Self-Identified Teaching Styles of Junior Development and Club Professional Tennis Coaches in Australia.

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Abstract

Many educational theorists believe that there is no 'best' teaching style. A common principle in the discipline of coaching is that coaches should base their teaching style(s) on a number of considerations. These include: the developmental characteristics and individual requirements of the player, as well as the subject matter intent. Apart from anecdotal reports, however, the subject of tennis coaches and teaching styles remains unexplored. It is unknown what teaching styles coaches are employing during coaching sessions and whether these teaching styles are associated with recommended pedagogical principles advocated by scholars.Perhaps this noted lack of information regarding teaching styles is due to the theoretical and practical difficulty of comparing the various terms and interpretations that tennis coaches have in relation to their instructional processes. Arguably, many of these conceptions about teaching styles are not organised in a common theoretical framework but rather exist with the individual interpretations of tennis coaches. It has been anecdotally suggested that the terms used to define teaching styles largely lack consistency and uniformity and are frequently employed interchangeably. Conceivably, this has led to confusion and the absence of a definitive set of concepts and principles reflective of the tennis coaching process and effective practice within it. As diverse learning conditions and experiences are often created by employing different teaching styles, the necessity for coaches to understand and purposefully implement a range of teaching styles to achieve various learning objectives is vital. The requirement for a tennis coach to possess the capacity to employ a range of teaching styles when appropriate is perhaps reliant on a number of considerations. Coaches must be prepared to cater for the diversity of players' learning needs, interests, preferences and developmental readiness or stage of learning. Additionally, tennis involves learning aims from the psychomotor(physical/motor skill), cognitive (decision-making) and affective (enjoyment/motivation) domains. This might suggest the application of specific teaching styles to comprehensively develop each learning area. As no one teaching style encompasses all learning eventualities, an effective coach must have the capability to change, combine and transition between various teaching styles during sessions.

This chapter demonstrates how a conceptual model of teaching can be used to evalute and assist in the practice of pedagogical possibilities. It presents the findings of research completed on the self-identified teaching styles of 208 tennis coaches in Australia using Mosston and Ashworth's Spectrum of Teaching Styles (2008) as a basis for identification. Exploring the teaching styles of tennis coaches establishes a baseline of information and provides assistance to identify how the coach facilitates learning. Only an understanding and awareness of coaching behaviours does theorising with regards to current limitations become likely. The possible identification of different features within pedagogical behaviour among tennis coaches in Australia will be particularly crucial in the design of coach education programs and professional development initiatives. These findings may also extend relevance into sports coaching more broadly. Contrary to educational convictions and perceptions, however, the results from this study indicated a different view in relation to the recommended employment of a variety of teaching styles. Results from this study reveal that during their coaching sessions throughout the year, Junior Development and Club Professional tennis coaches predominantly use one teaching style that illicited

practice of a specific task described or modeled by the coach. This teaching style is named Practice Style-B. The predominant use of Practice Style-B strongly correlates with the pedagogical principles associated with direct instruction guidelines whereby the coach makes decisions about what the students are learning in addition to how and why they are learning it.

Introduction

Coaches are fundamental to the provision of sporting experiences. Each year, numerous coaching practitioners from around the world offer players of all ages and abilities assistance and direction that serve to fulfill their sporting requirements and goals. According to Lyle and Cushion (2010), alongside professions such as "teaching and medicine, coaching is one of the most ubiquitous services across the globe" (p.1). As a consequence there has been a significant expansion in coaching research (Gilbert & Trudel, 2004) that has positioned the discipline of coaching as a valid academic field of study (Lyle, 2002). In spite of this escalation in research coaching remains a vaguely-defined and under-researched field of endeavour (Lyle & Cushion, 2010). Notwithstanding lengthy investigations from numerous empirical and theoretical viewpoints (Gilbert & Trudel, 2004), much remains unknown with regards to coaching and instructional processes, positive or negative, across a range of settings and sports (Lyle, 2002; Cushion, Armour & Jones, 2006; Potrac, Jones & Cushion, 2007). Therefore, research that considers "what coaches do and why they do it, still offers much in developing our understanding about coaching" (p.44).

It can be contended that the concepts with regards to the various instructional processes available for tennis coaches to employ during their coaching sessions have been confused by the presence of various terms and coaching language (Reid, Crespo, Lay & Berry, 2007). Many of the commonly used terms lack consistency or uniformity and are usually viewed as interchangeable. Some of these terms include: command style, traditional approach, game-based approach, game-centred approach, situational method, self-discovery style, student-centred approach, teacher-centred approach, random practice and discovery style. Often their respective definitions are without conceptual agreement and exist within the individual perception of the tennis coach and the participant. This has possibly led to confusion and the absence of a definitive set of concepts and principles reflective of the tennis coaching process and effective practice within it. The lack of information regarding the practices and views of Australian tennis coaches is arguably due to the theoretical and practical difficulty of comparing multiple instructional processes. Many of these conceptions are not linked to a common theoretical framework. This chapter demonstrates how a conceptual model of teaching can be used to evalute and assist in the practice of pedagogical possibilities among coaches – thereby enhancing the instructional processes of coaches and the learning

outcomes of players. Using Mosston and Ashworth's *Spectrum of Teaching Styles* (2008) as a basis for identification, it presents the findings of research completed on the self-identified teaching styles of 208 tennis coaches in Australia.

Preparing coaches to function effectively is multifaceted and problematic. The complex nature of coaching must be fully understood in order to design relevant programs to adequately meet the diverse needs of the contemporary coach. Launder (2001) indicates that coaching is a highly complex discipline that requires a vast array of knowledge, personal capabilities, dispositions and skills to be brought together in a dynamic, flexible way to manage and orchestrate learning environments that are socially situated. He also suggests that:

> above all the coach must be the master of the instantaneous response in which professional and personal skills are skillfully fused and rapidly applied in complex environments to attain quality learner outcomes" (Launder, 2001, p.2).

A key feature of this pedagogical process are the activities that sports coaches have their players engage in and the instructional processes employed during these activities (Ford, Yates & Williams, 2010).

The manner which tennis coaches organise and configure practice, deliver information and offer feedback has been represented by numerous terms including: strategies, styles, approaches, frameworks and methods. Coach education manuals from the International Tennis Federation (ITF) and Tennis Australia (TA) describe teaching styles (command, direct, indirect and discovery) and coaching approaches (traditional, game-based, integrated, complex, total, holistic, constraints-based and modern) (Crespo & Reid, 2009; *Tennis Australia Learner Guide*, 2010). As all of these terms fundamentally focus on designing activities and learning experiences for students, the terms coaching approach and coaching style will be incorporated into the term teaching style. According to Ashworth (2010) a teaching style can be defined as:

> a plan of action that defines the specific decision interaction of the teacher or coach and the learner for the purpose of leading to the development of specific objectives in subject matter and behavior (S. Ashworth, personal communication, March 2, 2010).[1]

Tennis coaching has typically been represented by the coach dominating the decisions regarding the *how*, *why* and *what* of student learning. The coach usually explains, demonstrates, organises and conducts the lesson in addition to providing explicit feedback in order to correct players' errors (Crespo & Reid, 2009).

