

## Youth sport research: Describing the integrated dynamic elements of the personal assets framework

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*This critical review of the youth sport literature provides a guiding framework to inform future studies and interventions aimed at understanding or manipulating mechanisms proposed to explain youth athlete development. A global vision of athlete development is presented through the interactions of three dynamic elements: (1) appropriate settings, (2) quality social dynamics, and (3) personal engagement in activities. These elements are further broken down into individual layers, extending proximally to distally with layers positioned closest to an athlete having the most immediate impact. Given the correct arrangement, these dynamic elements work in concert to foster immediate, short-term, and long-term outcomes related to development in sport. We provide a detailed description of each dynamic element and include example literature associated with each of the subsequent layers.*

KEY WORDS: Youth Sport, Athlete Development, Ecological Perspective.

Previous scholarship within the field of human development has produced a rich literature describing the dynamic and synergistic relationships that exist between an individual and their context (e.g., Bronfenbrenner, 1999; Ford & Lerner, 1992; Smith & Thelen, 2003). These ideas and frameworks have been adopted with great success within sport research as well due to their ability to describe development over time as a result of an athlete's dynamic environment (e.g., Abbott & Collins, 2004; Côté, 1999; Côté & Vierimaa, 2014; Côté, Turnnidge, & Evans, 2014; Henriksen, Stambulova, & Roessler, 2010; Holt, 2008; Holt et al., 2017; Stambulova, 1994; Wylleman & Lavallee, 2004). Indeed, a number of conceptual models of athlete development highlight the extent to which the interwoven nature of an athlete's

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physical environment, their relationships with important social agents, and the unique context surrounding athletic activities, will inevitably mediate experiences and outcomes. However, despite the utility of harnessing ‘ecological’ approaches in research exploring athlete development, there is a lack of consensus pertaining to how different elements of sport involvement interact over time to promote engagement and positive outcomes.

The purpose of this paper is to connect prominent lines of research that have addressed different dimensions of athlete development. More specifically, the objective is to integrate relevant research into an evidence-informed and process-oriented framework that explicates development and can be used to inform both intervention efforts and sport program design. Posed as a ‘critical review’ (Grant & Booth, 2009), this paper will not attempt to systematically examine literature pertaining to youth sport outcomes, rather, the aim is to present representative examples of research programs from diverse areas to connect this literature within a conceptual synthesis. Placing a focus on the processes that affect youth sport environments could provide a blueprint for the development of policies in youth sport and inform future studies and interventions aimed at understanding or manipulating mechanisms proposed to explain youth athlete development. Within the following sections, we use the Personal Assets Framework (PAF) to describe the personal, social, and contextual variables that shape youth athlete experiences over time (Côté, Turnnidge, & Evans, 2014; Côté, Turnnidge, & Vierimaa, 2016).

### **The Personal Assets Framework**

The PAF (Côté et al., 2014; Côté et al., 2016) suggests that *dynamic elements* of sport participation (e.g., appropriate settings, quality social dynamics, and personal engagement) interact over time to foster immediate, short-term, and long-term developmental outcomes in athletes (see Figure 1). The PAF was informed by positive youth development research (e.g., Lerner, Fisher, & Weinberg, 2000) and developmental systems theories (e.g. Bronfenbrenner, 1999). At the time of its conceptualization, it was primarily positioned to emphasize how interactions between three dynamic elements contribute to youth experiences and subsequent outcomes in sport over time (Côté et al., 2014). More recently however, researchers have advocated for a nuanced description of the specific mechanisms that drive the elements of the PAF towards particular athlete sequential outcomes (e.g., Côté, Allan, Turnnidge, Vierimaa, & Evans, 2019; Vierimaa, Turnnidge, Bruner, & Côté, 2017). Notably, it was suggested that the concept of *interest* (Hidi & Ren-

