An Integrative Definition of Coaching Effectiveness and Expertise

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ABSTRACT
The purpose of the current paper is to present an integrative definition of coaching effectiveness and expertise that is both specific and conceptually grounded in the coaching, teaching, positive psychology, and athletes' development literature. The article is organized into six sections. The first section is used to situate the proposed definition in the predominant conceptual models of coaching. The second, third, and fourth sections provide detailed discussion about each of the three components of the proposed definition of coaching effectiveness: (a) coaches' knowledge, (b) athletes' outcomes, and (c) coaching contexts. The proposed definition is presented in the fifth section along with a clarification of common terminology and guiding postulates. The final section includes implications for practice and research.

Key words: Coaches' Knowledge, Conceptual Models of Coaching

INTRODUCTION

What is coaching expertise? What differentiates effective coaches from ineffective coaches? What does it take to become an expert coach? Tharp and Gallimore's [1] seminal research on legendary college basketball coach John Wooden is one of the earliest and well-known studies on coaching effectiveness in action. Since that time, the quest to understand coaching expertise and effectiveness has guided many other studies [2-7]. In their review of the coaching science published between 1970 and 2001, Gilbert and Trudel [8] compiled and discussed 610 articles on coaching. A recent update of this annotated bibliography shows that 872 articles have now been published between 1970 and 2008 [9]. An examination of the articles from this database suggests that at least 113 of these articles focus explicitly on coaching expertise or effectiveness. This of course does not even include the many review papers and books on these topics [10-13].

Despite nearly 35 years of research and discussion, there still remains "a lack of precision in terminology and approach, and a singular failure to relate effectiveness and expertise literature to any conceptual understanding of the coaching process" [13, p. 251]. For

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example, in some cases authors define coaching expertise or effectiveness by athletes' level of achievement (win-loss percentage), or athletes' personal attributes (satisfaction, enjoyment), while other authors define coaching expertise by a coach's years of experience (10 years of experience). A prime example of this is evident in a recent issue of the *International Journal of Sports Science and Coaching* that contained no less than five separate research articles related to 'good' coaching. The titles of these articles contain the following labels to describe their samples: successful, experienced, elite, expert, and great, and no two studies used the same criteria to identify their participants [14-18]. We ourselves have used similar approaches to identify and describe participants in our research [19-22]. Although these types of studies provide significant insight and help extend coaching science, our progress as a field will continue to be limited until we can clearly articulate a shared conceptual understanding of coaching effectiveness and coaching expertise. The related fields of teaching and physical education with their much longer research histories have long ago recognized this problem for teaching and we can learn much from their experience. For example, fifteen years ago O'Sullivan and Doutis [23] concluded that the "concept of expertise in teaching remains highly ambiguous" (p. 178) and as such this situation severely restricts the ability to draw connections across studies and bring conceptual clarity to teaching expertise. They even went so far as to question the very future of research because: "If we cannot captivate the essence of teaching, we may not have a legitimate phenomenon to study" (p. 179).

The purpose of the current paper is to present an integrative definition of coaching effectiveness and expertise that is both specific and conceptually grounded in the coaching, teaching, positive psychology, and athletes' development literature. Lyle's [13] consideration of the terms used to describe 'good' coaching (i.e., successful, effective, competent, expert) is perhaps the most comprehensive treatment of the subject. Consistent with Lyle's conclusions, and the vast bodies of research on expertise in general and teaching effectiveness, it is our position that both coaching effectiveness and expertise should be used as frames of reference for examining 'good' coaching. The remainder of this article is organized into six sections. The first section is used to situate the proposed definition in the predominant conceptual models of coaching. The second, third, and fourth sections provide detailed discussion about each of the three components of the proposed definition of coaching effectiveness: a) coaches' knowledge, b) athletes' outcomes, and c) coaching contexts. The proposed definition is presented in the fifth section along with a clarification of common terminology and guiding postulates. The final section includes implications for practice and research.

FOUNDATION OF THE DEFINITION: CONCEPTUAL MODELS OF COACHING

Several conceptual models of coaching have been developed in the last 30 years based on research with a wide range of coaches [12, 13, 19, 24-27]. These conceptual models have emerged from different theoretical perspectives including leadership, expertise, coach-athlete relationships, motivation, and education. It is clear that these lines of research are important for understanding the complexity of coaches' work, but the focus of conceptual frameworks on one specific aspect of coaching limits our overall understanding of coaching by narrowing our view. Despite the emergence of these conceptual frameworks, there are no cohesive definitions of effective coaching or coaching expertise that underpin the processes, knowledge, and behaviors involved in the development of athletes.

