaceted conceptual structure, grounded in institutional theory and diffusion of innovations, demonstrated to capture the complexities of phenomena within sport (Cunningham and Ashley 2001). The concept of waves is an important one because the changes taking place in sport are not equally distributed nor implemented. However, there are overarching similarities in strategic approaches beginning to emerge (i.e. waves). The waves will be identified through evaluating common levels of *environmental consciousness* and complexity of the engagement by evaluating actions taken independently and across organizations. This approach provides a broad view to identify all the possible movements and phases, representing the waves across sport in general.

Conceptual framework

Organizational work to address environmental impacts has no end and organizations address these issues in many different ways. The overarching strategic and operational aspects that are shared across sport organizations (e.g. water usage, waste management and facility upgrades) are met by varying organizational motivations, goals and contextual challenges that organizations encounter and over time (e.g. resource availability). The framework for this study weaves together perspectives of institutional theory, diffusion of innovations and organizational learning to examine the various environmental *waves*.

Institutional theory

Institutional theory is used in this paper to understand the similarities of organizations in an otherwise diverse organizational environment (DiMaggio and Powell 1983; Kikulis 2000; Washington and Patterson 2011). Institutional theorists have examined how organizations insulate themselves with myth and ceremony to develop or to maintain legitimacy and to ensure viability (Meyer and Rowan 1977). Sport management literature has applied institutional theory in various contexts including collegiate athletic (Washington 2004), professional sport leagues (O'Brien and Slack 1999, 2003, 2004) and national-level sport organizations (Slack and Hinings 1994). Additionally, researchers have proposed theoretical frameworks to understand various phenomena within the sport industry including

decision-making within collegiate sport (Cunningham and Ashley 2001) and the impetus of the deinstitutionalization of environmentally degrading behaviours (McCullough and Cunningham 2010). To further develop institutional theory, researchers have renewed the call for better attention at the micro and macro levels of organizational operations (Dacin, Goldstein, and Scott 2002; Washington and Patterson 2011).

Internal and external stakeholders constantly scrutinize organization personnel, apply pressure on them and motivate them to justify their actions, decisions and strategies in order to prove themselves as legitimate. Within institutional theory, breaking away from institutionalized organizational behaviours is known as deinstitutionalization (Oliver 1992). As organization personnel deinstitutionalize current organizational behaviours, they establish new behaviours to increase the legitimacy of the organizational behaviours. Due to uncertainty of the normative environment, organizations oftentimes model themselves after other organizational structures, objectives, policies and programmes deemed successful and legitimate in a phenomenon known as *isomorphism* (DiMaggio and Powell 1983). That is, 'organizations within the same population facing the same set of environmental constraints will tend to be isomorphic to one another and to their environment because they face similar conditions' (Dacin 1997, 48).

Researchers have demonstrated there are competing ways that suggest isomorphism results from either competition (Hannan and Freeman 1977), similar to that of a Darwinian ideal for organizational survival, or as a result of the environment the organization is in, that applies pressures on the organization to adhere to various social expectancies (Dacin 1997). DiMaggio and Powell (1983) outline three pressures (i.e. coercive, mimetic and normative) that organization personnel may encounter which lead to isomorphic change.

Coercive isomorphism occurs when formal and informal pressures are applied to an organization to meet cultural expectations within the society (i.e. environmental sustainability) in which the organization operates (DiMaggio and Powell 1983). Mimetic isomorphism results from uncertainty within the organizational environment. Lastly, normative isomorphism is the pressure specifically brought about by professional organizations, certifying agencies and through educational development of the workforce (DiMaggio and Powell 1983). Lack of conformity allows flexibility to incorporate what works best for the organization in that specific context. This is ideal considering the process of isomorphism is not based on efficiency but rather legitimacy. In the end, ideas are generated, diffused and accepted or rejected (i.e. internally and externally).

Diffusion of innovations

The process of diffusion of innovation involves an innovation, idea or other aspect of social life 'being communicated through certain channels over time to the members of a social system' (Rogers 2003, 5). Organizational learning addresses the processes by which organization personnel use information to confirm or to reform their organizational behaviour as new ideas are diffused from it and brought into it by organizational members, organizational stakeholders and other related personnel (e.g. organizational members, suppliers and skill-based resources) (Hillman and Keim 2001; Pfahl 2010; Shrivastava and Scott 1992). Despite the implicit and tacit understandings of organizational activities acquired through diffusion processes (e.g. resource and natural resource based perspectives), taking data and information and translating it into actionable knowledge for organizational members

require organizational learning mechanisms to be developed and utilized (Hart 1995; Hart and Milstein 2003).

Within the four-element diffusion process (i.e. innovation, communication, time and social system), there are other aspects to consider as movement occurs throughout a society, namely, the characteristics of the innovation, the characteristics of the innovators and the environmental context (Wejnert 2002). The latter does not refer exclusively to the natural environment, but rather, refers to the broad contextual variables such as social and economic aspects of the context. These variables are important because they define elements that might play a role in how any of the four main aspects of diffusion are enacted. Further, the decision to adopt an innovation is evaluated through the lenses of the relative advantage gained by adoption, compatibility, the complexity of the new element, its trialability or ability to assess its usefulness and observability in relation to the users and other stakeholders (Kellison and Hong 2015). The adoption or rejection decision becomes complex as some environmental activities have immediate and visible impacts (e.g. changing chemicals for natural materials), while others are not as visible (e.g. energy savings) or immediate-term oriented (e.g. solar panel energy generation). Adding the relationship between various stakeholders in a community and a sport organization alongside the relationship between sport organizations and their respective leagues or governing bodies makes strategic environmental planning and tactics a challenge (Casper, Pfahl, and McSherry 2012).