The term most commonly linked to this instructional process is direct instruction. Direct instruction implies a "highly structured, teacher-centered and controlled instructional environment" (Byra, 2006, p.452). According to Rink (2010), "highly active teaching, focused learning, and student accountability are inherent in the idea of direct instruction" (Rink, 2010, p. 152). Educators who implement direct instruction commonly perform the following:

- Break down skills into manageable, success-oriented parts
- Clearly describe and demonstrate exactly what the learner is supposed to do
- Design structured tasks for students to practice what is to be learned
- Hold students accountable for the tasks they present through active teaching and specific feedback
- Evaluate students and their own teaching on what the student has learned (Rink, 2010, p. 152).

Direct instruction is generally considered to be a teacher-centred approach to teaching and more associated with the explicit transmission of information from teacher to student. Other terms that have been used to describe this instructional process include: command, explicit, prescriptive and teacher-centred. Direct instruction has drawn significant research support as a process for the effective development of motor skills (French, Rink, Rikard, Lynn & Werner, 1991; Gustart & Sprigings, 1989; Housner, 1990; Silverman, 1991; Werner & Rink, 1989). According to Rink (2010) direct instruction is judged the most effective way to teach when "content has a hierarchical structure and is primarily basic–skill oriented and when efficiency of learning is a concern" (Rink, 2010 , p.153). Others have suggested that direct instruction may impede cognitive development as it marginalises the necessity of involving students in the learning process (Hellison &Templin, 1991). The claims regarding the virtues of direct instruction, however, must be considered in light of various impacting variables. These variables may include: the objectives of the coach, age of the player, skill level or stage of learning of the player, the size of the group being coached, motivation of the player and the complexity of the skill being learned (Bailey & MacFadyen, 2007).

An alternative instructional process that invites greater student decision-making in relation to the *how*, *why* and *what* of learning is indirect instruction. This type of instruction regards the coach as a facilitator where control of the learning process becomes shared between the player and coach. Players are encouraged to use problem-solving and explore solutions to various movement challenges. Indirect instruction normally involves one or more of the following notions:

- Content is presented more holistically. Instead of breaking down what is to be learned into many subskills, chunks of content more meaningful to the learner are used

- The student's role in the process of learning is usually expanded so that student thinking, feeling, or interaction skills are built into learning experiences designed by the teacher
- The individual nature of student abilities, interests, and needs receives more consideration (Rink, 2010, p.153).

Other terms such as: student-centred, implicit, inquiry and guided-discovery have been used to describe common pedagogical principles related to this instructional process. As direct instruction may not always be appropriate in all teaching settings, the employment of indirect instruction provides an alternative (Bailey & Macfadyen, 2007). Indirect instruction has been preferred over direct instruction when the objective of the lesson is to activate student learning in the *cognitive* (decision-making) and *affective* (enjoyment and motivation) domains. A major assumption of indirect instruction is that it offers more opportunity for learners to make decisions and be more involved in their own learning. It is also claimed that students will be engaged actively and creatively in a way that will lead to a more effective movement response that is adaptable and transferable to the sporting context (Rink, 2010). These learning assumptions in relation to discovery and inquiry instructional processes have prompted tennis coach education providers to promote indirect teaching styles that embrace a greater degree of meaningful learning and increased student involvement in the learning process (Crespo & Reid, 2009; *Tennis Australia Learner Guide*, 2010).

So what is the *best* teaching style for developing tennis players? This question has prompted considerable debate amongst tennis coaching practitioners. Players acquire knowledge in a variety of ways, originate from various cultural backgrounds, and arrive in sport at different ages with diverse movement experiences and abilities. Provided with these factors, it has been suggested that using only one teaching style is limiting (Rukavina & Foxworth, 2009). The requirement for a tennis coach to employ a range of teaching styles is perhaps embedded in a number of additional considerations. Tennis involves learning aims from the *psychomotor* (physical/motor skill), *cognitive* (decision-making) and *affective* (enjoyment/motivation) domains. Furthermore, lesson content and the context (such as age and ability) in which subject matter is practised may warrant a particular teaching style. It is strongly advocated that the behaviour of coaches act as an avenue to link player understanding to the content presented in the session (Hall & Smith, 2006). Consequently, it is crucial that coaches "consider the objectives of the session, so that he or she can determine whether given behaviours are relevant to the task" (Lyle & Cushion, 2010, p.52). The effective coach has the ability to:

> tailor their content and instruction to the specific learning readiness and interests of their students by integrating concepts and implementing teaching strategies that are responsive to the students' diverse needs (p.52).

One concept that advocates the development of coaching content, practices and behaviours specifically designed to cater to player needs is the notion of differentiation (Graham, 1995; Tomlinson, 1995, 1999). According to the differentiated instructional model (Tomlinson, 1999), coaches "respond to the needs of all learners, with consideration being given to the student's readiness, interest and capabilities" (Whipp, Taggart & Jackson, 2012, p.2). It is argued that this notion of "responsiveness to diversity rather than imposition of sameness in coaching" (Lyle & Cushion, 2010, p.52) has yet to entirely pervade the practices of coaches, with many adopting a *one size fits all* approach to coaching players (2010). However, the players circumstances and contexts are not necessarily all the same, therefore a *one size fits all* may not suffice as an effective instructional guideline (Amorose, 2007). Coaches who have the capacity to draw from a range of teaching styles, possess the capacity to be receptive, flexible and can differentiate their instructional processes are ideally positioned to augment learning outcomes for all their players (Cain, 1989). Due to these reasons it would appear necessary for coach education providers to understand which teaching styles tennis coaches are presently employing and if they are using a range of teaching styles as recommended by scholars. Apart from anecdotal reports, however, the subject of tennis coaches and teaching styles remains unexplored.

The importance of coaches basing their practice on a conceptual model has been well documented in the literature (Lyle, 2002; Mosston &Ashworth, 2008). A conceptual model provides a general design and logical approach to teaching and learning. It offers clarity around the purpose and arrangement of activities that promote increased student interest, cooperation, and managerial effectiveness and more legitimate assessments of learning (Metzler, 2000; Mosston & Ashworth, 2008). In relation to the benefits of using a common conceptual model Lyle (2002) has asserted:

> it is a necessary part of the development of a profession to have a (conceptual) model with which to demystify practice, to provide a common vocabulary, to form a basis for research and enquiry, to create a template for education and from which ideological approaches and individual value frameworks can fashion their contextual significance. There are many empirical questions that cannot be adequately framed as a consequence of the absence of such a [conceptual] model (Lyle, 2002, p.22).

