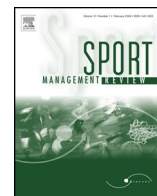




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Sport development and physical activity promotion: An integrated model to enhance collaboration and understanding

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ABSTRACT

As inactivity and obesity levels continue to rise, calls are being made for sport development action to be further directed towards capitalising on the value of community participation for health and social benefits. This paper seeks to highlight a current disconnect between physical activity and sport management research, and identify opportunities for collaboration. To date, the sport management literature has predominantly focused on sport as a form of entertainment with spectatorship outcomes, where professional codes are a commonly used setting of research inquiry. There has been less focus on organisational issues related to participation in sport and recreation. This is identified as a gap, given the current push towards increasing focus on sport and recreation promotion for community wellbeing. The present paper sought to examine physical activity and sport management research, to identify commonalities and potential for integration and co-operation. The outcome of this review is a conceptual framework, integrating socio-ecological models, taken from physical activity research, and sport development concepts derived from sport management theory. The proposed conceptual framework seeks to provide sport management researchers with direction in their efforts to promote participation in sport, recreation and physically active leisure domains, particularly for community wellbeing purposes. Furthermore, such direction may also enhance the capacity of researchers to capitalise on opportunities for collaboration and integration across domains of inquiry.

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1. Introduction

In a review of sport management literature from the past 20 years, [Henderson \(2009\)](#) noted that research to date has primarily focused on sport as spectatorship or entertainment rather than sport as an opportunity to engage the population in mass participation of active behaviours. In the journal, *Sport Management Review*, from 1998 to 2007, Henderson found only six published articles related to active participation (10 years, 22 issues, $N = 104$ articles). A further investigation of articles from 2008 to 2011, identified five additional participation-driven publications (4 years, 15 issues, $N = 95$ articles). [Henderson \(2009\)](#) suggested that given this limited focus on participation, opportunities exist for sport managers and scholars to further consider how sport can promote physical activity participation, particularly in response to the rising prevalence of health issues related to inactivity.

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The World Health Organisation (WHO) (2004, 2009) suggests that on a global scale, physical inactivity is a leading cause of major non-communicable diseases such as cardiovascular disease, Type 2 diabetes and some forms of cancer. The impact of such health problems is said to be contributing substantially to the global burden of disease, death and disability (WHO, 2004, 2009). From a public health perspective, this inactivity trend is being referred to as a 'pandemic' (Hallal et al., 2012) and the economic impact of such inactivity is considerable, with strain being placed on societies and health systems in managing the diseases associated with inactivity (Kohl et al., 2012).

The inactivity pandemic described is a complex issue, and can have implications for many Government departments internationally, with Sport and Recreation Departments being no exception (Robson & McKenna, 2008). Sport policy-makers increasingly recognise the value of advocating sport as a means of physical activity participation (Casey, Payne, & Eime, 2012), and sport development officers are frequently being charged with the task of following health driven agendas (Boyce & Smith, 2010). Bauman et al. (2012), in their review of correlates of physical activity participation, acknowledged the importance of organised sport structures and recreation facilities in physical activity participation across lifespans. Yet, in a study which analysed sport organisational readiness to achieve health promotion objectives, Casey et al. (2012) found that while sport organisations were aware of and acting towards health-related agendas, the majority of strategies were not well developed. In most cases, 'the implementation and evaluation of health promotion into core business was informal, ad hoc, and, in some cases, monitoring systems were absent' (p. 120).

The inextricable links between sport, physical activity and health, appear to provide opportunities for sport management researchers to focus on gaining an understanding of factors that impact sport and recreation participation, as a form of physical activity. Sport and active recreation participation literature appears to span domains such as health science, sport science, physical education and leisure studies. This broad expanse of literature appears to lack continuity and consistency, making it difficult to join a 'conversation' in participation, per se. Given this, and Henderson's (2009) observation that sport management research could benefit from an increased focus on participation for health benefits, it appears prudent to consider established branches of participation literature, specifically in the health domain, and search for logical matches with sport management research agendas.

Henderson (2009) suggested that socio-ecological models provide sport management researchers with relevant frameworks for examining sport participation at different levels. Ecological theory and socio-ecological models have emerged in the modern physical activity research era as dominant and valuable frameworks (Elder et al., 2007; Giles-Corti, Timperio, Bull, & Pikora, 2005; Lounsbury & Mitchell, 2009; Sallis, Bauman, & Pratt, 1998). Such models consider a range of environmental influences on behaviour and contend that health-related behaviour such as physical activity, sport and active recreation participation may be influenced by a range of variables. These include factors at the intrapersonal, interpersonal, organisational, community and public policy levels, and such influences interact across the different levels (Sallis, Owen, & Fisher, 2008). 'Within a multi-level ecological framework, complex interactions between the multitude of individual, cultural and social, physical and policy environmental factors, in settings in which people live work and play, are studied in an attempt to better predict physical activity behaviour' (Giles-Corti et al., 2005, p. 175). This paper draws on knowledge from physical activity participation literature, in the form of ecological theory and socio-ecological models, and considers how such theory may offer support in the context of sport management and development research.

While physical inactivity has been suggested as an international problem (Hallal et al., 2012; Kohl et al., 2012; WHO, 2004, 2009), Australia presents as an interesting case study to consider, particularly in relation to participation in sport, and active recreation/leisure activities. Despite Australia's reputation as an active sporting nation (Commonwealth of Australia, 2010), with a rich history of success on the international stage (Australian Sports Commission, 2012), sport and physical activity participation rates do not necessarily reflect this depiction of the Australian lifestyle (Hoye & Nicholson, 2011). Macniven, Bauman, and Abouzeid (2012) note that there are significant difficulties associated with establishing exact rates of participation in physical activity, sport and recreation. As such, physical activity participation data offers researchers a general indication of activity levels, rather than an exact measure. With this in mind, results from Australia's two major physical activity, sport and active recreation participation surveys suggest that Australian rates of participation have significant room for improvement (Australian Bureau of Statistics, 2009; Standing Committee on Recreation and Sport, 2010).