Nonetheless, one similarity of all the conceptual models of coaching is the identification

of three common variables that affect coaches' work. Although different conceptual models use different labels for the variables that affect coaching, it is important to use these three variables as the underpinning components of a definition of coaching effectiveness and expertise. First, it is well accepted that a coach's behaviors, dispositions, education, and experiences are determinants of coaching success. These variables can be regrouped under one common component that ultimately influences an individual coach's knowledge base – *coaches' knowledge*. Although there is no single definition of "knowledge", we use Anderson's [28] broad conceptualization of knowledge to represent a complex structure of coaches' declarative (knowing) and procedural (doing) knowledge. Such a definition of knowledge includes coaches' personal behaviors, experiences, and strategies to effectively and successfully meet the various demands of coaching. Second, all models suggest that a coach's work should be translated into some form of change in athletes' outcomes, whether it is performance or athletes' personal attributes, such as self esteem and satisfaction. *Athletes' outcomes* is, therefore, a second component that reflects the variations in athletes' attitudes, behaviors, or performance that can result from different types of coaching. Third, conceptual models of coaching acknowledge different contexts with athletes who vary in terms of athlete age, developmental level, needs, and goals; when combined, these variables can be regrouped under the term *coaching contexts*. In sum, to be comprehensive, a definition of coaching effectiveness and expertise should integrate these three components by considering the interaction of a *coaches' knowledge* and *athletes' outcomes* in specific *coaching contexts*.

FIRST COMPONENT: COACHES' KNOWLEDGE

Extensive knowledge is considered a primary characteristic of those who become expert coaches [29-31]. Expert knowledge can be defined by its structure and domain content. The structure of expert knowledge includes various schemes under which knowledge may be organized. Anderson [28] suggested that knowledge could be split into two broad domains: declarative knowledge and procedural knowledge. Declarative knowledge is routine knowledge that may include readily available information about concepts and elements (and relationships between them) relating to particular subjects. Procedural knowledge details steps or activities required to perform a task or job [28]. Abraham et al. [32] suggested a schematic of coaches' knowledge that included declarative and procedural knowledge. The schematic was built on three sources of knowledge, including sport-specific knowledge, pedagogy, and the "sciences" of coaching (i.e., 'ologies'). Similarly, Cassidy et al. [10] proposed a structure of coaches' declarative and procedural knowledge that included subject matter content, pedagogical content, and curriculum content. Another way of classifying knowledge is to distinguish between tacit knowledge and explicit knowledge. Nash and Collins [33] found this classification useful because coaching requires real-world decision-making and problems are typically ill defined.

The debate over the nature of knowledge that coaches should have in order to be effective with their athletes can also be informed from the teacher expertise literature. Tsangaridou's [34] recent review of common typologies, definitions, and research findings on teacher knowledge and expertise shows that two authors in particular have shaped much of the literature on teaching knowledge. In an early attempt to provide a framework of the knowledge base, Shulman [35] designated seven categories of teacher knowledge. Combining Shulman's early conceptualization of teacher knowledge, with an emphasis on comparing novice and expert teachers, Berliner [36, 37] then suggested that three important types of knowledge comprised expertise in teaching: content knowledge, which is the

knowledge or skill that is to be learned by the students; pedagogical knowledge, which is the underpinning educational theory of factors that affect student learning; and pedagogical-content knowledge, which is the unique ways in which content knowledge is conveyed to learners in specific settings. In reviewing this body of work, Collinson [38] proposed a more comprehensive and, nevertheless, simpler model of knowledge content for expert teachers: professional knowledge (i.e., subject matter, curricular, and pedagogical knowledge), interpersonal knowledge (i.e., relationships with students, the educational community, and the local community), and intrapersonal knowledge (i.e., reflection, ethics and dispositions).