Although Lyle (2002) places a strong emphasis on an agreed and intelligible arrangement of ideologies with which to evaluate coaching he argues that they should not be seen as resulting in a limited perspective on coaching. Personal differences are not negated by a shared model, and significant variety exists in relation to the employment of strategies, styles, frameworks and approaches. Central to a

conceptual model is the avenue to "describe, debate, compare and disseminate such differences" (Lyle, 2002, p.22).

It has been suggested that every field of scholarship requires a conceptual framework that provides accurate and consistent definitions and parameters (Goldberger, 1992). In the absence of consistency in terminology, "reliable communication, accurate implementation, and assessment of ideas are difficult if not impossible" (Mosston & Ashworth, 2008, p.3). A multitude of conceptual frameworks have been produced for physical education and sporting environments that have assisted in describing and organising the teaching process. For instance, Metzler (2000) identified seven different models of skill instruction with "each model designed to promote certain types of student learning outcomes. No one model does it all" (Metzler, 2000, p.160). The models identified by Metzler include: Direct Instruction, Co-operative Learning, Inquiry Teaching, Tactical Games, Peer Teaching, Sport Education, and Personalised Systems. Possibly the most comprehensive teaching style model is Mosston's *Spectrum of Teaching Styles* (Mosston & Ashworth, 2002). *The Spectrum of Teaching Styles* (2008) – from this point referred to as *The Spectrum* – is a pedagogical model that has been widely employed in Physical Education and has been refined since its development in the mid-1960s. It describes a *unified theory of teaching* that includes an array of landmark teaching styles that have been arranged on a continuum. The latest version of *The Spectrum* (2008) consists of 11 different landmark teaching styles which are represented by the corresponding letters, Command Style-A, Practice Style-B, Reciprocal Style-C, Self-Check Style-D, Inclusion Style-E, Guided Discovery Style-F, Convergent Discovery Style-G, Divergent Discovery Style-H, Learner-Designed Individual Program Style-I, Learner Initiated Style-J, and Self-Teaching Style-K (Mosston & Ashworth, 2008) (Figure 1).

Landmark styles

- Command (A)
- Practice (B)
- Reciprocal (C)
- Self-Check (D)
- Inclusion (E)
- Guided Discovery (F)
- Convergent Discovery (G)
- Divergent Discovery (H)
- Learner-Designed Individual Program (I)
- Learner-Initiated (J)
- Self-Teaching (K)

Figure 1: The 11 landmark teaching styles on *The Spectrum* (2008)

The structure of *The Spectrum* (2008) is underpinned by the central premise that "teaching is governed by a single unifying process: decision-making" (Mosston & Ashworth, 2008, p.8). Every deliberate act of teaching is a result of a previous decision. For example:

> how we organize students; how we organize the subject matter; how we manage time, space, and equipment; how we interact with students; how we choose our verbal behaviour; how we construct the social-affective climate; and how we create and conduct all cognitive connections with the learners (Mosston & Ashworth, 2008, p.8).

Mosston organised these many possible decisions into three main sets that comprise the *anatomy of any style.* These sets are identified as: *pre-impact set*, *impact set*, and *post-impact set*. The *pre-impact set* involves making decisions in relation to the planning of the teacher learner interation. The *impact set* relates to implemention of the decisions that occur during the teacher learner face-to-face interaction. The *post-impact set* refers to assessment decisions that can occur at any point during the face-to-face interaction by either the teacher or the learner and assessment decisions about the overall learning experience that occurs after the face-to-face interaction. (Mosston & Ashworth, 2008) (Figure 2).

The anatomy of any style

- **Pre-impact set –** planning decisions
- **Impact set –** implementation decisions
- **Post-impact set –** assessment decisions

Figure 2: The anatomy of any style

It is possible for the teacher and the learner to formulate decisions in any of the decision sets that are defined in the *anatomy of any style*. When the majority of decisions in a decision set are being made by one decision maker (i.e., the learner), that individual's decision making capacity is at *maximum* while the other person in the interaction (i.e., the teacher) is considered at *minimum* (Mosston & Ashworth, 2008, p. 9). By identifying who (i.e., the teacher or learner) makes which decisions, actual teaching styles emerge. For instance, if the teacher formulates all the decisions and the learner follows the teacher's determinations, the Command Style-A is created. In the Command Style-A the teacher offers explicit instructions including pace and rhythm for a given activity or endeavour. The learner conforms by executing the directives accurately to achieve an exact performance. This decision configuration produces opportunities to participate in a particular set of learning objectives. Consequently, the organisation of

decisions in each of the *landmark* teaching styles influences students in distinctive ways by designing situations for varied experiences related to human qualities "along the cognitive, social, physical, emotional, and moral developmental channels" (Mosston & Ashworth, 2008, p.11). Each teaching experience affords the learner to share in and develop specific human qualities along one or many of the *developmental channels* (Figure 3).

The developmental channels

- Physical channel
- Social channel
- Emotional channel
- Cognitive channel
- Moral channel

Figure 3: The developmental channels

Two basic thinking capacities are reflected within the structure of *The Spectrum* (2008) – the capacity for *reproduction* and the capacity for *production*. All human beings have, in varying degrees, the capacity to reproduce known knowledge, replicate models, recall information, and practice skills. Additionally, all human beings have the capacity to produce a range of new ideas. The first five *landmark* teaching styles (Command Style-A, Practice Style-B, Reciprocal Style-C, Self-Check Style-D, and Inclusion Style-E) form a *cluster* that represents teaching options that foster *reproduction* of existing (known, past) information and knowledge. The information to be learned can also be new to the learner but the content is fixed, specific, a model or procedure. The remaining landmark teaching styles (i.e., Guided Discovery-F, Convergent Discovery Style-G, Divergent Discovery Style-H, Learner-Designed Individual Program Style-I, Learner-Initiated Style-J, and Self-Teaching Style-K) form a *cluster* that represents options that invite *production* (discovery) of new knowledge – this knowledge is new to the learner, it may be new to the teacher, or at times, new to society (Mosston & Ashworth, 2008) (Figure 4).