Mimetic isomorphism, for example, can provide further understanding as to how organizations implement what is deemed successful or legitimized organizational behaviour or initiatives into their own daily operations and behaviours as well as promote them among external stakeholders (DiMaggio and Powell 1991). The promotion of these ever-changing ideas follows diffusion principles, especially in relation to the isomorphic change processes that occur from governing body mandate to specific organizational process changes over time (Newell and Swan 1995). Diffusion of innovation helps to frame and support the isomorphic changes that occur over time in relation to environmental activities within and among sport organizations. With a tension existing between individual sport organizations and their respective leagues, governing bodies or other oversight entity, environmental efforts are enabled and constrained by the emphases either a side or both sides places on environmental issues.

Few sport studies utilize diffusion of innovation as a way to understand environmental issues, although it has been used in examining broader strategy in organizational studies of innovation and development (Caza 2000; O'Brien and Slack 2003, 2004). The literature that does focus on diffusion of innovation within environmental activities reveals there are multiple influencers and actions that impact innovation, particularly that of environmental innovation. Hoeber and Hoeber (2012) examined each stage of innovation and explored the overarching managerial, organizational and environmental issues that drive innovation and adoption (e.g. leadership commitment). Kellison and Hong (2015) examined innovation adoption practices related to the environment within stadia design. They noted that there is a clear decision-maker taking the lead in design issues whether it was a sport organization owner or, at the intercollegiate level, a key person delegated with the task (Kellison and Hong 2015). From a design standpoint, and the drivers of adoption decision-making (e.g. time and complexity), designers were beholden to the ownership/champion regarding environmental decisions. Various other stakeholders (e.g. environmental activists, media personnel and political officials) held different influences and impacts on decision-making,

offering them a presence in the discussion, but one that is highly contextual (Kellison and Kim 2014; Kellison and Hong 2015). In the end, areas such as cost savings, goodwill and brand differentiation were important factors in ownership/champions adopting environmental innovations in stadia design (Kellison and Hong 2015).

In this study, strategic adoption of environmental innovations is explored through the four key elements that represent how diffusion occurs: innovation, communication, time and social system. Each of these elements provides a departure point to understand specific aspects of diffusion and the overall process in a given context. Paired with isomorphism, they can show how environmental waves are viewed, adapted and advanced.

Linking learning and action related to the environment

Organizational personnel might overvalue internal or external information, successes or current local/contextual situations (Miner and Mezias 1996). Related to this is the uncertainty over the extent to which internal and external stakeholders (e.g. fans) expect environmental actions by sport personnel, in both style and substance (Mohr, Webb, and Harris 2001). The uncertainty over the corporate social responsibility (CSR) or goodwill/altruism aspect of environmental actions necessitates a shift in perspective about the issue. This shift moves environmental issues to a strategic platform versus marketing or CSR due to the centrality of environmental impacts across many, if not all areas of organizational operations (Etzion 2007; Pfahl 2010, 2011). Environmental initiatives, then, should be approached from a strategic perspective rather than just a cost saving (e.g. waste reduction, recycling and composting programme and energy efficiency improvements) or revenue-generating ventures (e.g. sale of reclaimed materials on secondary market). Proactive or experimenting organizations are ready to take advantage of new niches or innovations to increase productivity, effectiveness and/or functionality within their industry (Aragón-Correa and Sharma 2003; Sharma and Vredenburg 1998). Environmental sustainability offers several benefits including those within the sport industry such as increased goodwill, fan identification and competitive advantage (Kellison and Hong 2015; McCullough and Cunningham 2010).

Whether implemented for practical, functional or political reasons (McCullough and Cunningham 2010), environmental initiatives should be approached the same way as any other business investment (Walley and Whitehead 1994). Namely, this involves strategic planning, tactical implementation and assessment (Judge and Douglas 1998; Pfahl 2011; Porter and Reinhardt 2007).

In sum, several key theoretical lenses on organizational activities and its flow into a strategic focus for environmental activities are represented within the literature. There is a need to address the environmental factors to explain the isomorphism within the sport organization context and, in tandem, how sport managers can understand and integrate the diffusion of learning as an internal response. A strategic focus enhances the ability to analyse environmental activities (Hart and Milstein 2003; Judge and Douglas 1998; McCullough 2013; Pfahl 2011; Porter and Reinhardt 2007). First, numerous strategic elements involved in environmental issues (e.g. stakeholders, organizational units, communication methods and league/governing body – sport organization tensions) must be accounted for to better understand the inputs and outcomes of environmental activities. The next section will examine the waves framework as a means to understand the micro and macro environmental strategies and activities at work within the world of sport.

Waves of environmentalism in sport: description and propositions

The concept of *waves* of environmental action is intended to account for a number of issues within the sport – environment relationship. First, such a characterization lends itself to a temporal state that recognizes progress and regress as part of the environmental process (much like a wave).

Additionally, since there is no end state to environmental activities in a *finished* sense, the *waves* encapsulate broad changes that take place over time (undefined), but that also reflect a set of characteristics, and perhaps practices, that occur at change points (i.e. move from one wave to another). The elements of each higher order wave can be found in a previous wave depending upon the strategic intent of particular sport personnel certification (i.e. formal education).