Although a major component of coaching expertise resides in one's ability to teach sport-specific skills, coaching expertise is also about the ability to create and maintain relationships with others [14, 39] and the ability to learn from one's own practice [22, 40]. The work of Cassidy et al. [10], Nash and Collins [33], and Abraham et al. [32], encapsulates the knowledge structure and professional knowledge associated with expertise in coaching, but fails to elaborate on the important interpersonal and reflective dimensions of expert coaches. Accordingly, Collinson's [38] simple, yet comprehensive way of describing the nature of knowledge involved in teaching is appealing, and does a good job of mapping the domain of coaching. In fact, effective coaches should be viewed as being instrumental in the overall development of athletes, not only of sport-specific skills [27]. This broadly defined perspective of coaches as teachers informs much of the current coaching research and is sometimes referred to as the 'holistic' approach to coaching [10, 30, 41]. To accomplish this task, effective coaches require a high level of professional knowledge, but equally important are coaches' interpersonal and intrapersonal knowledge [10, 14].

COACHES' PROFESSIONAL KNOWLEDGE

Abraham et al. [32] proposed that expert knowledge for coaches includes declarative knowledge in the sport sciences (i.e., 'ologies'), sport-specific knowledge, and pedagogical knowledge with accompanying procedural knowledge. According to Collinson [38], these different categories of knowledge can be regrouped under a more general "professional knowledge" category that accurately defines the large body of specialized knowledge required to coach. This type of professional knowledge has long been the focus of coaching education, clinics, and workshops [42]. It is this "how to" version of coaching knowledge that has allowed many to define coaching expertise as the accumulation of professional knowledge. However, it has become apparent that professional knowledge alone is insufficient to become an effective coach [10, 14, 43]. The almost exclusive focus on professional knowledge by traditional coach education programs may in large part explain why coaches across countries, type of sport, and levels of competition and experience routinely devalue formal coach education [41]. Exposure to professional knowledge out of context loses its relevance and minimizes the importance of the reflective and complex interactional nature of effective coaching.

COACHES' INTERPERSONAL KNOWLEDGE

Coaches, like teachers, do not work in isolation; their effectiveness depends on individual and group interactions. To be successful, coaches have to interact regularly with their athletes, and assistant coaches, parents, and other professionals. A multi-directional conceptualization of coach-athlete interactions has been advocated in recent theoretical work [44-46] which suggests that coaching is a complex, reciprocally-influential process based on systems of social interactions. It is important for coaches to continuously develop their interpersonal knowledge base so that they can communicate appropriately and effectively

with their particular athletes and other people. As well, athletes of different ages and competitive levels require coaches to relate differently to these athletes and their particular social context.

COACHES' INTRAPERSONAL KNOWLEDGE

The third form of knowledge that should be included in a definition of coaching effectiveness and expertise is intrapersonal knowledge. Intrapersonal knowledge refers to the understanding of oneself and the ability for introspection and reflection. Research has surfaced in the past decade on the topic of coach reflection and its influences on coach development [47-49]. One of the most comprehensive studies on coach reflection was Gilbert and Trudel's [22, 50, 51] research examining how good coaches translate experience into knowledge and skills. Gilbert and Trudel developed a model of experiential learning based on coach reflection and highlighted the requirement of intrapersonal knowledge in any definition of coaching expertise. The critical role of intrapersonal knowledge can also be seen in how expertise in teaching has been defined. For example, O'Sullivan and Doutis [23] introduced the concept of 'virtuoso' to define teaching expertise. Upon reviewing the literature on expertise in teaching they proposed the term virtuoso, because it adds a critical intrapersonal dimension to expertise, namely a heightened "sensitivity to the uniqueness of their learners and their cultural contexts" (p. 179). Yet others have referred to effective teachers as 'masters' who develop "a habit of mind, a way of looking critically at the work they do; by developing the courage to recognize faults, and by struggling to improve" [52, p. 385]. In sum, a coach's ability to maximize athletes' outcomes rests not only on extensive professional knowledge and interpersonal knowledge, but also on constant introspection, review, and revision of one's practice.

THE INTEGRATION OF THE TRIAD OF COACHES' KNOWLEDGE

Coaching education programs around the world have traditionally focused their attention on the development of professional knowledge, however, the vast array of coaching and teaching literature suggests that coaching effectiveness and expertise should include professional, interpersonal, and intrapersonal knowledge. The current emphasis on only professional knowledge appears to guide both coach education and coach recruitment around the world. For example, it is extremely rare for a professional sport team to hire a coach who is not a former elite athlete [53]. The assumption here is that the primary requirement to become an effective coach is an extensive knowledge of the sport (professional knowledge). Based on our personal experiences, unfortunately this same trend is pervasive across all levels of sport. Seldom is consideration given to how well an individual connects with others (interpersonal knowledge) or their openness to continued learning and self-reflection (intrapersonal knowledge). This myopic view of the requisite knowledge for coaching effectiveness may in part explain the high turnover rates of professional and college sport coaches, where research has shown that athletic ability is not correlated with coaching success [54].