Macniven et al. (2012) suggest that in higher income countries such as Australia, leisure time physical activity participation typically represents a greater proportion of total physical activity levels, than in lower income countries. Given sport has been ingrained as a key component of Australian culture for generations (Commonwealth of Australia, 2010), Australia presents a logical focal point to explore opportunities for enhanced collaboration across research domains in efforts to encourage sport and active recreation participation for physical activity, health and community-related outcomes. Australia, therefore, is used as the setting for this exploration, however, the authors acknowledge the relevance of this issue internationally and the opportunities to widen the scope of consideration in the future.

The purpose of this paper is to highlight commonalities between the agendas of sport management, sport development and physical activity participation research, and identify overlaps and opportunities for collaboration. In order to do this, similarities and differences between concepts such as sport, recreation and physical activity are discussed. Attention is given to implications surrounding the current shift occurring in Australian sport, towards an increased emphasis on developing grass-roots and community sport participation, for community health and wellbeing purposes, to complement, rather than facilitate, elite level success. The outcome of this paper is an integrated conceptual framework which draws on knowledge from health-oriented physical activity participation literature in the form of ecological theory. It considers the relevance of

such theory in the context of sport development to bring together two disconnected, yet related, bodies of research to highlight opportunities for collaboration, to enhance knowledge in both areas.

2. Shift towards sport participation: opportunities for sport management discipline

Sport in Australia and around the world has seen significant changes over the years, particularly in response to technological advancements and the commercialisation of sport (Shilbury, Westerbeek, Quick, & Funk, 2009). Investment in national sports institutes in many parts of the developed world has highlighted the importance governments place on elite level success. The Australian Institute of Sport (AIS) was established in 1981, in an effort to foster talent and breed a nation of champion athletes (Shilbury & Kellett, 2011). This response followed recommendations by two major reports, the Bloomfield Report (1974), and the Coles Report (1975), that Australia should follow the lead of European nations and invest in elite level success through the establishment of a National Institute of Sport. Since establishment, the AIS has facilitated significant improvements in Australia's elite level sport performance (Shilbury & Kellett, 2011). After the nation's infamous 1976 Montreal Olympic Games disappointment, Australia is now generally perceived to be a successful sporting nation, largely a product of the innovative systems and practices to which Australia has grown accustomed through emphasis and funding in the area of high performance sport (Commonwealth of Australia, 2010).

More than 30 years later, and after substantial elite level success (Australian Sports Commission, 2012), attention is now being focused on the inadequacies of the Australian sport system, in promoting and encouraging mass participation, as is shown in the following extract from current Commonwealth of Australia (2010) sport policy.

Australian sport is at a critical junction. Our sporting structures, traditionally focused on delivering high performance success on the international stage through a 'top down' approach to sport, have served us well, but new challenges confronting our nation both on and off the sporting field highlight the need for urgent change . . .

In the international sporting arena Australia's innovative systems and practices that have previously enabled us to 'punch above our weight', are not keeping pace with competing nations' efforts and we are rapidly losing our highly coveted competitive edge. And the active lifestyle that has played a significant role in establishing our nation's identity, culture and international sporting reputation is being challenged by the demands of modern life and an increasingly sedentary lifestyle, particularly amongst our children. (p. 1)

Green (2007) reiterated that while Australian government funding and policies, over the past 25–30 years, have prioritised elite sport achievement, in more recent times, the federal government has begun to reassess policies and priorities in sport. Efforts to shift the emphasis in funding and actions taken have been largely in response to rising physical inactivity and obesity rates, and reducing levels of social capital and cohesion (Commonwealth of Australia, 2010). Such trends and ultimately shifts in funding are also occurring internationally (Bloyce & Smith, 2010). *The Future of Sport in Australia* report highlighted the need for increased focus on grass-roots and community sport participation, given the benefits sport can bring to individuals and communities at a recreational level (Independent Sport Panel, 2009). In their review of the Australian sport system, the Independent Sport Panel noted the following:

Since previous Australian governments began providing significant support to sport, the clear focus has been on winning Olympic, Paralympic and Commonwealth Games medals, while participation or 'grass-roots' sport has been comparatively under-funded. This has resulted in neglect of the fundamental basis of sport in Australia—participation by children and adults in recreational-based sport at community levels. (p. 60)

This statement encapsulates some of the gaps within the Australian sport system noted earlier in the current paper, and, thus reinforces the need for policy and funding reform. While elite level success will always be an important focus of sport development action in Australia, according to the Australian Government (Commonwealth of Australia, 2010), the way forward will be to focus 'on boosting the participation of Australians for the benefit of [the] community and sporting success', rather than for sporting success (p. 1). In response, the Australian Government's *National Sport and Active Recreation Policy Framework* was established to provide a guide for the development and alignment of policies, strategies and programmes across all levels of Government (Commonwealth of Australia, 2011). The intent of the framework was to increase participation, enhance international competition and achieve strong national sporting competition, with a desire to support Government-wide objectives including improved health, social inclusion and community development.

This shift in emphasis away from the typical pyramid model of sport development opens a multitude of opportunities for sport management and development professionals and researchers to focus on gaining a sound understanding of drivers of sport and active leisure participation. To do so may clarify questions such as: What motivates people to be involved? What holds people back? Are there differences between groups of individuals? Are there differences between competitive and non-competitive activities? In future, how can the answers to these questions be translated into appropriate action? These sport and recreation participation goals appear to align well with those of physical activity researchers in that the overall aim is to find better ways to encourage people to get moving, to improve population health and wellbeing.

This 'way forward' has been embraced by several National and State Sport Organisations in the Australian context, with Cycling Australia being a clear example. While Cycling Australia has traditionally been charged with the responsibility of developing elite cycling pathways nationally, it has now 'shifted its focus from being a pure racing organisation to one that also provides cycling opportunities for the novice rider' (Cycling Australia, 2011). In November 2010, the Australian

Government announced it would be investing A\$44 million over four years, to encourage more Australians to participate in sport (Australian Sports Commission, 2010). This funding investment was made with a view to building healthier, more active communities. Within this allocation, Cycling Australia received a significant portion for participation activities. While high performance remains the higher funded branch in a cycling development context, proportionately, the 2010/11 investment in *participation* was more than doubled from previous allocations (existing funding A\$242,500; new funding an additional A\$350,000), while the increase in high performance investment was proportionately limited (existing funding A\$4,101,500; new funding an additional \$1,800,000) (Australian Sports Commission, 2010). Cycling Australia suggested that the increased money allocated to promoting participation would:

... allow CA (Cycling Australia), BMXA (BMX Australia) and MTBA (Mountain Bike Australia) to increase their scope of involvement in cycling, to provide and facilitate opportunities for people to participate in cycling at all levels of the cycling pathway. Our philosophy of 'fun, safe, inclusive cycling for all' and providing a good time on the bike is at the forefront of all of our participation and development initiatives, and a suite of strategies will be progressively rolled out and delivered Australia-wide. (Cycling Australia, 2011, p. 1)

Cycling Australia has now made it clear that its involvement in cycling will increasingly include an emphasis on encouraging mass participation and opportunities for novice, recreationally driven riders. While funding remains skewed towards performance, such increasing emphasis on funding to encourage community participation presents as a slight shift in thinking. This shift is away from focusing primarily on competitive and elite level cycling towards emphasising the value of grass-roots and community participation for community wellbeing, alongside elite success. Such a shift is further demonstrated through the appointment of a National Participation Coordinator and other related participation initiatives, including the development of non-competitive (recreational) memberships and event schedules. The organisation has also played an instrumental role in the establishment of AustCycle, an Australian, national cycling education programme, geared towards encouraging skill development among those interested in cycling for recreation and/or transport purposes.

Based on the evidence discussed in this paper from key reports such as the *Australian Sport: Pathway to Success* report (Commonwealth of Australia, 2010), it appears that while high performance investment will continue to exceed funds allocated to achieving participation-driven objectives, investment at a Federal level will continue to increase in the area of community participation. Increased funding for grass-roots, community sport participation, for the benefit of individuals and communities, appears to offer opportunities for sport development, management, and marketing professionals. Such opportunities revolve around understanding behaviour and establishing a sound evidence base regarding community sport delivery, with health benefits as key desired outcomes. If 'pathways to success' are to be paved effectively, it is imperative that motivations for, and barriers to, participation are better understood, in the same way motivations for, and barriers to, attendance at a football game or other elite level, commercially driven events, would be examined.

While this shift towards an emphasis on mass participation is a key basis for advocating increased collaboration between sport management, sport development and physical activity researchers, further justification can be drawn from the overlap that exists when defining key concepts such as sport, recreation and physical activity. As new sports emerge that contain less formal structures than in traditional sports systems (e.g., BMX), the benefits of separating sport and recreation from pure physical activity-driven promotions become less certain.

3. Sport, recreation or physical activity?

Within the context of physical activity and sport, key terms may be defined differently by different groups, with differing agendas. Given the number of public and private stakeholders in health and other domains attempting to measure and promote participation in such activities, reaching an agreement upon definitions for key terms becomes a complicated task. In Australia, the Australian Sports Commission in conjunction with the state and territory agencies responsible for sport and recreation, measures participation through its annual Exercise, Recreation and Sport Surveys (ERASS). The Australian Bureau of Statistics also measures activity levels, through National Health Surveys, and includes questions related to sport and recreation in the Multi-Purpose Household Survey (MPHS). Within this measurement context, the value of having consistent definitions is obvious for comparative purposes. In response to this, the Australian Bureau of Statistics (2008) offered a model to define key terms.

This model suggests that *physical activity* refers to any form of bodily movement, performed by a muscle, or group of muscles that ultimately leads to an increase in one's energy expenditure (Australian Bureau of Statistics, 2008). *Sport* exists as a form of physical activity, given movement is required. *Sport* and *physical recreation* are explained to be similar concepts which relate to physical activity, fitness and exercise, yet represent slightly different forms of activity. *Sport* is described as an activity that involves rules, elements of competition, physical exertion and skill, amongst other things (Australian Bureau of Statistics, 2008). *Physical recreation* also involves physical exertion and skill yet the main focus is on mental and/or physical satisfaction for the individual in their leisure time. In addition to sport, physical recreation and physical activity, the category *organised sport and/or physical recreation* is also defined by the Australian Bureau of Statistics (2008). This category encompasses activities that are officially organised by a club or association (i.e., sporting club, social group, or workplace) and can vary in structure from a one-off fun-run or bush walk to a more organised, traditional sporting competition. This suggests that not all sport is organised, and not all recreation is non-organised. From this perspective, the distinction

between *sport* and *recreation* becomes even more ambiguous as, when considered together within the context of 'organised activities', they seem to have many commonalities.

Beaton and Funk (2008) and Beaton, Funk, and Alexandris (2009) also discuss the concept of physically active leisure, as a subset of general leisure activities. The authors suggest that in their research context, which focuses on participation, this concept refers to activities undertaken in leisure time that involve a moderately intense level of physical exertion. Activities such as dancing, swimming and football are proposed as activities that fit the criteria, while stamp collecting, darts and theatre-going are classified as general leisure activities.

To further highlight the difficulty in distinguishing sport from recreation, physical activity, and physically active leisure/recreation, cycling can again be used as an example (as could swimming or running). While a cyclist who competes for a club can be clearly defined as a sport participant, and a weekend recreational bike trail rider, similarly, can be classified as a recreation participant, those who participate in several forms of cycling and those 'serious leisure cyclists' or 'weekend warriors', as described by O'Connor and Brown (2007, 2010), are not as easily classified. The latter group of cyclists ride in self-organised groups with competitive elements (i.e., trying to better their own performance and compete against fellow riders), yet, participate outside of organised sport structures and without specific membership requirements or club involvement. How can these riders be classified, and how can Cycling Australia and recreational cycling bodies such as Bicycle Network Victoria, best facilitate their continued involvement in cycling as a form of sport, recreation or physical activity? A more holistic understanding and approach could offer some answers.

Key sport reports, such as the *Future of Sport in Australia* report (Independent Sport Panel, 2009), have explained that definitions of sport should increasingly consider physical activity and active recreation in a broad sense, given the emphasis being placed on preventive health measures. With this, a call for knowledge sharing, by way of theory and research, across the domains of sport, recreation and physical activity seems to exist. In pursuit of ways to best facilitate such collaboration, the following section considers conceptual frameworks used in physical activity and sport participation research with a view to identifying a key framework relevant to sport, recreation and physical activity participation.