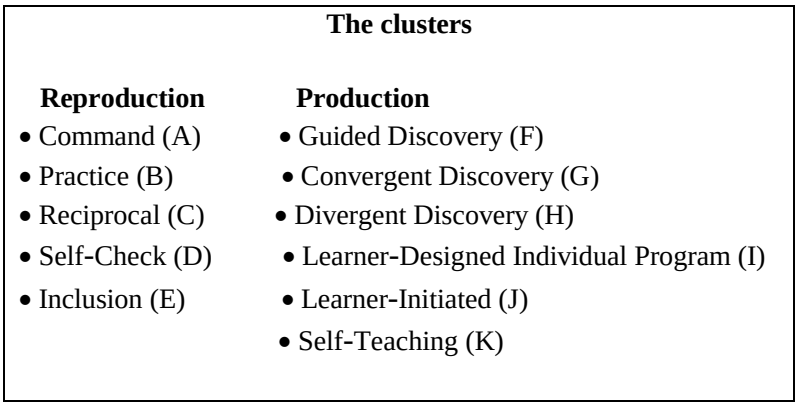

Figure 4: The *reproduction* and *production clusters* on *The Spectrum* (2008)

The line of demarcation between these two *clusters* is called the *discovery threshold*. The *discovery threshold* identifies the cognitive boundaries between each *cluster* (Mosston & Ashworth, 2008) (Figure 5).

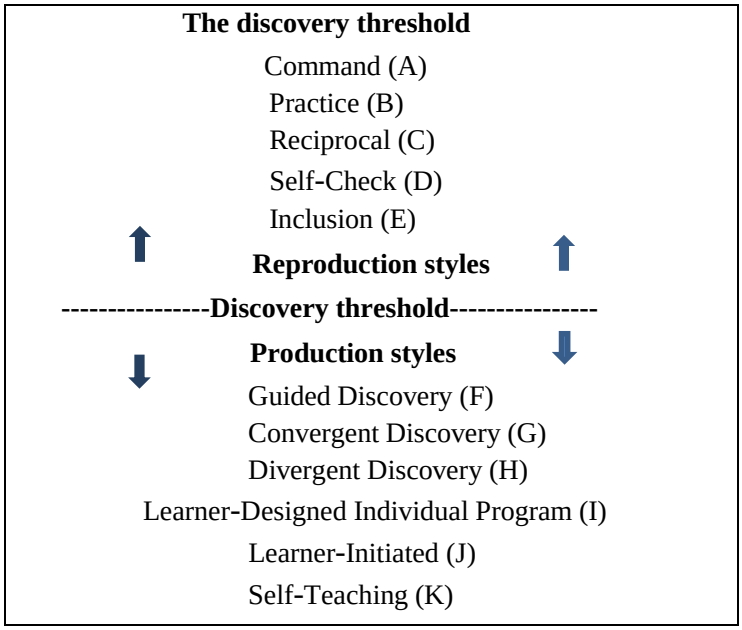

Figure 5: The *discovery threshold* on *The Spectrum* (2008)

Each of the *landmark* teaching styles on *The Spectrum* (2008) function as indictors that represent considerably different teaching and learning experiences. Located between the *landmark* teaching styles are many, if not an infinite number, of teaching and learning experiences called *canopy designs* (Figure 6). *Canopy designs* exist between all *landmark* teaching styles and are not considered less relevant or essential than the *landmark* teaching styles (Ashworth, 2010, 2004). The primary focus of this paper, however, is on

the *landmark* teaching styles on *The Spectrum* (2008). Exploring the details associated with *canopy designs* will be undertaken as part of a larger doctoral study.

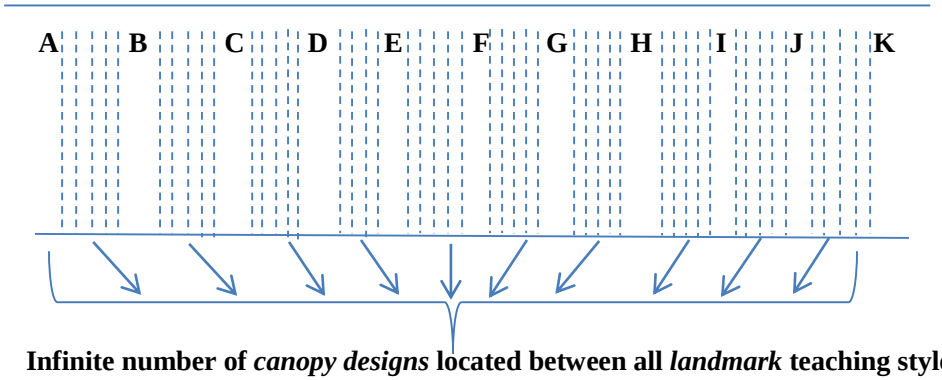

Figure 6: The infinite number of *canopy designs* between all *landmark* teaching styles

A diagramatical overview of the general structure of *The Spectrum* (2008) is provided in Figure 7.