Our understanding of the process, time frame, and other influential factors that lead to a coach's integration of professional, interpersonal, and intrapersonal knowledge is nevertheless limited. At some level, the three forms of knowledge will overlap. Collinson [38] suggests that the link among the triad of knowledge in teaching results in 'good habits of thinking' [55], 'maturity' [56], 'wisdom' [57] and 'capacity to reason and make judgments' [58]. These terms have all been used in the coaching literature to define effective or expert coaches and creative methodologies need to be implemented to study the integrated knowledge base of these coaches. One such approach is the descriptive-analytic multiple

case-study approach long advocated, but seldom implemented, by coaching scientists [41, 59, 60].

SECOND COMPONENT: ATHLETES' OUTCOMES

Horn [12] recently reviewed studies on effective coaching and proposed a definition of coaching effectiveness based solely on athletes' outcomes:

> Effective coaching …results in either successful performance outcomes (measured either in terms of win-loss percentages, individual player development, or success at the national or international level) or positive psychological responses on the part of the athletes (e.g. high perceived ability, high self-esteem, intrinsic motivational orientation, or high level of sport enjoyment and satisfaction). (p. 240)

Although this definition clearly summarizes what is expected to result from effective coaching, perhaps performance and psychological responses can be reframed in a way that allows for a more detailed consideration of these broad outcomes. In one sense, Horn's [12] definition provides us with a macro-level view of effective coaching outcomes. We are proposing a more explicit definition of these two broad outcomes to provide the field with measurable indicators that can serve to identify and evaluate coaching effectiveness. The positive psychology literature provides a different framework that could be used for conceptualizing athletes' outcomes from a coaching perspective. In particular, the five C's – Competence, Confidence, Connection, Character, and Caring/Compassion [61] were recently mapped against the athletes' development literature and hypothesized as desirable outcomes that should emerge from the interactions of coaches and athletes in any sporting environment [62]. After a careful review of the sport literature, Côté et al. [62] condensed the 5 C's into 4 C's (Competence, Confidence, Connection, Character/Caring). This step was taken given the integration of caring/compassion within the character development literature in sport [63] and some considerable overlap between character, caring, and compassion within the coaching and athletes' development literature.

ATHLETES' COMPETENCE

One of the most researched areas in coaching is the influence of coaching behaviors on athlete performance outcomes. For example, a paper-and-pencil method was developed by Chelladurai and Saleh [64] to facilitate an understanding of the complex interaction between coaches and athletes and the influence of this interaction on athletes' performances. The Leadership Scale for Sport (LSS) provides researchers with a quantitative means for assessing coaching leadership in sport and has been widely used to measure and evaluate the impact of different coaching styles on athletes' performance outcomes. A detailed description of the extensive program of research conducted with the LSS and the influence of certain coaching behaviors on athletes' performance has been reviewed elsewhere [24, 65]. Several other lines of research also focus on how coaching behaviors affect athletes' sport-specific competence through paper-and-pencil instruments or observational methods (for reviews see [11, 12, 66]). All in all, athletes' level of competence in their sport, as measured by different types of performance indicators, is the most obvious outcome of coaching. Nevertheless, it has often been argued that coaching also involves providing the guidance that helps athletes become confident and self-reliant members of their sport and society [27, 67]. In fact, this perspective has guided much of the developmental sport psychology research [68] and is consistent with current views on 'holistic' coaching [10] as a way to nurture positive youth development [69].