Third, the waves leave an uncertain future that is constantly shaped by past activities with an ever-changing set of outcomes that will achieve or miss an ever-changing set of goals and objectives (i.e. perpetual strategic planning and action). The progress of some organizations to advance environmental sustainability initiatives can endure, while other organizations might reduce their commitment to further their environmental initiatives. One reason for this regression results from the failure to properly support the maintenance of organizational processes to maintain or improve environmental initiatives. As a result, these efforts can become stagnant (i.e. remain in same wave) or worse disregarded (i.e. devolve to previous wave).

Finally, the *waves*, by their descriptive nature (i.e. activities) can offer a comparative framework that emphasizes varieties of approaches to environmental problems rather than standardized or prescriptive ones, but approaches that are diffused among organizations within the sport industry. Regression within the waves framework is influenced by the negative influence of factors that may otherwise encourage progression; these factors may include cost, executive support, capability and competency, buy in of the initiatives, change in champions and market conditions (e.g. competitor involvement, etc.). These industry parameters put into play various factors and actors that contribute and influence at varying points in the *waves* of environmental sustainability in sport movement. The waves will be examined as individual contextual levels in this study in order to explain and to define them clearly. With progress and regress a part of the process as meta and micro levels, we utilize contextual examples to show that the waves exist independently and to demonstrate the types of activity(ies) in each. However, given the potential for progress and regress, the examples are meant to illustrate the waves and not the sport organizations. Future studies can examine the individual organizations within the waves, but this study examines the ideology of the waves themselves with exemplars provide for illustration. The next section explores the concepts of the environmental *waves* in sport (Figure 1).

Wave one

The first *wave* is generated by the need to take action, whether due to internal or external pressures, strategic or institutional pressures. It is also the context in which sport personnel begin to know what they know (Casper and Pfahl 2012; Casper, Pfahl, and McSherry 2012) and develop awareness of environmental issues within their particular context. To an extent, this awareness is driven by the fact that there is a general environmental dialogue

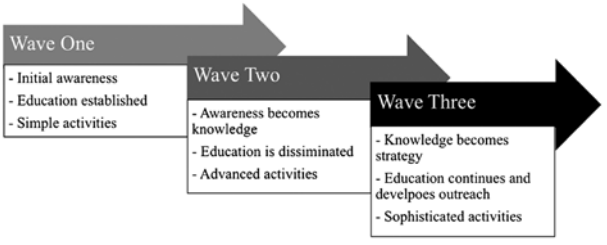

Figure 1. Waves of green in sport.

(and practice) in the international and local public spheres for some time now. In some cases, where sport personnel have an initial understanding of environmental problems and the impact of sport operations on the environment, knowledge begins to surface as to the root cause(s) of the problems, options available to correct and manage them. Some of this awareness and knowledge is generated from sport-specific sources (e.g. leagues and governing bodies), but it can be obtained through personal research, educational training (Casper, Pfahl, and McSherry 2012) or external stakeholder interventions (Porter and Reinhardt 2007). This study's examination of environmental issues through sport experience helps to define the waves and to provide a foundation for research into the relationship of sport and the natural environment when viewed through organizational strategy and operational lenses.

Actions within the first wave might be strategic in nature, but are many times reactionary or without overall interconnectivity to broader strategic planning processes (i.e. low intensity activities with simpler start-up and success measures) (Judge and Douglas 1998). Low intensity activities can be recycling programmes, energy reduction, waste reduction and water reduction efforts (Casper, Pfahl, and McSherry 2012; Pfahl 2013). These common efforts in sport are straightforward to understand (awareness and knowledge), relatively inexpensive to design and to implement and visible to the broad base of stakeholders (Casper, Pfahl, and McSherry 2012; McCullough 2013; McCullough and Cunningham 2010).

However, when digging deeper into the implications of beginning environmental activities, is noticeable that coercive elements are pervasive because, in some form, pressure is put on internal organizational processes by internal and/or external sources in order to facilitate environmental action (e.g. compliance with regulations, protests and internal champion). Internal and/or external stimuli are common drivers of innovation diffusion, especially in sport where many actions will be in the public spotlight (e.g. new stadium design) (Kellison and Hong 2015). Enabling and constraining structures within a sport organization's operational context (e.g. resource requirements and time) impact planning and action (e.g. budgets), adding complexity to what might otherwise be superficially seen as simple actions (e.g. new expenses to conduct recycling) (Casper, Pfahl, and McCullough 2014; Hart 1995; Kellison and Hong 2015; Pfahl et al. 2015). Further, the foundations of mimetic elements are also demonstrated through the search to develop environmental efforts. Since recycling or energy reduction, for example, was shown to be a common starting point due to its lower intensity, yet high visibility, it is not surprising that sport personnel look to be early adopters of this foundational activity (i.e. relatively cost effective, visible,

measurable and familiar to external stakeholders) (Casper, Pfahl, and McSherry 2012; Hart 1995; Hart and Milstein 2003).

Initial waste management or recycling efforts are generally considered *low-hanging* fruit and highly visible to fans (e.g. recycling bins) resulting in the highest visibility to fans. Further, these activities did not begin in sport, but have been in the public consciousness for many years leading to a *safe* departure point, or the first wave, for many sport organizations. Due to the generally lower barrier of entry for these types of actions coupled with an ability to assess and to observe the practices means sport organization personnel can become comfortable with and knowledgeable about such environmental initiatives over time (Casper, Pfahl, and McSherry 2012, Pfahl et al. 2015). Further, the physical nature of waste and recycling means that measures of success (e.g. total waste generated, tons diverted and tons recycled) are simple to establish a benchmark and lead to the development of higher order strategic plans and adoption of more advanced environmental innovations. The efforts themselves offer a platform to develop foundational communication platforms and information to diffuse and to communicate to stakeholders (Casper, Pfahl, and McSherry 2012; Ciletti et al. 2010; McCullough 2013; Mallen, Chard, and Sime 2013; Pfahl et al. 2015). Such a situation makes the first wave a strong link with the diffusion process of environmental action in sport.