4. Physical activity and sport participation literature

Participation literature appears to span across numerous research disciplines including health science, sport science, physical education and leisure management. From a theoretical perspective, models of participation in the social science domains are limited in contrast to those seen in the health sciences (Alexandris, Zahariadis, Tsorbatzoudis, & Grouios, 2002; Beaton & Funk, 2008; Green, 2005; Henderson, Presley, & Bialeshcki, 2004). The purpose of this section is to consider theories relevant to participation and determine an appropriate framework to use in exploring different forms of participation including sport, physical recreation and more generally, physical activity. Furthermore, the intention is to identify a model which provides a potential bridge for use in bringing together sport development, management and health science approaches to understanding participation.

In the context of physical activity research, participation has been considered from a range of perspectives, often drawing on psychological principles in order to better understand aspects of human behaviour (Glanz, Rimer, & Viswanath, 2008). A range of relevant conceptual frameworks/models have been developed and applied within physical activity research, including the Transtheoretical model (Prochaska & DiClemente, 1982, 1984), the Theory of Planned Behaviour (Ajzen, 1991) and the Socio-Ecological model (Stokols, 1992). In an investigation into the suitability of a range of sport and health science models to aid understanding and promotion of participation in physically active leisure, Beaton and Funk (2008) sought to develop criteria to assess a number of theoretical models/frameworks. The authors focused on reviewing the Health Belief model, Transtheoretical model, Theory of Planned Behaviour, Sport Commitment model, Schema Theory and the Psychological Continuum model. While several of these models were found to be of relevance in the context of physically active leisure research, certain flaws were exposed, particularly in the health science derived models such as the Transtheoretical model and Health Belief model (Beaton & Funk, 2008).

Of the models examined, the Psychological Continuum model (PCM) (Funk & James, 2001, 2006) was found to be the most relevant model to draw upon in understanding participation in physically active leisure, based on the established criteria (Beaton, Funk, & Alexandris, 2009). The PCM focuses on understanding 'the psychological relationship an individual may form with a sport object' (Funk & James, 2001, p. 122) such as a sport team or recreational activity (Beaton & Funk, 2008). It is contended that the PCM may be applied to understand both active and passive participation in recreational settings (Beaton et al., 2009; Stewart, Smith, & Nicholson, 2003). In this context, psychological and social environments are considered, while ecological characteristics from within the physical environment are of lesser consideration.

In the aforementioned study of physical activity and sport participation models, socio-ecological models were not specifically assessed (Beaton & Funk, 2008). Despite this, the authors acknowledged the value in applying such theory in the context of sport and active recreation participation research. Henderson (2009) further advocated the value ecological approaches may provide sport and active recreation participation research. In the physical activity literature, the past two decades have seen researchers and practitioners increasingly focus on understanding and applying ecological models, given the potential such models hold for guiding approaches to population-wide health issues such as inactivity (Sallis et al., 2008). Ecological approaches are used by a wide range of scholars and practitioners, in a variety of contexts, to enhance understanding of, and promote engagement in, physically active behaviours (Elder et al., 2007; Giles-Corti et al., 2005; Lounsbury & Mitchell, 2009; Sallis et al., 1998).

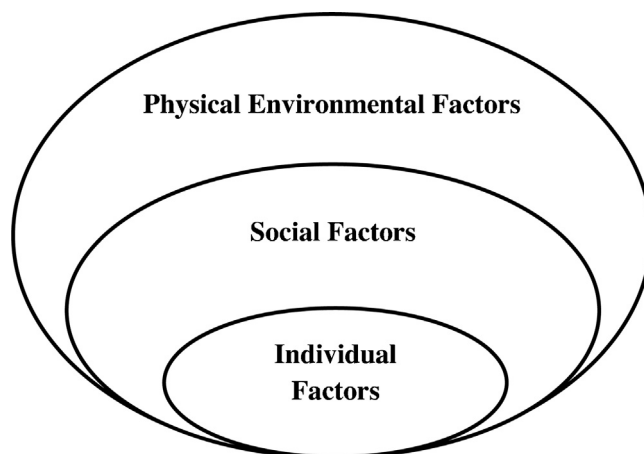


Fig. 1. Social ecological model – three levels.

Socio-ecological models propose that ‘environmental and policy variables can add explanatory value above that provided by intrapersonal and interpersonal factors’ (Sallis et al., 1998, p. 380). Such models, therefore, emphasise contextual factors such as environmental characteristics and policy issues while also considering social and psychological influences on behaviour (Sallis et al., 2008). Giles-Corti (2006) explained that when attempting to fully understand physical activity behaviour, factors related to the individual, social environment and physical environment must be considered. This has been reiterated by Lounsbury and Mitchell (2009) who explained the value in understanding the bigger picture, rather than focusing predominantly on the psychological elements of behaviour (as is the case in several models considered by Beaton & Funk, 2008). This represents a context-driven understanding which extends beyond psychological process-related understandings.

A recent review of published literature, which focused on results from relevant systematic reviews of correlates and determinants of physical activity participation, confirmed the complex interplay of factors which influence participation in physical activity (Bauman et al., 2012). ‘Research into physical activity correlates is an evolving field showing that the aetiology of physical activity is complex and varies by domains, such as leisure time and transport’ (Bauman et al., 2012, p. 266). The authors noted that the expansion in relation to factors being considered in the context of physical activity participation reinforces the value of ecological approaches in understanding and promoting physical activity. Thus, ecological models appear to be increasing in relevance in the context of understanding physical activity, sport and recreation participation.

Socio-ecological models can be conceptualised in different ways depending on the issues they are used to address. Such models provide a framework for understanding a range of determinants of health-related behaviour and may be moulded and adapted to suit specific situations (Lounsbury & Mitchell, 2009). While adaptation may occur, the general principles remain the same. Social ecology acts as an overarching framework or set of theoretical principles, that assist researchers and practitioners to understand interrelations between a wide range of personal and environmental factors that impact human behaviour (Stokols, 1996).

Conceptualisations of the socio-ecological models may range from three to five layers, depending on the requirements of the situation or problem at hand. Fig. 1 displays a model representing a basic three-layered version of a socio-ecological model, including the categories individual factors, social factors, and environmental factors, as displayed, based on the work of Stokols (1996).

Socio-ecological approaches may also be used to promote participation in physical activity (Elder et al., 2007; Sallis et al., 1998, 2006). In this respect, interventions or actions integrate person-focused efforts with environment-focused efforts designed to modify and enhance both physical and social surroundings. This holistic approach allows entire community environments to be adapted to support the intended behaviour change. This presents an opportunity for sport managers, given that factors which facilitate or inhibit participation in a specific sport or recreational activity may be identified, allowing managers to act strategically to enhance the supportiveness of community environments and, thus, encourage participation.