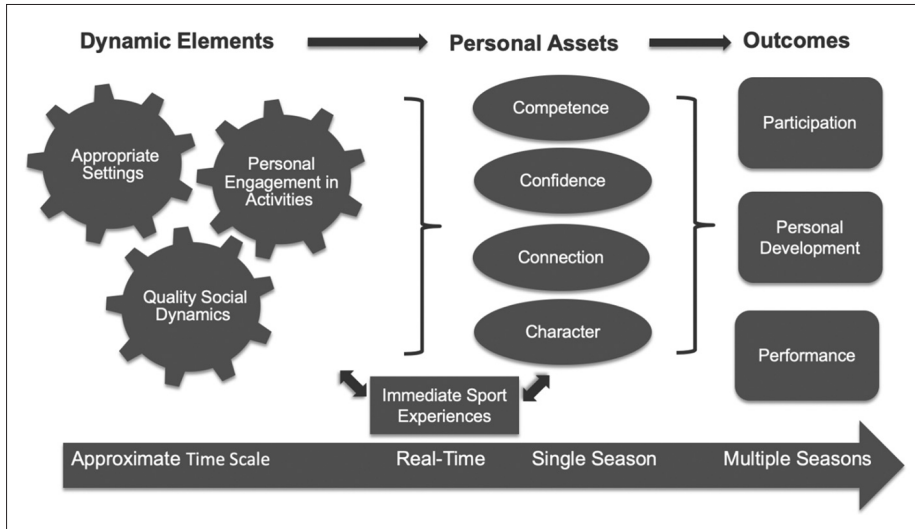


Fig. 1. - Personal Assets Framework. Adapted from Côté, J., Vierimaa, M., & Turnnidge, J. (2016). A personal assets approach to youth sport. In K. Green & A. Smith (Eds.), *Routledge Handbook of Youth Sport* (pp. 243-256). London: Routledge.

ninger, 2006) would be shaped by repeated enjoyable, yet challenging experiences during specific activities or sessions (e.g., games, training), which would translate over a season (e.g., three to six months) into the development of personal assets such as confidence, competence, connection, and character (i.e., the 4 Cs) and, subsequently, into long-term outcomes of continued participation, personal development, and performance (i.e., the 3 Ps).

It is important to recognize that, while the PAF is rooted in developmental systems theory (Lerner et al., 2000) and explicitly emphasizes interactions between personal, relational, and organizational factors as necessary for understanding development through sport, the specific factors within each dynamic element have yet to be explored in a more ecological and theory-informed approach (e.g., Bronfenbrenner, 1999). To remedy this gap, this paper will detail parallels between the hierarchical nature of previous developmental systems and athlete development to further portray the nested nature of factors organized *within* each dynamic element of the PAF. Relevant lines of research situated within the PAF's three dynamic elements will be used as examples to illustrate not only the interactive and nuanced nature of development through sport, but also the complexity involved for

practitioners and policy makers tasked with making changes to youth sport systems. Our hope is to provide a ‘guiding map’ of the different elements that affect the immediate experiences (e.g., interest), short-term outcomes (e.g., 4 Cs), and long-term outcomes (e.g., 3 Ps) of sport. Although the outcomes of the PAF are evidence-informed, we recognize that the nature of these outcomes originates from specific areas of research and exclude competing conceptual frameworks that could have similarly been used.

This paper is not meant to argue for universal athlete outcomes, but rather, is meant to highlight and describe the processes that interact to create positive youth sport experiences over specific periods of time. Our aim is to construct a commonly shared understanding of the nested and interactive processes that interact to influence the development of a thriving youth sport environment.

### **The Revised Dynamic Elements**

The impetus engendering the need for this paper was Vierimaa and colleagues’ (2017) qualitative case study that examined an exemplary recreational youth sport program in Canada. Based on their findings, these authors suggested that positive and immediate sport experiences were crucial in shaping the development of short-term and long-term outcomes. They also noted that the dynamic elements of the PAF should be considered hierarchically with both proximal and distal influences on athlete development.