For instance, since the opening of AT&T Ballpark, home of the San Francisco Giants, the organization first concentrated on energy and waste reduction. The team collaborated with the Environmental Science Associates to implement a recycling and composting programme within their ballpark, which resulted in the diversion of 3.5 million pounds of ballpark waste form landfills in 2009, a rate of 75% (Environmental Science Associates 2013). Similarly, much of the attention made by the Flemington Race Course (Australia) is centred on responsible waste and energy management through their *Green Fields* programme driven by their vision 'To be a leader in world racing and represent best practice in event management and entertainment' (Flemington 2014). In addition, at Bowling Green State University, the campus sustainability officer has implemented various recycling and waste reduction initiatives surrounding football games. The initial results are posted on the University's Office of Campus Sustainability website.

While there is no single element that comprises this first wave, initial efforts (e.g. waste management and recycling) allow for information and best practice sharing among sport organization personnel (e.g. via league efforts and Green Sport Alliance) developing not only a wave pattern, but also a communicative and social system of environmental action within sport (i.e. diffusion of innovation) (Newell and Swan 1995). Based upon the context of this first wave, the following propositions are offered.

Proposition 1: Initial environmental adoption efforts will be directly correlated with the expertise knowledge and professional experience of the sport personnel.

Proposition 2: Initial environmental sustainability efforts will be highly visible to the public to decrease stakeholder pressures.

Proposition 3: Performance data from initial programs will result in improvements to environmental programs and will be disseminated through professional networks (e.g. league efforts, Green Sport Alliance).

In sum, the first wave is a developmental one where awareness is generated and initial thoughts on foundational strategies emerge in the psyche of the organization. These initial

tactics that are developed and enacted serve as an initial step to halt the impact of the organization or event in highly visible areas (i.e. waste management and renewable energy). The second wave builds upon the foundations of the first wave and adds greater complexity, activity and cohesion as noted in the next section.

Wave two

A great deal of growth in environmental activity occurs in the second wave. Developments in awareness and knowledge, accompanied by diffusion of these aspects of organizational activity, can emerge alongside increasing levels of assessment and measurement and the continuation/extension of coordinated environmental efforts among internal and external stakeholders. Thus, the second wave offers further complexity in terms of time and evaluation of environmental innovation adoption and development of additional innovations that require evaluation prior to adoption. While explained individually, these areas coalesce into a matrix of activity that requires commensurate advances in planning and resource allocation (Hart 1995).

Knowledge growth and movement

First, as environmental work matures, sport personnel will develop their awareness and knowledge of the issues at hand, a primary feature of the second wave. Awareness becomes more advanced knowledge in known areas and emerging knowledge in new and different areas (i.e. new innovations), as competencies and relationships or partnerships develop and evolve (Poncelet 2004). Education comes in a variety of ways (e.g. hands on and partner expertise) and the knowledge gained from implementation and measurement activities (in Wave One and externally), for example, is disseminated throughout the organization by key organizational members (e.g. management).

New information that emerges and the dissemination of first wave-level knowledge (e.g. data collected from recycling efforts) reflect the communication elements of diffusion as information is shared and transferred across and within organizational boundaries (e.g. National basketball Association Green Week and LEED-certified facilities). Additionally, external environmental activist and policy shaping organizations (e.g. the 'deep green' organizations lobbying and shaping public policy on environmental sustainability) may work with sport organizations, leagues and governing bodies to provide new information, disseminate existing information (i.e. diffusion throughout an organization) and begin the process of formalizing or implementing environmental sustainability efforts into daily organizational practices. For example, the National Resources Defense Coucil (NRDC) collaborated with various professional leagues on highly visible (e.g. green weeks) and behind-the-scenes (e.g. internal changes) efforts (i.e. Major League Baseball and National Basketball Association) and has been instrumental in developing comprehensive environmental strategies at league and team levels. Organizational learning mechanisms and structural changes in terms of formal groups/teams developed to address environmental issues emerge from the increasing awareness and knowledge of organizational members, especially at the managerial levels and overall diffusion of environmental ideas and actions (McCullough and Cunningham 2011; Pfahl 2010). Much of this work can be gained through the evaluation of environmentally friendly activities undertaken and best practices studied, which reflects key decision points

in the decision-making process to adopt new innovations or innovative approaches (Casper, Pfahl, and McSherry 2012; Kellison and Hong 2015).

Building on awareness and knowledge growth and dissemination, this wave also encompasses a transition in mimetic and normative elements. As environmental challenges are identified, exemplars of process and management of environmental issues can be sought by way of mimetic isomorphism. Further, normative elements emerge, at least at an early, formative stage, as internal aspects are measured against internal benchmarks and institutionalized standards (e.g. LEED and ISO). Additionally, functional and process systems are identified as necessary and are routinized (i.e. institutionalization of environmental sustainability initiatives). For example, sustainability or *green teams* can be formed from among various organizational units to provide management and leadership structure to the efforts (Daily and Huang 2001; Denison, Hart, and Kahn 1996; Rigby and Tager 2008; Pfahl 2010). These teams are often charged with developing goals, objectives, tactics and measures associated with environmental operations, but also can have the duty of diffusing information internally and externally regarding sustainability issues (e.g. internal reports and external media information about activities) (Coddington 1993; Rigby and Tager 2008; Pfahl 2010).