In demonstrating the applicability of ecological models in efforts to better understand and promote physical activity participation, Sallis et al. (2008) provided a review of key research developments. The authors noted that ‘the physical activity field has advanced from a broad recognition of the importance of environmental influences to the development and testing of specific multi-level ecological models’ (p. 471). The work of Sallis and colleagues (2006) was noted as influential in the evolution of ecological theory, drawing on concepts and findings from across fields such as health, behavioural science, policy studies and leisure sciences (amongst others), to create a detailed, multi-layered ecological model. This framework demonstrated the complex interplay of factors across a range of domains and settings that may influence physical activity participation (see Sallis et al., 2006, p. 301).

As knowledge has evolved in this area, a greater degree of interest in the built environment has been recognised (Sallis et al., 2008). While research has suggested the built environment has a role to play in determining physical activity participation, it is the complex interactions across the levels of individual, social, physical and policy-related environments that requires further examination (Sallis et al., 2008). Bauman et al. (2012) recently reviewed literature to develop a detailed picture of correlates and determinants of physical activity participation. In this review, the authors noted the high proportion of studies that focused on understanding individual factors (such as age, sex, health status, self-efficacy) associated with physical activity participation. Despite this, research is increasingly beginning to focus beyond such individual factors, to consider levels of influence, with a range of opportunities for growth and clarity in this area having been identified. In the sport and active recreation domain, opportunities exist to better understand socio-ecological factors that influence leisure time physical activity participation.

Socio-ecological models have also been applied in a few cases, specifically to understand sport participation. Early research in this area found that density of exercise facilities, including sport and recreation centres, parks, swimming pools (amongst other free and pay per use facilities), was associated with exercise habits (Sallis et al., 1990). More recently research in this area has typically focused largely on physical activity participation, with sport being a component of such participation. Casey, Eime, Payne, and Harvey (2009) adopted an ecological approach to explore sport and physical activity participation among rural adolescent girls. Fun, friends, family and teacher role-modelling were all found to be key factors from within the framework that influenced participation. Eime, Payne, Casey, and Harvey (2010) looked further into transitions in sport and unstructured physical activity, in the same context. Socio-ecological components were used to explore factors that influenced changes in participation. Prompts such as the setting for participation; benefits received; influences, motivators and barriers to participation; type of involvement (e.g., social or individual physical activity, organised sport); what would make participation more enjoyable; and what could be done to encourage participation, were used to guide focus group discussions. This study revealed that girls enjoyed community club sport, and found sport a key form of social interaction. Despite this enjoyment, competing priorities such as striving for academic excellence, lead them to pursue more flexible forms of activity that were less enjoyable, and socially isolating.

These examples further highlight how socio-ecological models can be used to frame an understanding of participation determinants, in the context of sport and physically active leisure. Work such as that conducted by Eime et al. (2010), could provide sport managers, seeking to engage the adolescent female community in sport and active recreation, with a sound theoretically driven basis for developing programmes, policies and alternative sport structures. By developing an understanding of the motivating role of social interaction, and acknowledging the inhibiting influence rigid time restrictions associated with participation in traditional club and competitive structures play, sport managers may respond accordingly. Such action could take shape by developing a form of the sport, or a specific programme that facilitates adolescent female involvement by emphasising social interaction elements, while limiting rigid time restrictions and commitments associated with participation. Similarly, had the research also identified a lack of appropriate facilities as a key issue, this could have further driven managerial responses to focus on improving facilities or advertising alternatives available to this group.

Given these potential applications in sport and recreation management, it seems logical to advocate the use of socio-ecological models to explore sport and recreation participation, across a range of domains, sports and active recreation activities, in order to better understand participation. How do factors within the physical and social environment interact with individual factors to determine participation in different sports? To demonstrate how this may be possible, the components of the model are now outlined. Keeping with the example of cycling in Australia used earlier in the present paper, a conceptualisation of social ecological theory, discussed by key physical activity and cycling participation researchers, will be used to demonstrate its application. Using ecological theory as a framework, barriers and facilitators in cycling fall within four main categories: individual factors; policy/regulatory factors; social environmental factors; and physical environmental factors (Bauman et al., 2008). It can be seen that the policy and regulatory factors are included as a standalone dimension, to complement the three-tier components discussed previously, to suit the nature of the problem.

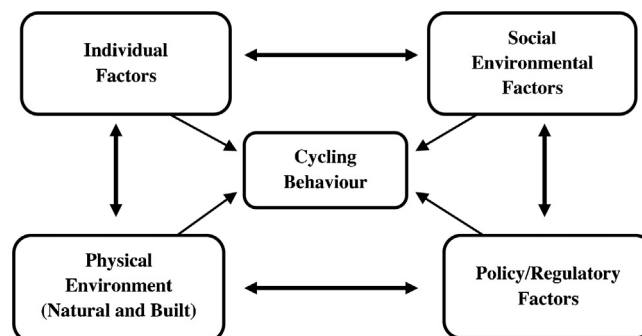


Fig. 2. Social ecological model – cycling behaviour.

Source: Bauman et al. (2008, p. 11). Copyright Cycling Promotion Fund. Re-produced by Permission.

Table 1
Socio-ecological determinants of physical activity participation.

Environmental dimension	Associated variables
Individual	<ul style="list-style-type: none"> - Knowledge, attitudes, behaviours, beliefs, perceived barriers, motivation, enjoyment - Skills (including fundamental motor skills and sport-specific skills), abilities, disabilities or injuries - Age - Sex - Level of education - Socio-economic status - Employment status - Self-efficacy
Social	<ul style="list-style-type: none"> - Family, such as the influence of parental and sibling physical activity levels and family support - Spouse or partner - Peers - Institutions and organisations, such as schools, workplaces and community organisations - Access to social support networks versus social isolation - Influence of health and other professionals such as doctors, teachers and coaches - Community norms - Cultural background - Socio-economic status of the community
Physical environment	<ul style="list-style-type: none"> - Natural factors such as weather or geography - Availability and access to facilities such as parks, playgrounds, sporting grounds, gymnasiums, walking or cycling tracks - Aesthetics or perceived qualities of facilities or the natural environment - Safety such as crime rates or amount and speed of traffic - Community design such as connectivity of streets, living in a cul-de-sac, density of housing or land use - Public transport
Policy/regulatory	<ul style="list-style-type: none"> - Urban planning policies - Active transport policies - Education policies such as mandating time for physical education classes - Sport policies - Health policies - Environmental policies - Workplace policies - Funding policies

Adapted from Victorian Curriculum and Assessment Authority (2010).