Vierimaa and colleagues’ recommendations triggered further discussion about the mechanisms that affect youth engagement in sport and provided the foundation for the conceptual elaboration of the PAF that we are proposing in this paper. The main changes include slight revisions to names of the dynamic elements to improve their representativeness and reduce conceptual overlap, and the addition of three concentric layers to each dynamic element. In addition to being more ecologically representative, these revisions highlight and differentiate the distinct bodies of literature that support various components of the framework. Currently, the three revised dynamic elements situated within the PAF are: (1) appropriate settings, (2) quality social dynamics, and (3) personal engagement in activities (see Figure 2). Given the correct arrangement, these dynamic elements—represented as gears—can work in concert to foster positive assets in developing athletes. Importantly, and in line with previous work from Bronfenbrenner (1999), each proposed sub-dimension extends proximally to distally with those positioned closest to an athlete having the most immediate impact. All three dynamic elements

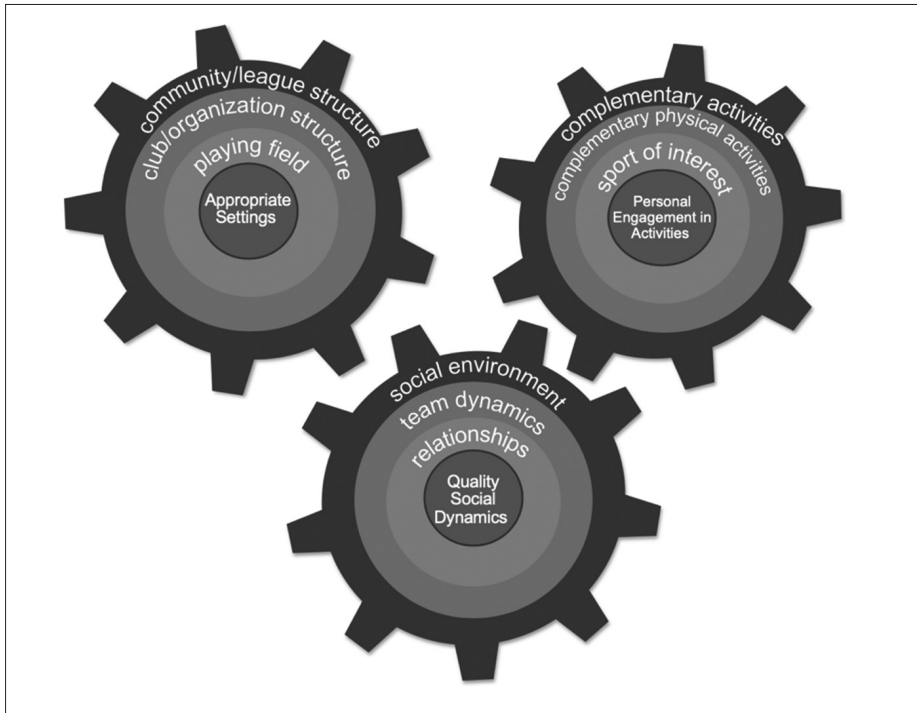


Fig. 2. - Dynamic Elements of the Personal Assets Framework.

work in unison to influence the cultivation of a sport context that fosters optimal growth and development in young athletes. Within the following sections, we provide a more detailed description of each dynamic element and include example literature associated with each subsequent sub-dimension moving from most proximal to most distal in nature.

**Appropriate settings.** Appropriate settings refers to the physical and competitive context that athletes inhabit while participating in sport. Previous research has advocated for athletes to be provided with access to a diverse array of sport contexts—irrespective of facility and equipment quality—to enhance development (Côté et al., 2014). In the context of the dynamic elements, appropriate settings encompass both the micro- and macro-environments where sport activities take place. The following sub-dimensions were added to the PAF to more adequately represent appropriate settings: (1) playing field, (2) club/organization structure, and (3) community structure.

*Playing field.* At the microlevel, the playing field (i.e., any playing, training, or competitive surface) is a major component of the athlete experience that could be facilitative or prohibitive of optimal development. To achieve optimal development, it has been suggested that the physical place should be structured to promote clear and consistent boundaries and expectations, while providing age-appropriate monitoring and supervision (Lerner et al., 2000). To date, many sport programs are competitively engineered (i.e., rules, facilities, and equipment are modified) to enhance both the performance and the development of young athletes (Burton, Gillham, & Hammermeister, 2011; McCalpin, Evans, & Côté, 2017). For example, a youth basketball coach could alter the size of the court during a practice or the number of players involved in a drill. These modifications would provide greater opportunities with the ball, the ability to practice more age-appropriate skills (e.g., proper shooting form), and, therefore, potentially offer a more positive experience signified by increased enjoyment and motivation (Burton et al., 2011). In soccer (i.e., football) and ice hockey, the manipulation of rules and equipment (e.g., having two nets to shoot on per team instead of one) have been shown to provide children with more opportunities to practice sport-specific techniques which improves skill development (Timmerman, Savelsbergh, & Farrow, 2019).