ATHLETES' CONFIDENCE, CONNECTION, AND CHARACTER

Sport can be a tremendous vehicle for athletes to develop confidence, connection with others, and character. Thus, through their interactions with athletes, coaches have unique opportunities to influence their athletes' psychological growth [12]. The Coaching Behavior Assessment System (CBAS) [70] has been used in several studies to examine coaches' influence on children's psychological development through sport (see [27] for a review of this line of research]. Similarly, several studies have examined the link between coaches' behaviors as measured by the LSS and athletes' satisfaction [24]. Studies using the CBAS or the LSS have shown that coaches' knowledge and behaviors have a significant influence on an athlete's psychological profile, affecting such characteristics as self-esteem, satisfaction, and perceived competence. From the motivation literature, Deci and Ryan [71] suggested that the development of highly motivated, self-determined, and invested individuals in any domain requires an environment that provides opportunities to make autonomous decisions, develop competence, and feel connected to others. Accordingly, coaches have a crucial role in providing optimal learning environments in which athletes feel supported [19, 72-75]. Jowett [39] proposed that the quality of coach-athlete relationships in providing appropriate resources in different sporting contexts is determined by the degree of closeness, commitment to the relationship, complementarity, and co-orientation between both parties. An effective sporting environment also supports the basic need of every athlete to belong to a social group whose members are mutally supportive.

Further studies of coaching behaviors [76-79] have shown that confidence building is one of the most important characteristics that coaches want to hone in their athletes. Accordingly, authors agree that the relationship between coaches and athletes is an important determinant of the way in which athletes' confidence is affected by their participation in sport [e.g., 80]. The coach-athlete relationship influences athletes' confidence and should be at the forefront of coaching strategies in any coaching contexts.

Finally, a large body of research shows that coaches play a crucial role in enabling athletes to develop their character, become a constructive and caring member of a sporting team, and ultimately, a productive member of society [63, 81]. Although certain sport contexts may stimulate a change in social values and moral reasoning patterns [82], coaches should not "use language or techniques that might encourage participants to separate their sport experiences from 'real life'" (p. 396). Sport should be seen as a medium in which citizenship qualities are learned – this objective should be important for coaches of athletes of all ages and levels of competition.

THE INTEGRATION OF ATHLETES' OUTCOMES

Ultimately, effective coaching should result in positive changes in all four types of athletes' outcomes described in our definition. A review of the athlete development literature [62] shows that coaches should have expertise in the development of athletes' competence, confidence, connection, and character. These 4 C's are general enough to provide a descriptive, yet comprehensive understanding of athletes' outcomes in sport. Table 1 provides a summary of the outcomes that should result from effective coaching. Effective coaching over an extended period of time would be the hallmark of an expert coach [13]. This is consistent with how expertise in teaching has been defined: "Expertise implies a superordinate capability to get the best student outcomes – time after time, with all kinds of students, under strongly contrasting conditions, all day long, across many school years" [83, p. 155].

Table 1. Athletes' Outcomes that Should Result from Effective Coaching

Competence	Sport-specific technical and tactical skills, performance skills, improved health and fitness, and healthy training habits
Confidence	Internal sense of overall positive self-worth
Connection	Positive bonds and social relationships with people inside and outside of sport
Character	Respect for the sport and others (morality), integrity, empathy, and responsibility

Although we are unaware of studies that have examined the relationship between coaching knowledge and all four of these types of athlete outcomes, support for our propositions can be seen in a recent study on leadership in youth sport. Rieke et al. [43] asked 195 youth basketball players to rate how well their coaches fit the description of servant leaders. Servant leadership is a relatively new approach to coaching, and servant leaders are considered those who demonstrate a range of qualities related to trust/inclusion, humility, and service. Data on a wide range of athlete competence and confidence outcomes were then collected. Results showed that athletes of coaches who fit the profile of servant leaders scored significantly higher on almost all measures of athlete competence and confidence. What this unique study demonstrates is that coaches who are effective at producing athlete outcomes related to competence and confidence appear to possess strong professional, interpersonal, and intrapersonal knowledge. Data were not collected on athlete connection and character – the other two C's in our proposed definition – but perhaps future studies could also measure these important outcomes in an attempt to further distinguish effective from ineffective coaches.