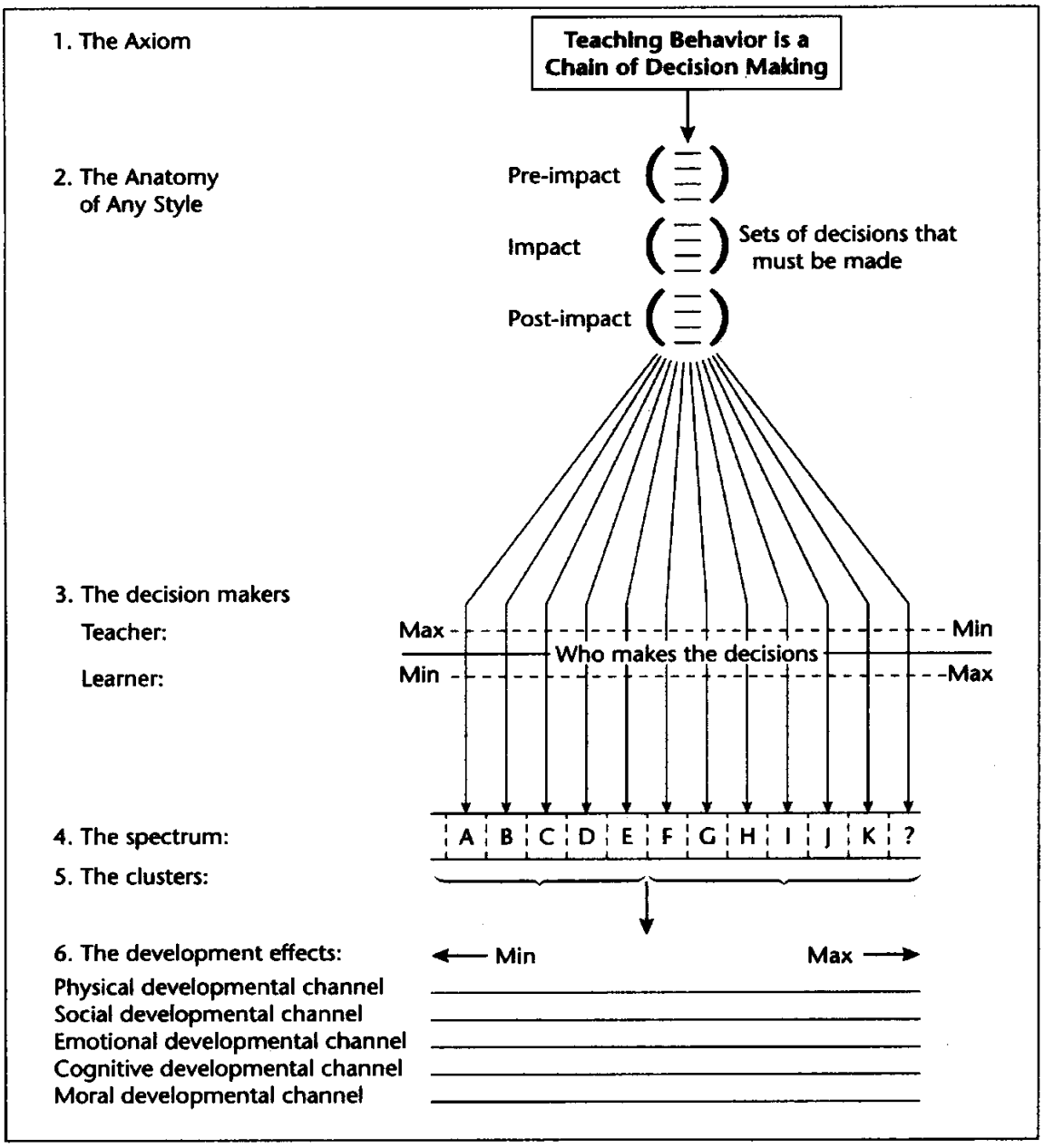

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Figure 7: The general structure of *The Spectrum* (Mosston & Ashworth, 2008, p.10)

A significant proportion of early research during the 1970s conducted on *The Spectrum* (2008) focused on investigating "the process-product research paradigm to investgate relationships between teacher behaviour and learner achievement or the efficacy of different methods" (Chatoupis, 2010, p.83). Early

research on *The Spectrum* (2008) was founded on that process-product view which tested "the hypothetical relationships between particular teaching styles and certain learning outcomes" (p.83). According to Chatoupis (2010) the principle features of these initial research endeavours consisted of:

- Research that involved the implementation of two or more teaching styles from the *reproduction cluster* (Self-Check Style-C was not researched)
- Measurement of of fitness/motor skill development related to various sports (gymnastics, alley soccer, softball, hockey, archery, tennis), social/self-concept development and attitude, and
- Data analysis. The pretest-posttest group design predominantly involving elementary school children in fifth and sixth grades (p.83).

With regards to these early research studies Chatoupis (2010) asserted that all the studies "suffered from methodological and statistical flaws" (Chatoupis, 2010, p.83). Byra (2002) submitted that these shortcomings possibly contributed to the many "methodological problems that plagued the early Spectrum research" (Byra, 2002, p.321). He summarised these as:

> (a) Inadequate definition of experimental treatment, (b) inadequate control over treatment applications, (c) adoption of abbreviated treatment periods, often too short to promote any change in student learning, (d) the use of college students as study participants rather than elementary and secondary students, and (e) research conducted by graduate students rather than experienced university researchers (p.321).

Despite these inadequacies, research contributed to guiding current researchers to "more accurately and thoroughly understand the theoretical premises underlying the teaching styles" (Chatoupis, 2010, p. 85), as well as "conduct more valid research questions about *The Spectrum* and appropriate research methods" (p.85). Much of the research on *The Spectrum* (2008) that has been conducted since 1980 share common features with earlier research initiatives with regards to teaching styles used or student outcomes measured. In spite of these similarities, the more recent era of studies,"address more diverse and varied questions concerning multiple human dimensions and domains of learner development than in the 1970s" (Chatoupis, 2010, p.85). Moreover, teaching styles are investigated with learners of diverse ages and capabilties. In addition to these advancements, researchers have "begun to cross the discovery threshold and investigate teaching styles from the Production cluster" (p.85).

Although research has recognised the contributions of *The Spectrum* (2008) to physical education pedagogy (Goldberger, 1992; Graber, 2001), the work of Mosston has been subject to critique. While some scholars have attempted to develop or elucidate *The Spectrum* (2008) (Crum, 1985; Digelidis, 2006; Krug, 1999) others have highlighted what they consider to be problems associated with it. A number of

sports pedagogy writers (Metzler; 2000; Sicilia-Camacho & Brown, 2008; Williams, 1996) have identified various problematic issues. It has been suggested that *The Spectrum* (2008) places an overemphasis on teacher behaviour by illustrating in detail what the teacher is expected to do when a particular *landmark* teaching style is being employed (Metzler, 2000). This outcome is believed to result in discounting student process behaviour which largely affects achievement and instructional success. In addition, *The Spectrum* (2008) has been criticised for a distinct lack of sequential description of student and teacher behaviours. In other words, it fails to adequately provide a description of the sequence in which teacher and student behaviour are meant to occur within any *landmark* teaching style (Hurwitz, 1985). Realising the precise sequence in which these behaviours occur is crucial to planning (Hurwitz, 1985). Furthermore, criticism in relation to neglecting the context of learning has been levelled at *The Spectrum* (2008). Williams (1996) claims that the learning styles of students are not considered. They argue that more effective learning is realised when the *landmark* teaching style employed is consistent with the favoured learning style of the student (Williams, 1996). The shift from the *versus* (i.e., teaching styles viewed as oppositional) to *non-versus* (i.e., teaching styles viewed as non-oppositional) is viewed by some sports pedagogists as a significant paradigm shift in *The Spectrum's* (2008) conceptual foundation. This adjusted conceptual basis of *The Spectrum* (2008) shifted away from the original idea of:

> facilitating the independent, decision-making individual, towards the idea that each style has its own place in reaching a plethora of discrete, differentiated objectives each of which might be achieved by using single styles (Sicilia-Camacho & Brown, 2008, p.91).

It is claimed that these revisions to *The Spectrum* (2008) "changed the very meaning and the concept of what had hitherto been understood as a teaching 'style' in a strongly universalising direction" (Sicilia-Camacho & Brown, 2008, p.93).