*Club/Organization structure.* As we move beyond the playing field, it is important to consider the relative impact that a club or sport organization can have on youth development. The call to integrate organizational efforts has been echoed in the literature surrounding skill acquisition (Côté & Abernethy, 2012), athlete development (Côté & Fraser-Thomas, 2016), policies for youth development (Lerner et al., 2000), and sport research generally (Wagstaff, 2019). To endorse a culture that facilitates engagement in sport and is characterized by the 3 Ps, consistent understanding and collaboration is necessary among key stakeholders in this domain. For example, individual differences attributed to physical maturation can significantly impact an athlete's level of skill (e.g., relative age effect; Musch & Grondin, 2001). As such, some sport organizations have adopted organizational policies such as bio-banding—a process by which athletes are grouped together based on growth or maturation instead of chronological age—to reduce risk of injury and enhance competition equity (Cumming, Lloyd, Oliver, Eisenmann, & Malina, 2017).

In addition to allowing for flexibility in club environment and competitive structure, sport organizations can also manipulate the rules of the game to enhance youth sport experiences and outcomes. For example, Burton and colleagues (2011) suggest benefits of “keeping scores close” in youth sport,

as it has been observed that as the discrepancy between scores increases, athlete motivation and enjoyment decreases. Thus, keeping a competitive balance where youth feel challenged, but competent, is critical at the level of the sport organization.

Fraser-Thomas, Côté, and MacDonald (2010) explored the relationships between club size and positive youth development outcomes in a sample of swimmers. Their findings indicated that swimmers who were part of smaller clubs in smaller cities scored significantly higher on indicators of positive youth development such as commitment to learning, positive identity, empowerment, and support, than swimmers who trained in bigger clubs situated in bigger cities. These findings suggest that size, physical structure, and the competitive environment of clubs and sport organizations may influence positive engagement in sport activities over time.

*Community structure.* Previous research examining the role of a community on athlete development has delivered a plethora of information emphasizing that a clear association between community features (e.g., size of a city, proximity to a club) and achievement of positive developmental outcomes exists. For example, Côté and colleagues (2006) compared the relative contextual factors of the location where an athlete was raised and the likelihood of them later playing sport professionally. Their findings support the idea that mid-sized communities can provide earlier opportunities for youth to participate in sports in comparison to extremely small or large cities and, thus, may provide an ideal context for athlete development and continued engagement in sport (e.g., Fraser-Thomas et al., 2010; Turnnidge, Hancock, & Côté, 2014). Further studies suggest that birthplace advantages could be explained by the structural elements of a community, the proximity to influential clubs/organizations, or the opportunities afforded to youth to engage in formal and informal sport (Balish & Côté, 2014; Hancock, Coutinho, Côté, & Mesquita, 2018; Rossing, Stentoft, Flattum, Côté, & Karbing, 2018).

Overall, community structure is an important element that affects sport development. The physical environment of a community can set the stage for the 3 Ps. The National Resource Council and Institute of Medicine (NRCIM; 2002) outlines eight features of settings that develop positive assets in youth and cultivate interest in an activity. Of these features, four pertain to the physical environment: (1) Physical and psychological safety, (2) appropriate structure, (3) opportunities for skill building, and (4) integration of family, school, and community efforts. Moreover, Côté and colleagues (2014) proposed two additional features concerning the sport setting of communities that promote sport development, specifically: (1) Access to diverse sport contexts and (2) sport contexts with fewer youth and less selection at

younger ages. Generally, it is important to consider how the structure of a community, the environment created by a club/organization, or the physical space of the playing field itself affects long-term engagement in sport and stimulates immediate interest by offering diverse opportunities and experiences to those involved.