THIRD COMPONENT: COACHING CONTEXTS

Coaching contexts are the unique settings in which coaches endeavor to improve athlete outcomes. We argue, like those prior to us in the effective teaching literature [52, 84-85], that an appreciation of these settings is critical to understanding effective coaching. Some have gone so far as to argue that educational settings are in fact "the determining concept for understanding effectiveness in teaching" [52, p. 378]. In order to facilitate a review of the coaching research, Trudel and Gilbert [42] proposed a classification of three specific coaching contexts: (a) recreational sport, (b) developmental sport, and (c) elite sport. Prior to this, Lyle [13] similarly recognized these three coaching contexts; however, he suggested two distinct forms of sport coaching based on the competitive level of the athletes: participation coaching and performance coaching. Participation coaching is distinctive because competition performance is not emphasized, and participants are less intensively engaged with the sport. Objectives are characterized by short-term goals, enjoyment, and health-related outcomes. Performance coaching, on the other hand, entails a more intensive commitment to a preparation program for competition and a planned attempt to influence performance variables. To this end, there is a high degree of specificity in the program that a coach delivers to his or her athletes (e.g., physical conditioning, psychological training). Lyle contended that each form of coaching is very different, raising a number of issues with respect to matching individual coaches to contextual needs. Given that the skills and knowledge demands differ within these forms of coaching, Lyle [13] cautioned that a coach might mistakenly wish to be associated with athletes in contexts for which their available skills/knowledge are not suited, as might be the case when a performance coach wishes to

work with an athlete who is clearly in a participation context. Lyle, along with Trudel and Gilbert, suggested that in order to be effective, coaches must be aware of the over-riding sport context in which they work.

In addition to the performance demands of the sporting environment, coaches must be aware of how the needs of athletes change across the developmental spectrum, from childhood to adulthood. Recent reviews and citation analyses of the sport psychology literature [86, 87] identified a number of models of athlete development in sport. One of the models, the Developmental Model of Sport Participation (DMSP), highlights the importance of developmentally appropriate training patterns and social influences [88-91]. The DMSP proposes two possible sport participation trajectories – recreational participation and elite performance. Both of these trajectories start during adolescence and are preceded by the "sampling years" during childhood. The different stages within each trajectory are based on changes in the type and amount of involvement in sport activities, and also highlight the changing roles of social influences (i.e., parents, coaches, peers) at each stage of development. The DMSP proposes that recreational participation and elite performance through sampling have the same activity and training foundation from ages 6 to 12 (i.e., sampling years). After the sampling years, sport participants can either choose to stay involved in sport at a recreational level (i.e., recreational years, ages 13+) or embark on a path that focuses primarily on performance (i.e., specializing years, ages 13-15; investment years, ages 16+). While these two distinct trajectories have different outcomes in terms of performance, the aim of each path should be to yield similar personal developmental outcomes in young athletes (i.e., 4 C's) through appropriate, research-based coaching strategies.

THE INTEGRATION OF COACHING CONTEXTS

Côté et al. [92] used the DMSP to propose a typology of four different categories of coaches based on developmentally appropriate sport contexts: (a) participation coaches for children (sampling years), (b) participation coaches for adolescents and adults (recreational years), (c) performance coaches for young adolescents (specializing years), and (d) performance coaches for older adolescents and adults (investment years). This typology provides four generic coaching contexts based on a participation-performance continuum and a developmental spectrum from children to adults. We acknowledge that these contexts may overlap and that other coaching contexts may be particular to certain sports or cultures. Nonetheless, it is important to see these four different coaching contexts as the foundation of coaching programs for populations of athletes that clearly have different needs and goals. Coaching effectiveness should be defined according to how coaches meet their athletes' needs and help them fulfill their goals, as defined by the specific coaching context. This component of the definition – like the previous two components – is also firmly grounded in the collective wisdom accumulated through years of research on effective teaching [83, 84]. The performance demands of a sport and the developmental level of its athletes are the two most important variables involved in defining a specific coaching context.

In sum, the extensive body of research on coaching suggests that coaching effectiveness should be based on the evaluation of three integrative components: coaches' knowledge, athletes' outcomes, and coaching contexts. Coaches' knowledge includes professional, interpersonal, and intrapersonal knowledge. The athlete outcomes of competence, confidence, connection, and character are important for coaches to develop in their athletes. Finally, athletes' outcomes and coaches' knowledge are characterized differently, at different stages of an athlete's development, with respect to context. The integration of these three components allows us to now propose an integrated definition of coaching effectiveness.