Fig. 2 highlights the complex interactions that occur between different environmental components. Table 1 outlines the main variables associated with each of the dimensions in the model. Generic, rather than cycling-specific variables have been listed to allow the model to be adapted to different situations. Individual characteristics including knowledge, attitudes, age and self-efficacy, may influence one's participation in different forms of physical activity. The model further explains that the support, or lack thereof, shown by peers, partners, and family members, can also encourage or inhibit one's participation, as well as community culture and social norms. Added to this, weather conditions, accessibility of parks and facilities and the availability of public transport can also influence participation, in combination with a range of policies and funding structures.

To further demonstrate the application of the model, one might consider the example of an individual who has recently moved to Australia and is looking to become involved in a sport or recreational activity in which they participated in their home country. This person may not have a car or links to the local community and struggles with the native language. While their local sport and recreation centre provides excellent services, this person may not inquire there as they are unsure of their English skills and find it difficult to get there without an easy mode of transportation. Their lack of a social network also inhibits them as they prefer to participate in sport and recreation with people they know. Ecological models can help researchers and policy-makers to understand the complex interplay of factors that may influence an individual's, or group's, participation or non-participation in sport, recreation and physical activity. For example, there may be a common theme among migrants in the area such as not using the facilities due to a lack of awareness and limited ability to communicate with staff at the centre.

The model can also be used to help develop programmes and policies that encourage participation by addressing barriers to involvement. While it may not be seen as the role of sport managers or sport policy-makers to arrange transportation or English classes for this group, in efforts to encourage the use of sport facilities, particularly by such groups, these barriers would need to be considered. Managers at this centre could use this knowledge, framed within the context of the ecological theory, to implement programmes and policies designed to strategically reduce the impact of the barriers identified. The model could also assist in efforts to select appropriate locations, offer attractive programmes and facilitate participation and, thus, social inclusion.

In the process of identifying opportunities for collaboration between sport, recreation and physical activity research, this model provides a starting point with links to principles of sport development also evident. The attention of this paper now

turns to considering commonalities with sport development literature and knowledge. The aim of this section is to determine opportunities for collaboration and integration of these bodies of research, with the final section of the paper exploring potential approaches to achieving an increase in co-operative knowledge-sharing and development.

5. Commonalities with sport development research

According to Houlihan and White (2002) and Shilbury, Sotiriadou, and Green (2008), sport development may be divided into two distinct categories, development *of* sport and development *through* sport. While both relate to encouraging sport participation, differences between purpose and desired outcomes within the two streams are evident (Shilbury et al., 2008). Development *of* sport focuses on elite progression with an emphasis on ensuring sporting organisations attract and nurture talent to encourage elite level representation, while development *through* sport ‘focuses on the role sport can play in contributing to community wellness’ (Shilbury et al., 2008, p. 218). When it comes to understanding participation in sport, recreation and physical activity for community benefit, development *through* sport is the most relevant form of sport development action to consider (Shilbury et al., 2008). This conceptualisation of sport development can be seen through projects such as the Homeless World Cup and the efforts of the AFL to promote peace in their attempts to establish friendly sporting relationships between Palestine and Israel through coaching and the organisation of international matches. Moreover, efforts by the Australian Government to increase participation in community level sport in order to promote physical activity and healthy living, is a clear example of sport development action, with an emphasis on development *through* sport.

Hylton and Totten (2008) explained that from a community sport perspective, sport development should encompass not only competitive sporting options, but also more informal aspects such as recreation and active leisure. This reinforces the relevance of questioning the current divide that exists between competitive sport and less formal forms of active recreation, as noted earlier in this paper. The authors explained that many conceptualisations of sport development use a hierarchical approach, outlining the pathways in sport excellence, similar to Shilbury et al.’s (2008) explanation of the concept, development *of* sport. ‘Community sport development interventions include those in sports development intent on delivering *sport in the community* as well as those focused on developing *community through sport*’ (Hylton & Bramham, 2008, p. 53).

Hylton and Totten (2008) suggest that sport development action exists along a continuum, where, at one extreme, the emphasis is purely on sport-related development outcomes, while at the other, initiatives are predominantly focused on community wellbeing. ‘Different aspects of practice can be located with different degrees of emphasis at different points on the continuum. At one extreme is “sport in the community”. . . At the other extreme is sport as “community development” where sport is simply a means to human development’ (Hylton & Totten, 2008, p. 80). This model provides a framework for considering the current shift in emphasis occurring within Cycling Australia, and other Australian sport governing bodies, towards using sport to also promote community wellness, rather than simply promoting ‘sport in the community’ in an effort to bring about elite level success.

The present paper advocates increased collaboration across disciplines to facilitate understanding of sport and active recreation participation, in sport management literature. As noted earlier in this discussion, sport participation research is somewhat fragmented, with bodies of literature existing in health science, sport science, physical education and leisure studies. The general heading of physical activity participation is often used, with sport and active leisure/recreation participation being a component of such participation. In regard to considering participation from a sport development perspective, key objectives of participation may be considered to be related to enhancing community wellbeing and increasing elite talent development opportunities.

It is not the intention of this paper to undertake a complete review of sport development literature. Rather, by identifying a versatile model, applied within the health science domain, which seeks to explain participation through the complex interaction of variables, sport development related agendas and, ultimately, research may benefit. In order to demonstrate the relevance of the ecological models in sport and active recreation participation, an example may be used from within a sport development research context. Vail (2007) demonstrated the application of a community approach to sport development, focusing on tennis. The authors explained that ‘traditional methods of addressing this challenge [declining sport participation], such as promotional ads and top-down initiatives that ignore community needs, have not succeeded in sustaining sport participation’ (p. 571). Their study identified needs within the community and implemented action to support such needs. This process can be likened to the principles of socio-ecological theory, where environments may be adapted to support participation.