Barker's (1968) behaviour setting theory offers support for how the physical setting may influence participation, personal development, and performance in sport. Barker (1968) described a behaviour setting as a unit of the environment in which physical and social elements interact to influence individual behaviours. In the context of the current framework 'appropriate settings' refers to the physical elements of Barker's behaviour setting, whereas the social elements focus on the 'quality social dynamics' of the sport experience.

**Quality social dynamics.** Sport is considered a highly social activity where interactions with social agents across the sporting environment (e.g., teammates, coaches, competitors, parents, spectators) can serve to enhance or detract from the quality of experiences (Bruner, Eys, & Martin, 2020). Similar to the multiple layers of adolescent peer relationships advanced by Rubin, Bukowski, and Parker (2006), the quality social dynamics element encompasses nested levels involving (1) interpersonal relationships, (2) team dynamics, and (3) the broader social environment within a given sporting context.

*Interpersonal relationships.* The dyadic relationships athletes form with their coaches, teammates, referees, and parents within the sporting realm can greatly influence an athlete's sport experience (e.g., Fraser-Thomas & Côté, 2009). On the whole, sport programs that facilitate the formation of these relationships contribute to the fulfillment of basic social needs or personal assets, and by extension, interest is heightened and motivation becomes increasingly self-determined (Hidi, 2000). As a result, psychological engagement in an athlete's sporting environment is more likely to occur. Whereas we recognize that athletes form a multitude of relationships to varying degrees with individuals in the sporting context (e.g., referees/officials, parents, Andersson, 2019; Arthur-Banning et al., 2007; Knight & Holt, 2014; peers, Weiss, Smith, & Theeboom, 1996; Smith, 2007), for the purpose of this discussion, we have chosen to provide an example of research that focuses on coach-athlete relationships.

Over the last forty years, studies have consistently highlighted the important role that coaches play in facilitating athlete development (Coatsworth & Conroy, 2009; Horn, 2008; Jowett & Poczwardowski, 2007; Smith & Smoll, 2007). Within the coaching literature, several conceptual models have been



developed to illustrate coaches' potential influence on athlete development (e.g., Chelladurai, 1993; Côté, Salmela, Trudel, Baria, & Russell, 1995; Duda, 2013; Horn, 2008; Jowett, 2007; Mageau & Vallerand, 2003; Smith & Smoll, 2007). These models have emerged from a wide variety of theoretical perspectives, including theories grounded in teaching pedagogy, motivation, relationship quality, and leadership. In general, these studies highlight the importance of behaviours that emphasize the value of (1) the athlete themselves, and (2) the athletes' tasks and contributions. Consistent with this perspective, several of the coaching models advocate the use of coaching behaviours such as providing athletes with meaningful choices, encouraging initiative taking, explaining athletes' role and task importance, and showing genuine care and concern for one's athletes (Erickson & Côté, 2016; Quested & Duda, 2010; Smith, Smoll, & Cumming, 2009). As such, by employing a person-centred approach, coaches can contribute to athletes' immediate to long-term developmental outcomes.

In sum, a large body of research supports the fact that quality relationships with coaches, parents, teammates, and referees are a major determinant of positive experiences and outcomes in sport. These relationships are, however, impacted by other social variables including team dynamics and the larger social environment.

*Team dynamics.* Team dynamics is a topic of study that is receiving growing interest with youth athletes (Bruner et al., 2020). Although it represents a large body of literature, this level can be grounded in research by Carron and Eys (2012) and Mathieu, Hollenbeck, van Knoppenberg, and Ilgen (2017) considering a team's structure, its processes, and resulting emerging states. In relation to the former (i.e., team structure), evidence suggests that normative expectations within a team can influence athlete moral development (e.g., Shields, LaVoi, Bredemeier, & Power, 2007), work ethic (Spink, Crozier, & Robinson, 2013), and willingness to contribute to a team's objectives (e.g., Høigaard, Säfvenbom, & Tønnessen, 2006). Similarly, the structural nature of athlete roles impacts their experiences within a team, with evidence suggesting that clarity of role assignments influences anxiety (Bosselut, Heuzé, Eys, & Bouthier, 2010) and capability beliefs to perform roles (Beauchamp, Bray, Fielding, & Eys, 2005).