In spite of these criticisms – which is beyond the scope of this chapter and will not be analysed here – *The Spectrum* (2008) has been embraced and implemented by educators in many countries and widely used as a framework for teaching in the domain of teaching Physical Education (Chatoupis & Emmanuel, 2003; Franks, 1992; Krug, 1999). In fact, in Sicilia-Camacho and Brown's (2008) critical pedagogical perspective, it is suggested that *The Spectrum* (2008) theory has made a significant contribution "to education and Physical Education more generally" (Sicilia-Camacho & Brown, 2008, p.96). In a discipline that possesses a marked lack of feasible teaching frameworks (Metzler, 2000) *The Spectrum* (2008) has been celebrated for providing "a set of teaching models, a widely accepted and understood language and a clear model for decision-making" (Metzler, 2000, p.147). It has also provided scholars with a framework to methodically research teaching and learning (Byra & Jenkins, 1998; Pieron, 1995).

The implementation of *The Spectrum* (2008) to code the participants' teaching styles provides an impartial and unprejudiced conception of any teaching style. This notion is based on Mosston's *non-versus* approach which stipulates that no teaching style is inherently more or less effective than another. More precisely, each teaching style, "because of the unique learning conditions it fosters, is either more or less appropriate given the purposes, the context in which it is presented, and the learners involved" (Goldberger, Ashworth & Byra, 2012, p.269). Those who are familiar with *The Spectrum* (2008) have the capacity to observe:

> any teaching-learning encounter and, with a good degree of accuracy and reliability, agree on which decisions were made by the teacher and learner, and which decisions were not made by anyone, and thus can identify the approximate position of this particular teaching-learning encounter along the decision making continuum (Goldberger, Ashworth & Byra, 2012, p.269).

In relation to this study *The Spectrum* (2008) has provided an ideal and relevant framework with which to explore the teaching styles of tennis coaches in Australia.

While research has indicated the increasing importance of teachers' and coaches' mastery of various teaching styles, only a limited number of studies have focused on the self-identified practices of physical education teachers using *The Spectrum* (2008) (Kulinna & Cothran, 2003; Cothran, Kulinna, Banville, Choi, Amade-Escot, MacPhail, Macdonald, Richard, Sarmento, & Kirk, 2005; Macfadyen, & Campbell, 2005; SueSee, 2012; Jaakkola & Watt, 2011). It would appear that to date no published research has attempted to explore the self-identified use of teaching styles that Australian tennis coaches employ during coaching sessions throughout the year. This paper provides information that will be relevant to educators in various pedagogical and sporting contexts.

Research Design

The proposed methodology in this research has been selected to specifically address the issues of tennis coaches and teaching styles. The research questions which this study was designed to answer were:

1. What teaching styles do Junior Development (JD) and Club Professional (CP) tennis coaches in Australia believe they are using during coaching sessions throughout the year?
2. Are JD and CP tennis coaches in Australia using a range of teaching styles during coaching sessions throughout the year?
3. What is the primary teaching style for JD and CP tennis coaches in Australia?

This paper forms part of a larger doctoral study. Further research will include the observation of coaches to verify the teaching styles they use as well as interviewing coaches to reveal insights into how they decide what teaching styles to use and when to use them. Consequently, additional research questions have been developed to explore these areas. A preliminary review of the interview data indicated agreement between respondents that multiple instructional processes exist for coaching tennis. The interviews also demonstrated that the coaches' interpretations and definitions of these processes lacked consistency and were often used interchangeably. Furthermore, the interviews indicated that coaches were largely unaware of *The Spectrum (2008)*.[2] An initial examination of the observational data has revealed significant discrepencies between the teaching styles that coaches believed they were employing and the teaching styles that were observed.

Research method

This study employed a survey questionnaire to determine which teaching styles Australian tennis coaches reported using. The survey questionnaire used an adapted *description inventory of landmark teaching styles* (Hewitt, Edwards & Ashworth, 2011) of Ashworth (2010, 2004) *Description inventory of landmark teaching styles: A spectrum approach* (United States) and SueSee, Ashworth and Edwards (2007) *Instrument for collecting teachers' beliefs about their teaching styles used in physical education: Adaptation of description inventory of landmark teaching styles: A spectrum approach* (Brisbane, Australia).

The *description inventory of landmark teaching styles* provides a *scenario description* of each of the *11 landmark* teaching styles. These *scenario descriptions* provide unequivocal descriptions that closely portray the image of each of the *landmark* teaching styles (Mosston & Ashworth, 2008). The adaptations employed to the *description inventory of landmark teaching styles* used in this study were implemented to more directly connect to the field of coaching. Permission was granted by Prof. Sara Ashworth, Associate Prof. Ken Edwards and Dr Brendan SueSee to employ the changes. The survey questionnaire instrument developed by Hewitt, Edwards and Ashworth (2011) is published on *The Spectrum of Teaching Styles* website (www.spectrumofteachingstyles.org/). This document is titled: *Instrument for collecting coaches' self-identified beliefs in relation to the teaching styles they use during coaching sessions throughout the year* (Hewitt, Edwards & Ashworth, 2011).

The survey questionnaire consisted of two parts. The first part of the questionnaire (Part A) posed questions relating to socio-demographic information. These questions included: *Gender, Age,* and *State/Territory where you currently coach.* The second part of the questionnaire (Part B) then presented

one question relating to the *description inventory of landmark teaching styles.* The question was: *'How frequently do I use this landmark teaching style in my coaching sessions throughout the year?'* A five-point rating scale was used for participant ratings. The items used for the question consisted of: *Not at all, Minimally, Here and there, Often and Most of the time* (Figure 7).

Landmark Teaching Style	**Scenario Description of Landmark Teaching Style**				
A	**The students perform the task, selected by the coach, in a unison, choreographed, or precision performance image following the exact pacing (cues) set by the coach.**				
How frequently do I use this landmark teaching style in my coaching sessions throughout the year?	**Not at all**	**Minimally**	**Here and there**	**Often**	**Most of the time**
	1	**2**	**3**	**4**	**5**

Figure 7**:** An example of one scenario description from the description inventory of landmark teaching styles (2010) which shows a five-point rating scale used to measure how frequently a landmark teaching style was used.

Tennis Australia (TA) conducts three formal certification tennis coaching courses. Participants for this study were recruited from two of the coaching courses. The formal certification coaching courses used were the Junior Development (JD) and Club Professional (CP) courses. These two courses were chosen as they cater for different levels of coaching knowledge and experience. All coaches that were enrolled in the JD and CP formal certification courses in Australia between 2009 and 2011 were invited to participate. Participants enrolled in the JD course are largely inexperienced coaches with limited coaching knowledge who are commencing their coaching careers. Alternatively, the participants enrolled in the CP course posses a greater degree of coaching knowledge and experience. Recruiting coaches from different formal certification tennis coaching courses offered a broader perspective of insights into the participants' teaching styles that are employed during coaching sessions throughout the year. Overall a total of 208 tennis coaches enrolled in the JD formal certification tennis coaching course (n=130) and the CP formal certification course (n=78) agreed to participate in the study. A total of 171 (82.2%) respondents were male and 37 (17.81%) were female. The mean age for the respondents completing the JD (n=130) and CP (n=78) formal certification tennis coaching courses was 23 years and 31 years respectively. The mean age of the total sample (n=208) was 27 years.