Such a structure provides the impetus for environmental planning and action to become more complicated and an element of long-term thinking arises through the consideration of relevant skill development, information collection, dissemination and overall organizational cultural and structural changes which may result in enhanced awareness and knowledge levels across organizational members. Each of these areas involves the key diffusion elements of innovation (i.e. can or cannot be adopted), communication (i.e. sharing of information), time (i.e. strategy becoming clearer as are goals and objectives) and social systems (i.e. sharing of information) inherent in the organizational culture and structural changes. Self-developed knowledge and skills, possibly coupled with those of expert partners, allow sport personnel to move beyond simple, 'low hanging fruit' activities (e.g. recycling) and begin to explore higher order practices (e.g. waste streaming and infrastructure changes) also within the diffusion structure.

An example of work within the second wave context, consider the Carlton FC Australian Rules Football club (The Blues), whose practice field was formerly named after its major commercial partner, Visy. Visy is a materials recovery and management company headquartered in Melbourne, operates in over 120 global sites and has an affiliated company in North America, Pratt Industries USA (Visy 2013). Visy's involvement as a commercial partner had influenced Carlton FC to integrate environmental sustainability into their club values and actions, as seen in their *green team* of environmental ambassadors (Carlton FC players) who educate various communities on environmental sustainability action and have undertaken an environmental audit to identify areas of opportunity to reduce its environmental impact. The same coercive situation is seen with the Sydney FC (The Swans), also an AFL club, who activated their Volkswagen commercial partnership through Volkswagen's *Think Blue* sustainability campaign, whereby Swans FC's athletes are educational ambassadors through the school education programme (Sydney Swans FC 2013). Since the beginning of this partnership, the Swans have committed to develop a number of environmentally focused initiatives to be enacted in its near future.

Trialability, observability and usefulness grows

Second, the process of evaluation and the development of assessment measures become more robust and nuanced as data collection begins to tell an environmental story, from wave one to wave two efforts, that can then be directed by the aforementioned revised strategic planning procedures (Pfahl 2011; Shrivastava and Scott 1992). For example, in 2011, Ohio State University implemented an extensive zero waste programme (i.e. 90% of waste is diverted from landfills), which extends recycling and composting programmes to a higher level of environmental commitment (Natural Resources Defense Council 2013). In partnership with the Ohio Department of Rehabilitation and Correction (ODRC), Ohio State was able to sustain a diversion rate of 89%, setting the bar for such programmes in collegiate sport (Ohio State 2013). Through trash audits and other evaluative measures, Ohio State was able to increase their diversion rates to 95.2% during the 2014 football season (Ohio State 2015). Further, the university provides information for other sport organizations and athletic departments to implement similar waste management programmes through their website (see http://footprint.osu.edu/zero-waste-ohio-stadium/).

Coordination leads to social systems

Third, and finally, environmental actions at an organizational level (e.g. team and event) begin to merge with league or governing body activities (e.g. NHL and FIFA). Communication and social system interactions among league and/or governing body and sport organization personnel begin to develop normative elements as are coercive and mimetic ones. What is not seen as clearly is the championing of ideas by organizational leaders (Kellison and Hong 2015; Kellison, Trendafilova and Mccullough 2015; Pfahl et al. 2015) because most of the innovation information sharing, in the public realm, is observable in relation to third parties (e.g. Green Sport Alliance and Natural Resources Defense Council). Closer relationships with third parties such as the Natural Resources Defense Council (e.g. with MLB, NBA) or the establishment of data and information sources/clearinghouses such as the Green Sport Alliance (GSA) (McCullough 2013) and the Sports Environment Alliance (Australasian regional body, The Sports Environment Alliance 2014) with the Climate Institute and the Carbon Market Institute, the Alliance) (McCullough 2013) develop interconnected social systems that communicate directly and indirectly with each other, an important part of adoption decisions (Newell and Swan 1995).

For example, the Alliance, for example, provides a clearinghouse for information and ideas as well bringing a third party into the diffusion processes (Pfahl 2013). With the North American efforts underway, mimetic forces have influenced the movement in other parts of the world with the progression from one wave to the next seen at an accelerated form. As exemplified with the early adoption and leadership shown by professional leagues and National Sport Organizations to herald the movement, the Sports Environment Alliance has been fortunate to have them on side early. Further, the Climate Institute released their Sport & Climate Impacts report, and the Sports Environment Alliance played a role in contributing to its communication and content (The Climate Institute 2014). Coordination of activities (e.g. *green weeks* and *green games*) becomes an active, boundary spanning sign of cooperation among sport organization personnel that demonstrates what level of commitment and action each is at in a given moment. Awareness and knowledge of environmental issues and actions are disseminated across the organizational boundaries as a shared commitment among related parties (e.g. teams in a league) develops. In conjunction with this work is

the strategic decision-making, where innovations that are compatible with organizational capabilities are identified and evaluated for further engagement; this decision-making is thought to occur at upper level management support and understanding of environmental issues (Hoeber and Hoeber 2012; Kellison and Hong 2015; Newell and Swan 1995). The higher visibility and assessment opportunities of advanced environmental activities also mean other stakeholders (e.g. fans and media) can begin to weigh in on the merits of such activities culminating in adopt or not adopt decisions (Rogers 2003). These relationships can work at all levels of planning and implementation and are even becoming involved in information dissemination (Natural Resources Defense Council 2012, 2013; NCAA Schools Big on Environmental Initiatives 2008; The Climate Institute 2014).