Relevant team processes, such as effective communication and adaptive positional competition within youth teams, have demonstrated associations with task cohesion (McLaren & Spink, 2018) and athlete satisfaction and performance (Harenberg, Riemer, Dorsch, Karreman, & Paradis, 2019). Further, emergent states such as cohesion and social identity represent salient team constructs that impact athlete development. With youth athletes, both

task and social cohesion have been related to positive youth development in the form of social skills, initiative, and goal setting (Bruner, Eys, Wilson, & Côté, 2014). Social identity with a sport team has also been explored, with empirical support for improvements in self-worth, commitment, and effort (Martin, Balderson, Hawkins, Wilson, & Bruner, 2018), as well as moral behaviour (Bruner, Boardley, & Côté, 2014). Clearly, there are a range of factors at the team level that will impact athlete experiences and subsequent development, and these should be considered in relation to the more intimate dyadic relationships discussed previously, and with the broader social environment within the organization.

*Social environment.* The third level contributing to an athlete's experience of quality relationships in sport involves the broader social environment. This area of research stems from the organizational sport literature which emphasizes that athletes, coaches, other members of the sport context, as well as sport organizations do not function in isolation (e.g., Martin, Eys, & Spink, 2017). Further, the resounding influence that an organization's social structure can have on athletic experiences is reinforced by Wagstaff's (2019) description of its purview pertaining to, "(1) duty of care to protect and support the mental well-being of its employees and members, and (2) ethical obligation to create performance environments that facilitate individual and group flourishing" (p. 2). As such, it is important to take into consideration how all members within a broader organizational context influence one another. For example, the culture of the organization can significantly influence the values coaches impose on their athletes, and when values are outcome based, they can negatively influence athlete development and experiences (Wagstaff, Fletcher, & Hanton, 2012). As the interactions between athletes, coaches, and the organization are inevitable, Fransen and colleagues (2017) highlight the importance of developing optimal group structures through a buy-in of collective norms, the implementation of leadership roles that are shared by all levels of the organization (athletes included), as well as the formation of a task-oriented climate that focuses on learning and improvement rather than performance and perfection. Researchers have also turned their attention to the differences in sporting environments between successful and less successful social environments in larger settings such as clubs (e.g., Henriksen et al., 2010; Henriksen, Stambulova, & Roessler, 2011). Henriksen and colleagues (2011) key features of successful social settings include a sense of culture/teamwork, a focus on long-term development rather than immediate results, and increased knowledge exchange between administration, coaches, and athletes.

As a summary, the quality social dynamics experienced by athletes

within the sport context can range from important dyadic relationships (e.g., coach-athlete), to team-based constructs (e.g., norms, cohesion), to the broader organizational setting. Recognizing the tautology and interaction across these varying levels is needed when attempting to understand the impact that social dynamics have on athlete experiences (e.g., Martin et al., 2017).

**Personal engagement in activities.** Research suggests that participating in a variety of sport and non-sport related activities contributes to the achievement of long-term positive developmental outcomes (e.g., Côté et al., 2014). As such, the third dynamic element—personal engagement—is composed of the following levels: (1) sport of interest, (2) complementary physical activities, and (3) complementary, non-sport related activities. Each of these levels describe factors that afford youth opportunities to explore a variety of activities, gain a greater understanding of their interests, and develop a range of competencies that can be transferable to multiple areas of life (e.g., academics, social interests, extracurricular activities).

*Sport of interest.* To achieve long-term positive outcomes in sport, Côté and colleagues' (2014) Developmental Model of Sport Participation (DMSP) suggests that play and practice activities should be balanced and that a mixture of adult-led as well as youth-led activities should be included. Further, the achievement of both optimal development and long-term participation in sport are improved by introducing environments and programming that encourage deliberate play (i.e., unstructured activities that are intended to maximize enjoyment) prior to deliberate practice (i.e., highly structured drills/training aimed at improving performance; Côté & Erickson, 2015; Côté, Strachan, & Fraser-Thomas, 2008). Despite discourse in popular media, the assumption that a commitment to 10,000 hours of deliberate practice is required to attain expertise in any pursuit (Ericsson, Krampe, & Tesch-Römer, 1993) has been called into question by youth sport researchers. Literature focused on the drawbacks associated with an overemphasis on deliberate practice during childhood indicate that young athletes experience decreased motivation and an increased risk for injury (e.g., Fraser-Thomas, Côté, & Deakin, 2008; Jayanthi, LaBella, Fischer, Pasulka, & Dugas, 2015).