A key implication of this research was the value of ‘enabling local leaders to identify their needs and implement solutions that both benefit the community and increase sport participation’ (Vail, 2007, p. 593). A complex range of factors within specific communities of interest were affecting tennis participation. The action research approach sought to identify the key challenges and barriers to facilitating participation, and to adapt environments to encourage increased participation. This example highlights some of the key overlaps between socio-ecological theory and sport development research and practice. The key principles relate to identifying gaps and barriers within the community (or environment), and making changes to encourage and support participation. The socio-ecological dimensions appear to offer structural support to sport development research, in efforts to identify gaps and needs within communities, and develop appropriate strategic responses.

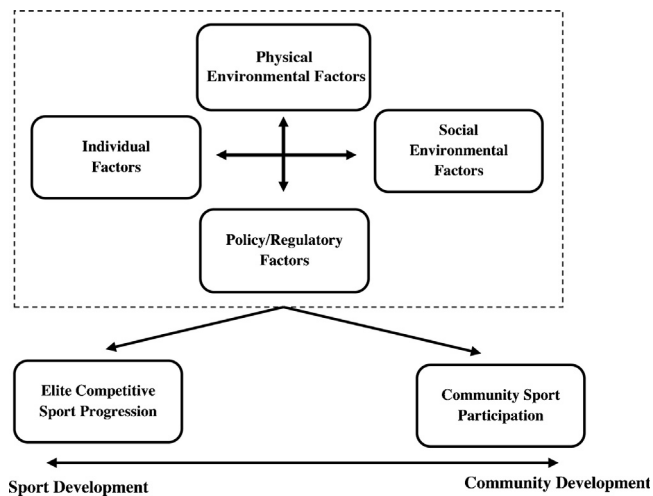


Fig. 3. Integrating socio-ecological model with community sport development theory.

6. Integrating these bodies of research

This paper proposes that an overlap between sport development knowledge and socio-ecological theory exists, and presents an opportunity for academics and professionals in sport management to benefit from shared understanding. In bringing together these two bodies of literature, it is evident that environments may be adapted to facilitate development of sport or development *through* sport. The previously discussed shift occurring at government level, towards increasing support for sport and recreation participation for *health and community wellbeing* rather than predominantly for *elite level success* (Australian Sports Commission, 2010; Commonwealth of Australia, 2010), has implications for sport and health research. Ecological theory may offer potential frameworks that could be adaptable and translatable across multiple disciplines, allowing the definitions of sport, recreation and physical activity to become less of a barrier. More importantly, socio-ecological models can be drawn upon in efforts to better understand and promote participation in different forms of sport and active recreation for different purposes.

Fig. 3 brings together sport development concepts and socio-ecological theory, suggesting that a range of environmental characteristics may influence participation in different forms of sport and recreation. Towards the pure sport development action end, environments may be tailored to support elite level progression, with access to appropriate facilities, coaching networks and financial support, perhaps, being the key focus. While at the other end of the continuum, a different balance of environmental factors may be required to better support participation in community-oriented sport, recreation and physically active leisure. Strategically, this presents an opportunity for managers to identify how supportive specific environments are of community sport-related objectives, such as active leisure participation and elite sport development-related outcomes. This framework may offer a means of encouraging balance across the two ends of the continuum. Furthermore, it can be used to comprehensively understand factors that influence context and domain-specific participation, and also frame interventions within the context of environments and indicate specific outcomes related to specific behaviours.

Fig. 4 provides an example to demonstrate how specific socio-ecological environmental factors and context-specific behavioural outcomes might be framed, based on socio-ecological theory. This can be likened to the model proposed by Giles-Corti et al. (2005), in efforts to understand ecological factors that may influence recreational versus transport-related walking. Such an approach to mapping factors that influence context-specific behaviour may support stakeholders in identifying common and individual priorities and planning for sport, recreation and physical activity participation action in a coordinated, strategic manner.

This may appear as a logical and straightforward outcome. However, by combining ecological theory with concepts from sport development research, a more structured way of researching and understanding complex issues surrounding participation becomes possible and theoretically framed. While cycling is just one example of how this framework may be applied, it opens the door for sport management and sport development researchers to begin to use ecological models more readily in the context of sport and recreation participation. This is particularly relevant given the ability to marry this model with a range of key attributes of sport development knowledge. Furthermore, ecological models have been effectively applied in qualitative (Casey et al., 2009; Eime et al., 2010; Humbert et al., 2006) and quantitative (Cleland et al., 2010; Giles-Corti, 2006; Giles-Corti & Donovan, 2002; Giles-Corti et al., 2005) contexts. As a result, it offers a flexible framework that can transcend paradigmatic barriers.

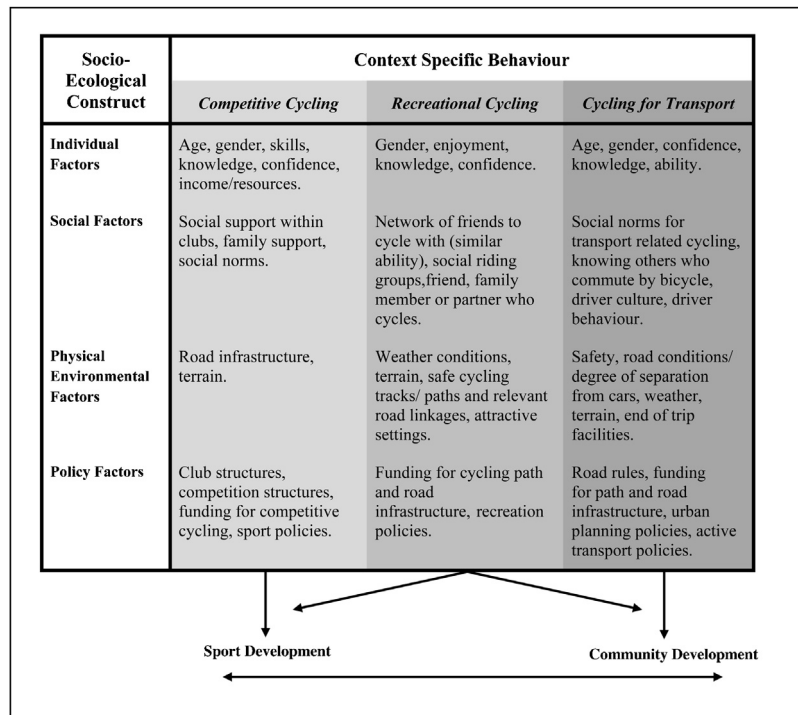


Fig. 4. Applying this framework in the context of cycling.