Data collection

The survey questionnaires were distributed to the participants via their local Coach Development Coordinator (CDC). As the researcher resides in the State of Victoria, the participants located in Victoria were invited to complete the survey by the researcher. For courses that were conducted interstate, surveys were emailed to each Coach Development Coordinator (CDC), who then invited the coaches to participate in the study. All coaches who agreed to participate in the study were provided with: a formal letter of invitation and plain language statement, and the survey questionnaire. The interstate coaches were additionally provided with a PowerPoint slide presentation with audio that explained the study. All the completed surveys from coaches in Victoria were directly collected by the researcher. The completed surveys from interstate were collected by the CDCs and posted to the researcher. The response rate for the survey questionnaires was 100 percent. This remarkable outcome is perhaps largely due to two factors. To begin with, the assistance provided by Tennis Australia (TA) and the various CDCs ensured that the participants were afforded time during the formal certification course hours to complete the survey. Furthermore, the material canvassed in the survey questionnaire closely related to the course objectives and outcomes. As a result, the participants were perhaps eager to engage with the subject matter presented in the survey questionnaires.

Results

Table 1 shows the breakdown of responses for data collected with the survey questionnaire. The teaching styles from *The Spectrum* (2008) are listed in the first column.

Table 1: The total breakdown and percentages of all tennis coaches' self identified usage of *landmark* teaching styles after reading the scenario descriptions (n=208)

Self-Identified usage of teaching styles by all tennis coaches' after reading the scenario descriptions (n=208)											
Teaching Style	**Not at All**	**%**	**Minimally**	**%**	**Here and there**	**%**	**Often**	**%**	**Most of the time**	**%**	**Total Coaches**
Command Style-A	**4**	**1.9**	**36**	**17.3**	**62**	**29.8**	**93**	**44.7**	**13**	**6.3**	**208**
Practice Style-B	**3**	**1.4**	**25**	**12**	**58**	**27.9**	**100**	**48.1**	**22**	**10.6**	**208**
Reciprocal Style-C	**43**	**20.7**	**73**	**35.1**	**55**	**26.4**	**33**	**15.9**	**4**	**1.9**	**208**
Self Check Style-D	**40**	**19.2**	**62**	**29.8**	**62**	**29.8**	**42**	**20.2**	**2**	**1.0**	**208**
Inclusion Style-E	**49**	**23.6**	**56**	**26.9**	**48**	**23.1**	**51**	**24.5**	**4**	**1.9**	**208**
Guided Discovery-F	**15**	**7.2**	**40**	**19.2**	**57**	**27.4**	**78**	**37.5**	**18**	**8.7**	**208**
Convergent Discovery Style-G	**26**	**12.5**	**52**	**25.0**	**81**	**38.9**	**42**	**20.2**	**7**	**3.4**	**208**
Divergent Discovery Style-H	**9**	**4.3**	**39**	**18.8**	**84**	**40.4**	**67**	**32.2**	**9**	**4.3**	**208**
Learner Designed Individual Program Style-I	**57**	**27.4**	**76**	**36.5**	**54**	**26.0**	**20**	**9.6**	**1**	**0.5**	**208**
Learner Initiated Program Style-J	**63**	**30.3**	**85**	**40.9**	**50**	**24.0**	**9**	**4.3**	**1**	**0.5**	**208**
Self Teaching Style-K	**73**	**35.1**	**69**	**33.2**	**51**	**24.5**	**14**	**6.7**	**1**	**0.5**	**208**

Respondents to the questionnaire had been requested to first read the *scenario description* that provides an unequivocal depiction of the image of each of the *landmark* teaching styles (Mosston &

Ashworth, 2008). Respondents were then requested to indicate how often they used this *landmark* teaching style in their coaching sessions throughout the year. A comparison of the self-identified teaching styles of JD and CP tennis coaches who reported using the *landmark* teaching styles, *Often* to *Most of the time* is shown in Table 2.

Table 2: Percentage of Junior Development and Club Professional tennis coaches' self-identified use of landmark teaching styles *Often* to *Most of the time*.

Landmark Teaching Styles	**Percentage of Junior Development tennis coaches' self-identified use of *landmark teaching styles: Often* to *Most of the time* n=130**	**Percentage of Club Professional tennis coaches' self-identified use of *landmark* teaching styles: *Often* to *Most of the time* n=78**
Command Style-A	**50.3%**	**52.8%**
Practice Style-B	**60.1%**	**63.5%**
Reciprocal Style-C	**15.1%**	**20.3%**
Self Check Style-D	**19.8%**	**20.3%**
Inclusion Style-E	**23.1%**	**32.4%**
Guided Discovery Style-F	**41.8%**	**41.9%**
Convergent Discovery Style-G	**22%**	**23%**
Divergent Discovery Style-H	**27.5%**	**45.9%**
Learner Designated Individual Program Style-I	**8.8%**	**8.2%**
Learner Initiated Program Style-J	**5.5%**	**0%**
Self Teaching Style-K	**11%**	**1.4%**

The Practice Style-B is reported by respondents as their most frequently used teaching style This teaching style was employed from *Often* to *Most of the time* by over 60 percent of the participants. Results also reveal that JD and CP coaches spend most of their time using teaching styles located in the *reproduction cluster* of *The Spectrum* (2008). With the exception of the Divergent Style-H and the Self Teaching Style-K, participants from both formal certification coaching courses reported similar frequencies of teaching style usage.