COACHING EFFECTIVENESS: A DEFINITION

In this section, we provide the proposed definition of coaching effectiveness and four underpinning postulates. The proposed definition enables us to differentiate between coaching effectiveness, coaching expertise, effective coach, and expert coach. The review of literature presented in this article allows us to now propose an integrative definition of *coaching effectiveness*:

> *The consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes' competence, confidence, connection, and character in specific coaching contexts.*

It is important at this point to clearly distinguish between coaching expertise, coaching effectiveness, effective coaching, and an expert coach. Our position here extends Lyle's [13] position on these fundamental concepts, and is firmly grounded in the proposed definition of coaching effectiveness and the research on effective teaching. First, coaching expertise refers to specific knowledge in particular contexts. This is consistent with the expertise literature across domains in which a specific knowledge base provides the foundation for expertise. Second, effective coaches are those who demonstrate the ability to apply and align their coaching expertise to particular athletes and situations in order to maximize athlete learning outcomes. In other words, one can be considered an effective coach if he or she demonstrates coaching effectiveness (as measured by context-specific athlete outcomes). A focus on learner outcomes is consistent with the most current views on effective teaching. Finally, coaches who demonstrate coaching effectiveness over an extended period of time (i.e., "consistent application" in our definition) may then be considered expert coaches.

An example is provided to further illustrate how we conceptualize the related terms of coaching expertise, coaching effectiveness, effective coach, and expert coach. An individual who passes a competency test after participation in a coach education program may be said to have developed some level of coaching expertise (this of course is dependent on the efficacy of the test and its administration). If it is documented that the athletes whom this individual coaches show positive changes in learning outcomes (the 4 C's) across a season of sport participation, then perhaps we can conclude that this individual has demonstrated coaching effectiveness, and consequently they may be considered an effective coach. Only once an effective coach establishes a track-record of coaching effectiveness over many years can he or she be considered an expert coach.

Our definition of coaching effectiveness leads to the proposition of four underpinning postulates:

Postulate 1: Effective coaches in any context integrate three forms of knowledge: professional, interpersonal, and intrapersonal knowledge.
Postulate 2: Effective coaches in any context develop athletes' capacities in the areas of competence, confidence, connection, and character tailored to specific athlete needs.
Postulate 3: The composition of effective coaches' professional, interpersonal, and intrapersonal knowledge varies according to at least four different coaching contexts.
Postulate 4: Expert coaches are able to demonstrate coaching effectiveness on a consistent basis.

These four postulates suggest that coaching effectiveness must first be defined according to its particular context over a period of time (Postulates 3 and 4). A particular coaching context will then determine how the three forms of coaches' knowledge need to be applied to develop

athletes' competence, confidence, connection, and character. Therefore, according to different coaching contexts, coaches will require a different mix of professional, interpersonal, and intrapersonal knowledge to develop athletes' competence, confidence, connection, and character (Postulates 1 and 2). For example, developing 10 year-old soccer players' 4 C's will require different coaching expertise than developing Olympic-level soccer players 4 C's. The ability of a coach to effectively and consistently develop his or her athletes' 4 C's will be the ultimate indicator of an expert coach.

Based on an extensive review of athlete development literature [62], it is possible to suggest and contrast the objectives of coaching effectiveness in different coaching contexts (Table 2). The different profiles of coaching effectiveness presented in Table 2 illustrate the uniqueness of each coaching context to develop athletes' 4 C's. Effective coaches in any context will require a high level of professional, interpersonal, and intrapersonal knowledge, but there will be great variation between each context as to the nature of the knowledge required to develop athletes' competence, confidence, connection, and character.

Table 2. Coaching Objectives for Developing Athletes' Outcomes (4 C's) in Different Contexts

Participation Coach for Children
1. Adopt an inclusive focus as opposed to an exclusive selection policy based on performance
2. Organize a mastery-oriented motivational climate
3. Set up safe opportunities for athletes to have fun and engage playfully in low-organization games
4. Teach and assess the development of fundamental movements by focusing on the child first
5. Promote the social aspect of sport and sampling

Participation Coach for Adolescents and Adults
1. Provide opportunities for athletes to interact socially
2. Afford opportunities for athletes to have fun and playfully compete
3. Promote the development of fitness and health-related physical activities
4. Teach and assess sport-specific skills in a safe environment for long-term sport involvement
5. Teach personal and social assets through sport (citizenship)

Performance Coach for Young Adolescents
1. Organize the sport experience to promote a focus on one sport
2. Teach "rules of competition"
3. Offer opportunities for fun with increasingly greater demands for deliberate practice
4. Teach and assess physical, technical, perceptual, and mental skills in a safe environment
5. Present positive growth opportunities through sport (i.e., civic engagement, responsibility)