Examining the totality of the second wave brings complexity, activity and cohesion, as internal processes can change with structural and communicative elements making assessment and observation of environmental efforts an important second step towards environmental strategy. Strategic planning processes become more robust and systematic in the second *wave*. Thus, for the second wave, the following propositions are proposed:

Proposition 4: Sport organizations will increase their legitimacy of their environmental programs through collaborating with environmental organizations.

Proposition 5: Sport organizations will establish partnerships with external organizations to legitimize their environmental practices.

Proposition 6: Legitimized practices will disseminate institutionalized practices to various stakeholder groups (e.g. teams, leagues, alliances).

In sum, the second wave concerns greater knowledge levels, more formalized strategic planning and tactical implementation (including measures of success), legitimization and diffusion of environmental information, both internally and externally. It includes early normative processes and clear mimetic and coercive elements. For many sport organizations, the second wave is still to come, although as the examples showed, some organizations are already working within it. The third wave is, at this point, an outgrowth of the *no finish line*, perpetual nature of environmental activities. Enhancement, synthesis, structural rigor and interconnectivity are key elements of the third wave.

Wave three

As with the previous wave, the third wave builds upon developments in the previous wave while adding permanency to organizational planning and implementation of environmental activities. Strategic planning for environmental issues becomes more integrated with broader strategic planning for the organization including active cost reduction and revenue-generation objectives (McCullough and Cunningham 2010; Hillman and Keim 2001; Norman and MacDonald 2004).

Diffusion and communication of knowledge accelerate as close ties between organizational units and sport entity relationships (e.g. governing bodies, sport environmental alliances, etc.) take hold. In addition, certification and process evaluation techniques (e.g. ISO 14001 and LEED) are implemented to provide stability to strategy and action efforts (Kitazawa and Sarkis 2000) in addition to formalizing assessment and gathering of environmental data.

The third *wave* is highly normative because the structures are in place at strategic planning and tactical levels (e.g. green team and ISO). There is also additional diffusion of environmental ideas as the organization personnel begin to infuse what they learned through trial and observation (i.e. data) into dealings with external stakeholders (e.g. suppliers), which moves into a revised application of coercive and mimetic aspects of environmental activity. It is strategic, cohesive, cross-functional, beyond the scope of only internal operations and demonstrates coordinated effort across organizational units and operations.

The efforts advanced through each wave are the result of adoption of certain levels of environmental innovation (e.g. recycling and waste management) that are measureable and were deemed to be compatible with organizational strategy and operations. Otherwise, competencies could not be gained without knowledge development, the removal of ambiguity or uncertainty and the application of nor managerial support for environmental efforts (Kellison and Hong 2015; Kellison and Mondello 2012; Rogers 2003).

For example, at Paterson's Stadium, home of the Australian Football League's Fremantle FC (Dockers), mimetic and normative pressures are at play. The West Australian Football Commission (WAFC) manages Patersons Stadium and committed themselves to a number of sustainability initiatives that include waste and recycling, water and energy (Wave one), with an emphasis on monitoring and reporting in their pursuit of ISO 14001 standards (Wave two). Specifically, their efforts are a result of being proactive in creating an environment that adheres to the occupational and safety standards delineated by the AS/NZS 4801 (the Australian and New Zealand systems standards). Using the ISO 14001 standards, 'systematic involvement of various stakeholders have assisted in Patersons' achievement of not only occupations and safety standards through better lighting and indoor air quality, but also in attaining parallel environmental sustainability improvements', noted Roy Depczynski, Operations Manager, WAFC (personal communication, 9 October 2013). Patersons Stadium's successful and active commitment is supported by various stakeholders including the WA Department of Sport and Recreation.

An additional example occurred in North America, where the National Hockey League (NHL) developed a sophisticated, cross-functional strategic plan for the league-wide NHL Green programme. Much like other professional leagues in the USA (e.g. NFL and MLB), the NHL has a dedicated webpage for the various environmental sustainability efforts initiated by the league and its teams. Within the context of the second and emerging third wave, the NHL has partnered with various environmental agencies including GreenLife (i.e. social system, communication system) (Babiak and Trendafilova 2011) and has established partnerships with EPA WasteWise, EPA Energy Star, Beyond Sport, Green Sport Alliance, National Recourse Defense Council and EPA Green Power Group (see nhl.com/green for more information). Individual teams are participating in various environmental programmes like electronic recycling events (Buffalo Sabers and San Jose Sharks) and using renewable energy at facilities (Anaheim Ducks). The NHL was also the first professional league in North America to release a league-wide sustainability report (NHL 2014) with the promise of being carbon neutral during the 2014–2015 season by way of a partnership with Constellation Energy Group and purchasing carbon offsets.

As exemplified through the NHL's partnerships, sport personnel within the third wave begin to move from internal and cooperative efforts into outreach with outside organizations and behavioural change (internal and external). This demonstrates a capacity to understand and act, thus moving sport personnel into the realm of environmental leadership

and stewardship within society, but especially at a local level (Sharma and Vrendenburg 1998). The ultimate aim of such a state is to change fan behaviours at events, but crucially, within their everyday lives. At the major event level, such as that of a World Cup or Olympic Games, legacies are discussed in terms of leaving the local environment of the event in a stronger, more sustainable position than found previously.