Discussion

Tennis coaches reported to using all of the teaching styles in their coaching sessions throughout the year. At first glance this may seem that coaches are employing a range of teaching styles. However, on closer inspection a more accurate interpretation emerges. Only one teaching style was employed from *Often* to *Most of the time* by over 60 percent of JD and CP tennis coaches. This was the Practice Style-B. The

Command Style-A was ranked second with over 50 percent of all coaches reportedly using this teaching style from *Often* to *Most of the time*. Both of these teaching styles are located in the *reproduction* cluster of *The Spectrum* (2008) and share similarities with direct instruction guidelines. Coaches who employ direct instruction enforce the majority of the instructional decisions during the lesson and students are directed to acquire and use this knowledge in ways stipulated by the coach. Despite coaches reporting the use of Reciprocal Style-C (JD=15.1%, CP=20.3%) and Self-Check Style-D (JD=19.8%, CP=20.3%) during coaching sessions, significant reservations exist as to whether strict adherence to the pedagogical principles representative of these styles were actually realised. The accurate adoption of Reciprocal Style-C and Self-Check Style-D demand the employment of a prepared (written) checklist for students to follow.[3] It is suspected, however, that practitioners believe they are correctly implementing this style even though they might be employing a ***verbal*** checklist for students to remember and follow.[4]

Although coaches reported to using teaching styles in the *production cluster* less frequently, two teaching styles from this *cluster* were in the four most commonly employed by coaches. These included: Guided Discovery Style-F (JD =41.8%, CP=41.9%) and Divergent Discovery Style-H (JD=27.5%, CP=45.9%). These teaching styles share similarities with discovery instruction guidelines whereby the teacher includes the students in decision-making to promote discovery and creativity of knowledge and skills (Mosston & Ashworth, 2008**)**. It has been suggested, however, that Guided Discovery Style-F is the most demanding teaching style to implement.[5] A detailed description of the concepts that coaches use in their Guided Discovery Style-F lessons may in fact reveal that fewer coaches accurately implement the pedagogical principles of this style.[6] It is also plausible that given the similarity in name that Guided Discovery Style-F shares with some instructional processes common to tennis, coaches may view the terms as comparable. For instance, Australian tennis coach accreditation manuals (*Tennis Australia Learner Guide*, 2010; Crespo & Reid, 2009) refer to discovery teaching styles. This instructional process fundamentally promotes the use of coach-led questions to solve challenges and stipulates greater student involvement in the learning process. These findings, however, have been reported as quite common amongst teachers and coaches. According to Ashworth (2012):

> Guided discovery is a teaching style most teachers/coaches think they do a lot of … the name is very familiar and they know it has to do with asking questions … they ask a lot of questions – so they think they are using Guided Discovery … but few represent Guided Discovery (S. Ashworth, personal communication, April 16, 2012).

The results from this study are similar to related research that focused on the self-identified teaching styles of physical education teachers (Hasty, 1997; SueSee, 2010). Mosston and Ashworth (2008) also support the findings of this study indicating that "although teachers believe they use a wide variety of alternative behaviors in the classroom, they are, in fact, significantly uniform in their teaching behavior" (Mosston & Ashworth, 2008, p.293).

The findings of this study have implications for coach education curriculum initiatives as well as future professional development opportunities. Australian tennis coach accreditation manuals (*Tennis Australia Learner Guide*, 2010; Crespo & Reid, 2009) recommend that tennis coaches should combine the use of direct and discovery teaching styles with the latter nominated as the ***preferred*** teaching style. The predominant use of teaching styles in the *reproduction cluster* (as reported by coaches) is not necessarily compatible with the favoured teaching processes identified in these publications. The results of this research, however, must be interpreted cautiously. Differences between what people believe they do and what they actually do (Cothran et al., 2005; Mosston & Ashworth, 2008) may account for potential variance in this study. It is also conceivable that some respondents lacked an understanding of and/or misinterpreted the *scenario descriptions* used in the survey questionnaire. For instance, coaches reported usage of the Self-Teaching Style-K which was indicated despite Mosston and Ashworth (2008) stating that "this teaching style does not exist in the classroom" (Mosston & Ashworth, 2008, p.290). Additionally, the *scenario description* used in the survey questionnaire to describe Self-Teaching Style-K clearly states that "this style is independent of a coach and not initiated by a coach" (Hewitt, Edwards & Ashworth, 2011).

Conclusion

This chapter has demonstrated how a conceptual model of teaching can be used to evalute and assist in the practice of pedagogical possibilities. Using Mosston and Ashworth's *Spectrum* (2008) as a basis for identification, it presents the findings of research completed on the self-identified teaching styles of 208 tennis coaches in Australia. Exploring the teaching styles of tennis coaches establishes a baseline of information and provides assistance to identify how the coach facilitates learning. Only an understanding and awareness of coaching behaviours does theorising with regards to current limitations become likely. The possible identification of different features within pedagogical behaviour among tennis coaches in Australia will be particularly crucial in the design of coach education programs and professional development initiatives. Results from this study indicated that JD and CP tennis coaches predominantly use one teaching style (Practice Style-B) during their coaching sessions throughout the year. It was also revealed that all coaches spent most of their time using teaching styles located in the *reproduction cluster*

of *The Spectrum* (2008). These teaching styles share common pedagogical principles associated with direct instruction guidelines whereby the coach makes decisions about what the students are learning in addition to how and why they are learning it. As no one teaching style encompasses all learning eventualities, an effective coach must have the capability to change, combine and transition between various teaching styles during sessions. In this case, programs could be developed to educate coaches in the value of utilising a range of teaching styles. Guidelines could be developed that inform coaches on the most effective teaching styles to employ depending on the content and context (such as age and ability of students) of the lesson in addition to the interests and developmental readiness of players. It would appear that to date no published research has attempted to explore the self-identified teaching styles that Australian tennis coaches employ during coaching sessions throughout the year. Perhaps this lack of information regarding teaching styles is due to the theoretical and practical difficulty of comparing the various terms and interpretations that tennis coaches have in relation to instructional processes. Many of these conceptions about teaching styles are not organised in a common theoretical framework. This has arguably led to the absence of a definitive set of concepts and principles reflective of the tennis coaching process and effective practice within it. This aspect of the extended doctoral study has additionally highlighted that through an awareness of a range of teaching styles, coaches may gain a better understanding of their instructional processes and how their coaching can be changed, modified, or supported to maximise their interactions with students. These findings may also extend relevance into sports coaching more broadly. The information outlined in this paper forms part of a larger doctoral study. Further research will include the observation of coaches to verify the teaching styles they use as well as interviewing coaches to reveal insights into how they decide what teaching styles to use and when to use them.

Notes:

[1] The term teaching style is synonymous with the terms coaching approach and coaching style in this paper.

[2] Preliminary data from 12 tennis coaches that were interviewed revealed that none of the respondents were familiar with *The Spectrum* (2008).

[3] The use of a ***written*** criteria checklist is considered a crucial ingredient in the accurate implementation of Reciprocal Style-C and Self-Check Style-D

[4] Prof. Sara Ashworth has indicated that some coaches may believe that they are correctly implementing Reciprocal Style-C and Self-Check Style-D in their lessons despite employing a ***verbally*** stated criteria checklist for students to follow and remember.

[5] Prof. Sara Ashworth has indicated that Guided Discovery Style-F is the most difficult teaching style to employ.

[6] Given the complexities of Guided Discovery Style-F, Prof. Sara Ashworth has suggested that the accurate implementation of this teaching style is unlikely amongst tennis coaches that are unfamiliar with the style's concepts.

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