Erdal (2018) discussed the growing pressure athletes and their families feel to participate in adult-led, professionalized models of sport. Notably, there is a feeling of being developmentally 'left behind,' which is unfortunate given that athletes may lose interest or experience burnout due to the pressure or lack of fun typical to these environments. In line with this positioning, current research suggests that it is integral to have widespread sport experiences within one sport that maximizes enjoyment and enhances intrin-

sis motivation (Côté et al., 2019). In accordance with the DMSP, athletes during the sampling years should experience high amounts of deliberate play (Berry, Abernethy, & Côté, 2008) and only increase time spent in deliberate practice as they enter the specializing and investment years.

*Complementary physical activities.* The optimal pathway most likely to result in athletic success is a topic of great debate in sport (i.e., to specialize or to sample; Côté & Hancock, 2016). Existing literature highlights that participating in a wide variety of sports (i.e., sport sampling) affords athletes with opportunities to explore a range of options, discover endeavors that they enjoy and for which they are capable, and develop competencies that enable engagement in physical pursuits that contribute to talent development. As early specialization can result in increased burnout, dropout, and decreased motivation to participate (e.g., Fraser-Thomas et al., 2008), it is critical that diversity precedes specialization in sport (e.g., Bridge & Toms, 2013; Côté & Vierimaa, 2014). A growing body of research emphasizes that sport sampling does not put athletes at a disadvantage compared to their specializing counterparts, and further, athletes who sample have an increased likelihood of achieving long-term participation and performance (e.g., Baker, Côté, & Abernethy, 2003; Baker, Côté, & Deakin, 2005). As such, it is becoming apparent that exploring a variety of sports up until the specializing years (i.e., ~ aged 13 years; Côté et al., 2014) gives young athletes the greatest chance of enjoying the benefits sport has to offer.

*Complementary activities.* Just as it is important for young athletes to participate in a wide variety of sports, it is critical for young people to engage in diverse activities outside of sport. Busseri and colleagues (2006) highlighted the need for youth to participate in a breadth of activities (e.g., volunteering, musical arts, school clubs) at varying intensities to promote enhanced well-being, academic standing, the formation of stronger interpersonal relationships, and a decreased likelihood of embodying antisocial or delinquent tendencies. As such, it appears as though participation in an array of activities may contribute to positive experiences that ultimately enhance one's social, emotional, and physical wellbeing in the lives of many young people (e.g., Bartko & Eccles, 2003; Darling, 2005; Eccles & Barber, 1999).

Altogether, personal engagement in activities that reflect the three levels of this dynamic element (i.e., sport and non-sport specific breadth of activities) will promote a holistic approach to athlete development. As demonstrated through a review of current literature, it is critical to take into consideration not only sport specific activities, but also the activities that reside outside of the sport context to more thoroughly understand youth development.

## Conclusion

In its original state, the PAF served as a comprehensive framework meant to depict how interactions between settings, relationships, and personal engagement across activities might affect an athlete's achievement of positive developmental assets within a sporting context. The purpose of this paper was to explore each of the major dynamic elements within the PAF in greater detail and to demonstrate the hierarchical nature of each through the provision of examples and supporting research. Further, it is our hope that this framework will provide researchers with broad scaffolding upon which to situate future projects within the athlete development literature. By drawing upon the work of Bronfenbrenner and other scholars interested in identifying factors that might influence development within an ecological context, it is hoped that this paper will provide a more comprehensive and coherent picture of how athlete development might take place. The development of positive outcomes through sport participation is a complex process that is shaped by a myriad of factors. By examining research across various sources of sport science, this paper attempted to highlight and connect the different mechanisms that affect both the immediate athlete experience as well as the factors associated with short and long-term engagement in sport.

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