However, progress through the waves does not mean that all actions and activities are successful nor without critique. Despite the criticism of the *Green Games* (i.e. 2000 Sydney Olympic Games) in its fulfilment of legacy promises, this set of events was the global expression of commitment to the environment for large-scale events and placed Australian sports as an environmental leader by default and through the Sydney Olympic Games' halo. Its practices are well adhered to, and its community embracing of its, sustainability values as evidenced through their objectives. These objectives state, 'any new development complies with best practice environmental and town planning standards and the natural heritage of the Parklands is protected and enhanced' (SOPA 2015, n.p.); but, the practices stop at the Sydney Olympic Park precinct borders. The limit of its impact indicates a possible regress of a wave or, at least, within the third wave itself as its influence does not spill into adjoining communities or general sport community in the way that identifies it as an institutional force on the industry as a whole. Often this is because diffusion of ideas or processes takes time and coordinated communication (Rogers 2003). However, the variation in interpretations as to *more sustainable* leaves room for debate and discussion.

The third wave raises a final set of propositions related to environmental activities for sport organizations:

> *Proposition 7:* Sport organizations will seek certification of their environmental sustainability efforts and process evaluation techniques (e.g. LEED, ISO).
>
> *Proposition 8:* As more sport organizations seek certifications, environmental sustainability efforts will be routinized and normative among other organizations.
>
> *Proposition 9:* Sport organizations will engage external stakeholders to influence their actions to include more environmental sustainable behaviors.

In sum, the third wave is one that is focused on enhancement, synthesis, structural rigor and interconnectivity, many of which have not been implemented or reached by sport personnel to date. This situation also raises the issue of how many waves are there. Only three? The concept of the waves concedes that future changes and environmental problems can foster new needs and activities that are yet not recognized. Progress and regress of environmental strategy and action (e.g. context changes, personnel changes and technology changes) impact the placement of organizations in the wave format (i.e. between waves and within waves). The three-wave format discussed in this study defines current actions against the current situations, while leaving open the possibility of additional waves.

Regression

The term *waves* was deliberately chosen to describe the movements that are occurring within and across our organizations, alongside waves occurring globally, because it captures the rhythm of this movement, in particular its ebbs and flows. The term also connects the internal sport organization world with the external one through the intermingling of *waters* related to many strategic issues including environmental ones. The ebbs and flows have an advancement component, but also implies regression intermittently within the evolution

and movement forward. At each stage, there are often *tipping points* where an individual, organization and/or region might regress. For example, in Wave one, the driver often is the initial momentum of a champion who may have some experience and knowledge to understand where the low-hanging fruit opportunities are or perhaps there is external pressure (e.g. legislation, activist groups, etc.) that initiate the consideration. If these pressures cease to exist within Wave one of an organization's ES engagement (e.g. champion leaves and little/low external pressure), often coupled with increasing barriers such as increased costs and/or complexity, the wave regresses, and the amount of which it does is a phenomenon to explore in greater depth in the future.

In Wave two, strategic considerations have been flagged and the opportunity for value adoption and integration is presented. Whereas, in Wave Three, future-oriented decision-making is engaged and long-term thinking with the prospects or current involvement in complex and highly sophisticated thinking is underway. For Wave two (and trickling into Wave three at times), the challenges would be in organizational and stakeholder uptake; this is particularly important on two fronts. The first is the built environment–stakeholder engagement match should make sense to the extent that they work for each other; if physical modifications are made to enable lower energy, water or materials use, stakeholders must be made aware, empowered with the knowledge to behave in a way that accommodates. It is of no use if dual flush toilets are installed (built environment changes) when fans use the full flush button every time and if the recycled materials' containers are consistently contaminated due to lack of knowledge on what materials can be deposited (stakeholder behaviour).

In both Waves Two and Three, regression has been linked to increased levels of criticism for authenticity and the ability to fully embrace a cost-benefit analysis that can demonstrate clear returns for the organization. The idea that both normative considerations are made alongside business sense is what is often referred to as 'walking on two legs' (Enderle 1999), where both normative and commercial interests and sound decision-making are matched for authenticity and the sustainability of its business. In summary, waves progress forward, but also have instances and conditions that regress the movement through the waves; these need to be explored further in future research.

Summary and conclusions

As more sport organizations begin to implement environmental sustainability into their organizational practices, it is important to understand the evolution of these practices and the strategies that sport organizations utilize to implement environmental programmes. The purpose of this paper was to examine the evolution of the natural environment movement within the sport industry using select examples from the sport industry as a whole. The evolution of the interplay between the environment and sport is conceptualized using a series of waves as a typology to understand the environmental movement with the sport industry. Classifying the waves of environmentalism within the sport industry is important to understand the origin, impact, staying power and ultimately their legitimacy within organizational settings and contexts (e.g. league participation). The wave typology can also help to understand the stages in which an organization is currently engaged in (i.e. strategic view and institutional activities) and evolving from (i.e. institutional activities and diffusion) in terms of advancing their environmental sustainability efforts, as sport personnel become more experienced and knowledgeable of these issues. These ideas coalesce within

three key areas emanating from the research: strategic importance of environmental issues, establishing and utilizing connections and organizational conduct of environmental actions.

Strategic importance of environmental issues

Sport personnel can use the waves' typology to identify the strategic understanding and progression of their own organization's environmental efforts (Babiak and Trendafilova 2011; Babiak et al. 2009; Pfahl 2011; Trendafilova, Babiak, and Heinze 2013). This framework helps sport personnel to realize the gradual progression of and perpetual efforts necessary to minimize the organization's impact on the natural environment. This typology can assist sport personnel as they develop their short- and long-term strategic plans that integrate environmental sustainability. Further, they can evaluate their strategic planning to ensure their organization is progressing, rather than becoming stagnant. Equally important is the ability to note when environmental efforts are regressing (e.g. inconsistent environmental actions and lack of communication with other strategic entities). Individual organization actions will vary within the framework of the waves, but the collective progression through the waves provides a shared language and set of lived experiences that help to foster diffusion of best practices and ideas.