7. Conclusion

The present paper examined physical activity and sport management research in an effort to identify commonalities and potential for integration and co-operation. More specifically, opportunities for collaboration were identified, particularly in response to the recent call for increased recognition of the value of community sport participation, using the Australian context as an example (Commonwealth of Australia, 2010). Socio-ecological theory was proposed as a physical activity framework, which may be transferable in sport development contexts, particularly in encouraging physically active leisure and community sport participation. It was framed as a model which offers a broader scope to consider a range of levels of social and ecological influences, than, for example, the PCM. It was not the intention of this paper to suggest that this model can replace the PCM in the context of physically active leisure research. Rather, it is suggested that this model offers an additional option, which complements sport development research, to further understand and promote participation. Furthermore, the integrated model proposed in this paper seeks not to act as the overarching framework to guide future participation research. Instead, it offers a basis for further exploration and research to attempt to apply the model's principles in a range of contexts, ultimately highlighting the organisational implications of such research.

In so doing, researchers may use qualitative and quantitative measures to explore the levels of influence the different socio-ecological dimensions have on different forms of participation. In an effort to demonstrate such application capabilities of the model, cycling may again be used. Cycling presents as a complex case in understanding participation, given the variety of forms of cycling that exist, and also the differences in settings and purpose of cycling in which people engage. As such, a person who participates in competitive road cycling, may be motivated, supported and constrained very differently, than someone participating in recreational riding on bike paths. To ascertain important factors influencing each form of cycling, surveys and/or qualitative data collection techniques could be employed to develop a set of key factors which support and constrain each form of cycling.

Furthermore, qualitative interviews could be used to explore such issues. Participants might be asked to explain the type of cycling in which they currently participate, and/or wish to participate, with questions then focusing on the socio-ecological dimensions that promote and constrain these forms of cycling. This information could be used to build a picture of the entire cycling participation landscape. What factors are crucial to all forms of cycling? What factors do commuter cyclists emphasise most? What factors are most important to elite cyclists? Finally, from a whole-of-sport, organisation-wide perspective, what action is required to encourage cycling participation generally, across the full range of levels, types, forms and settings? From this knowledge, sport and recreation managers may act to effectively facilitate the achievement of specific sport development objectives by reducing the impact of constraints and strengthening supports in a balanced, strategic manner.

This action may be taken by making factors that are important to all forms of cycling the strategic priority of Governments, National Sport Organisations, State Sport Organisations and recreational bodies combined, with further action specific to different cycling groups, being tailored to meet individual needs. Hypothetically, the research may reveal that having appropriate skills, confidence, companions to cycle with, cycle lanes and supportive cycling laws (such as reduced speed limits) are important to all cyclists. In addition to this, recreational cyclists might also emphasise the need for adequate paths, bike parking facilities, opportunities for social group riding, and knowledge regarding how to select safe route options. Each of these factors fit within the socio-ecological dimensions explained previously (individual, social, environmental, policy regulatory/factors). This knowledge could then be translated into structured action by engaging the NSO, SSO and recreational cycling bodies to facilitate such needs, given their combined interest in this specific group.

At the other end of the spectrum, competitive cyclists may stress that in addition to the base factors, they value strong club and competition structures, access to quality coaching and affordable, high quality equipment, and elite scholarship programmes. Given that competitive cycling is the responsibility of Cycling Australia and SSOs, the responsibility of facilitating these supportive actions would fall with them. While it is acknowledged that, similar to all sports, resources and other constraints exist which limit the ability of governing bodies to appropriately cater for all needs, this framework provides opportunities for strategic priorities to be formed. Specific groups within society may also be targeted (e.g., women or people with a disability), by ascertaining their specific barriers and facilitators regarding cycling, and determining appropriate action to support the needs of those groups. In response, relevant bodies can clearly identify the different needs of their respective markets, and ultimately act to facilitate participation.

This concept of identifying whole-of-sport and individualised priorities links back to the rationale for combining physical activity and sport development literature. It was noted early in this paper that while the delivery of sport involves many tiers of government and a variety of related departments, there is inadequate communication and co-operation between these stakeholders, leading to inconsistent and ineffective delivery (Independent Sport Panel, 2009). It was also asserted that this disconnect also exists in research, where sport management literature continues to focus more heavily on sport for entertainment and at the elite level, with less emphasis on the value of sport in developing communities (Henderson, 2009). Information sharing between physical activity and sport domains appears limited, with this paper seeking to offer a way forward to increase collaboration.

The following excerpt from the report *Australian Sport: The Pathway to Success*, issued by the Commonwealth of Australia (2010), highlights the official stance within Australia regarding the future of sport development:

... the active lifestyle that has played a significant role in establishing our nation's identity, culture and international sporting reputation is being challenged by the demands of modern life and an increasingly sedentary lifestyle, particularly amongst our children. A new whole-of-sport approach is essential to boost sporting participation and enhance sporting pathways for the benefit of health and productivity while also contributing to and sustaining our international success.

Fundamental to this new approach is moving away from the divisive community versus elite sport debates of the past and developing a collaborative, efficient and integrated national sports system focused both on growing participation for the benefit of our community as well as the high performance system. (p. 1)

It is imperative that all stakeholders, policy-makers and researchers alike, recognise the value in this statement and increasingly bring together sport performance, community, and health-oriented participation agendas. This can be achieved by creating community environments that support both ends of the community sport development continuum, with balanced action and research agendas focusing on developing the full spectrum of participation co-operation. While this paper has considered these issues in the Australian context, they appear to extend beyond such geographical bounds. Future research could explore the relevance of these issues internationally, considering the role of an integrated model and approach in other parts of the world.

The proposed model explains that specific factors may have an impact on participation outcomes at one extreme of the continuum, more than the other. This provides a rationale for further exploration, using socio-ecological theory, in conjunction with sport development concepts, to understand what facilitates involvement in sport and recreation, across the continuum. Funding and action requires evidence, thus, sport management and sport development researchers are presented with an opportunity to increase their focus on understanding and promoting participation. From a management research perspective, using the socio-ecological dimensions to identify methods to create supportive environments appears to present opportunities within sport management and development research fields. Policy and funding decisions can best be made with such information, suggesting it is imperative that researchers increase their focus on gaining such knowledge for the good of developing sport and its associated infrastructure.

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