Performance Coach for Older Adolescents and Adults
1. Set up training regime grounded in deliberate practice
2. Allow athletes appropriate mental and physical rest
3. Prepare athletes for consistent high-level competitive performance
4. Teach and assess physical, technical, perceptual, and mental skills in a safe environment
5. Provide opportunities for athletes to prepare for "life after sport"

IMPLICATIONS FOR RESEARCH AND PRACTICE

The above definition of coaching effectiveness is based on a review of the coaching, teaching, athlete development, and positive psychology literature and raises a number of topics for consideration. First, using the stringent criteria for defining an expert coach, it is not clear that research on truly expert coaches exists, and research on coaching effectiveness is extremely rare. Almost all research that has claimed to focus on expert coaches has relied solely on years of experience and/or performance records although there is no evidence to suggest that either one of these variables alone are valid ways to identify an expert coach. Second, coaching research should be designed with consideration of all the elements that are represented in the integrative definition of coaching effectiveness – coaches' knowledge, athletes' outcomes, and coaching contexts. We are not suggesting that individual studies must attempt to measure all components of coaching effectiveness concurrently. However, in order to facilitate integration of findings across diverse lines of research, discussion of results within individual studies should be re-framed within an integrative theoretical framework of coaching effectiveness. This exercise will ultimately lead to a coherent professional knowledge base for coaching science – something that is sorely missing from the field and has severely limited the impact of coaching research. Third, there likely are very few examples of expert coaches in participation sport because they seldom remain long enough to develop the extensive knowledge (expertise) required to establish a history of effectiveness. Numerous authors in the teaching effectiveness literature have concluded that few teachers will ever reach the status of expert, despite many years of university training, shared curriculum, and extensive formal professional development infrastructure. In a typical youth sport setting where none of these features exist, how can we expect a typical participation sport coach to ever become an expert? These points also force us to consider how coaches are different than sport instructors. The proposed definition suggests a consistent application of knowledge to improve athletes' competence, confidence, connection, and character in response to athlete needs. Therefore, sporadic interactions between an apprentice and an instructor, who teaches a specific skill (i.e., golf lessons), would fall outside the boundaries of this definition. We suggest that to be called a coach, an individual must be in contact with one or more athletes regularly for at least one sporting season with a goal of developing, not only athletes' competence, but also confidence, connection, and character.

Another issue with the proposed definition is the absence of a performance context for children or a "performance coach for children." Certain sports where peak performance is achieved before adulthood, such as women's gymnastics, figure skating, and diving, require a performance coach during childhood. We suggest that a performance coach for children, for early specialization sports such as gymnastics, diving, and figure skating, would share the characteristics of the performance coach for adolescents/adults (see Table 2). Although this performance environment can certainly be handled by some children, at a population level it involves a mismatch between children's developmental needs and coaching behaviours that leads to more dropout, injuries, and shorter careers than when children are trained by a competent participation coach for children [93-95].

The proposed definition also raises issues for how we might perceive coaches of professional athletes. Many professional teams around the world hire retired athletes to lead their team. Retired athletes have instant credibility because of their status as athletes, but often lack the knowledge required to develop their teams' competence, confidence, connection, and character. The main task of a coach of professional athletes is to manage the talent necessary to win championships and to make sure that fans are entertained. In this

context, coaches of professional athletes are 'managers of talent' with the primary goal of winning instead of developing their athletes' competence, confidence, connection, and character. Some coaches of professional athletes may exhibit behaviours consistent with the definition of coaching effectiveness; however, this is not inherently required in the professional context.

Finally, our definition of coaching effectiveness focuses on four distinct coaching contexts. These four contexts were proposed based on a general model of athlete development. We acknowledge that, ultimately, every relationship between a coach and athlete(s) constitutes a specific coaching context because of the different dynamics that exist. However, it is important to present at least four generic settings to guide policies and coaching expertise research. Variations of the four coaching contexts presented in this paper have been adapted by coaching organizations around the world, including Sport Coach UK in England, Coaching Ireland, and the European Coaching Framework.

CONCLUSION

This article addresses a critical issue relating to research on coaching by providing a definition that accounts for the factors that can differentiate between effective and ineffective coaches. The remaining challenge will be to uncover reliable and valid ways of assessing coaches' knowledge and athletes' outcomes in different contexts so that true comparative studies can be conducted. It has been our intent through this paper to underscore the important elements of coaching effectiveness and expertise by providing a definition that can be adopted by coaching organizations and extend the field of coaching research.

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