In order for organizations to advance their environmental sustainability efforts, consistent engagement to advance these actions must move towards more strategic thinking and ultimately one that includes more sophisticated approach and management. Research into the development of environmental strategy (as integrated with overall organizational strategy) will help to understand micro and macro enablers and constraints to environmental action (Hart 1995; Hart and Milstein 2003). Sport personnel awareness, knowledge and action levels and educational mechanisms can be examined to determine whether first wave elements are understood and, if they are, being acted upon in order to advance through subsequent waves (Aragón-Correa and Sharma 2003; Hart 1995; Hart and Milstein 2003; McCullough and Cunningham 2011; Pfahl 2011).

Establishing and utilizing connections

Closely related to the strategic aspect of environmental efforts is the organizational interplay, or symbiotic relationships, noted in the literature, that exists between activist governing bodies or league personnel (and among third-party stakeholders) who wish to see environmental actions taken at organization levels, especially in the second and third waves. Perhaps more so than in traditional corporate structures and relationships, sport organizations are closely tied with their *on-field competitors* in off-field operations. Additionally, the high-profile nature of sport organizations means that they are attractive to third-party stakeholders or organizations (e.g. Natural Resources Defense Council) that can help with environmental issues while utilizing the public stature of a sport organization or event to showcase their work. The diffusion elements of innovation and communication that emerge from these relationships aid in education (i.e. awareness and knowledge) for sport professionals as well as in providing resources from which to draw (Hart 1995; Hart and Milstein 2003). The isomorphic elements at work in these relationships add important temporal and action elements to diffusion processes, especially in a situation where there is a potential for progress or regress across the waves (DiMaggio and Powell 1991; Newell and Swan 1995).

The exchange of information and communication of ideas (i.e. organizational learning) (Hillman and Keim 2001; Shrivastava and Scott 1992) is important to the diffusion of environmental knowledge and actions (i.e. driving progression/regression through the waves) and is an underexplored space within sport contexts (Casper, Pfahl, and McSherry 2012, Casper, Pfahl, and McCullough 2014; Mallen and Chard 2011). Research into relationship development and cultivation can improve understandings of isomorphic development over time and across the web of stakeholder relationships established through environmental activities (Kellison and Kim 2014; Kellison and Hong 2015).

Organizational conduct of environmental efforts

In review of the various waves of environmental sustainability in sport, the question remains: What are the specific and most influential factors that have contributed to the ultimate adoption and implementation of actions? There are a number of organizational (e.g. size, type, stage in life cycle, etc.) and contextual conditions (e.g. governing structures, alliances, types of pressures, etc.) that have been identified in the context of sport; however, qualitatively exploring and quantitatively confirming the existence and weighting of such factors are of interest. The organizational conditions could be further explored and could answer the questions related to the level of impact of various organizational characteristics have on responsiveness, capacity and capability to manage environmental sustainability demands.

Although all waves involve them to an extent, the third wave demonstrates the formation of normative practices and institutional permanency within sport organizations and potentially diffused across organizational boundaries (e.g. league – team) (Hillman and Keim 2001; Pfahl 2010; Shrivastava and Scott 1992). Micro- and macro-level operations can become routinized, especially if specialized certification (e.g. LEED) is obtained (Dacin, Goldstein, and Scott 2002; Washington and Patterson 2011). These elements become environmental norms within organizations that can, with attention (i.e. lack of regression), outlive the sport personnel in individual positions (i.e. institutionalize practices). This situation is the same for the regression of ES engagement; there is certainly more to learn and understand about what influences the ebb of an organization's involvement with the movement and to what extent do those factors impact the progression.

By acknowledging the existence of other entities that represent the coercive, mimetic and normative pressures for isomorphic change, the specific characteristics of such entities could be explored. Doing so would develop a typology that descriptively understands and, subsequently, evaluates impacts on the changing organization. The results would inform relationship strategies in environmental sustainability changes. The same could be explored for general typologies of other forces on the movement across waves, such as government and market types (e.g. capitalist, socialist, commonwealth, free trade markets, etc.) in conjunction with the diffusion elements (e.g. innovation, time, social system and communication) that facilitate such movements (Wejnert 2002). The efforts to explore organizational and contextual conditions are undertaken to pave the path for ultimately empirically testing and reflecting the waves with more depth (e.g. timing, rhythm, aptitude for change, etc).

In conclusion, given the growing momentum of environmental sustainability within the sport industry and academic literature, it is our hope that the waves typology will help facilitate a deeper understanding and spurn greater exploration of the various environmental efforts made and still yet to come. While more ethereal and difficult to study, the waves

typology provides guidance to unify the various elements of environmental strategy and action in sport. Much like legislation and governance mechanisms have done for issue such as race and gender equity, it is believed the waves can bring various threads of ideology, theory and practice together in order to outline a clearer environmental pathway for sport personnel to follow. The literature discussed environmental efforts in terms of CSR practices (in addition to economic ones) and improved fan engagement, especially in relation to improving their lives through sport fandom and participation (Kellison and Hong 2015; McCullough and Cunningham 2010). This understanding can help identify the progress and origins of environmental action within various sport contexts worldwide to better approach the next wave of environmental sustainability within the sport industry.

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