



COMFORT ZONES AND OPTIMAL CHALLENGE POINTS: PERSPECTIVES FROM CANADIAN UNIVERSITY WOMEN'S BASKETBALL COACHES

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Abstract:

Abundant research has found that athletes' mental states impact performance and learning. This paper examines two aspects of players' mental health: comfort zone and optimal challenge point. While comfort zones have been examined previously and are relatively common in both academic and popular culture, the optimal challenge point (OCP) framework has been less well researched, particularly in relation to team sports. This study examined awareness and use of comfort zones and OCP specifically among Canadian university women's basketball coaches. This sector was chosen as it represents university coaches in Canada while still comprising a relatively small potential sample. Results of the study show that although the respondent coaches generally are well aware of and use the concept of comfort zones in their coaching, OCP remains less well known despite coaches' use of many of its principles in their respective practices.

Keywords: comfort zone, optimal challenge point, coaching, basketball, player psychology

1. Introduction

This paper examines connected concepts in women's basketball: comfort zones and challenge points. The term comfort zone was coined (though not defined) by Bardwick (1991). White (2008) defines comfort zone as "*a behavioral state within which a person operates in an anxiety-neutral condition, using a limited set of behaviors to deliver a steady level of performance, usually without a sense of risk*" (p. 2). For athletes, the comfort zone is principally psychological, although there are some physiological dimensions related to their skill levels.

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Challenge points are related to motor skill learning. The optimal challenge point (OCP) framework (Guadagnoli & Lee, 2004) identifies each athlete's OCP in motor skill learning based on task difficulty, skill level of the athlete, and contextual interference. Contextual interference can be manipulated by the coach to assist each athlete in reaching their OCP, which is the point at which the athlete receives the greatest level of interpretable information about their performance. Challenge points have both physiological and psychological dimensions.

This paper explores the perspectives of Canadian university women's basketball coaches with respect to the concepts of comfort zone and challenge points.

2. Literature Review

The constructs *comfort zone* and *optimal challenge points* are interrelated. Comfort zones represent starting points for growth; challenge points identify optimal ways for growth, particularly in motor skill development. This section of the paper outlines the extant literature on the constructs.

2.1 Comfort Zone

The term comfort zone has entered the vernacular as a safe, secure space in which individuals possess the necessary abilities and skills to accomplish tasks, without being subject to significant stress. Still, the term often is used without a clear definition or any supporting evidence. When Bardwick (1991) coined the term in reference to the American business environment, it had a distinctly negative connotation. Bardwick identified the comfort zone as a zero-growth zone connoting apathy, stagnation, entitlement, and aversion to risk-taking. However, in their comfort zone, athletes are confident in their skills and abilities and experience little to no stress in accomplishing their tasks. There are instances in which this is valuable for athletes. For example, baseball pitchers in their comfort zone have a confident command of all their pitches and can function without undue distress. In basketball, a player shooting free throws will function more effectively if they are in their personal comfort zone, performing a task for which their skills and abilities are eminently qualified and have been practised to the point that there is very little stress involved in the activity. In both such cases, there is no stress-related pressure on the athlete to accomplish the task based solely on the task, although contextual factors such as game situation and score may induce additional stress.

Comfort zones have been examined in areas including business education (Cassell, 2018); research techniques (McSweeney & van Luijk, 2019); teaching (Starks *et al.*, 2011; Zeuch, 2014); performance management (White, 2008); and student-athlete course selection (McCarthy, 2015). Most of this research involves the need to move beyond personal comfort zones in order to grow. The issue raised regarding the comfort zone is that it represents an area of low or no growth. For athletes to grow their skills, they need to go beyond their personal comfort zone, seek out challenges, and take risks. Initially, this may give rise to feelings of apprehension, anxiety, or fear of failure.

Many representations related to comfort zones utilize concentric circles to illustrate the concepts involved (Figure 1). Beyond the *fear zone* lies the *growth* or *learning zone*—the point at which athletes acquire new skills, building on their existing skill base that they have solidified in their personal comfort zones. The demands of this learning zone need to be within reach of athletes' current skill levels but slightly beyond their current levels. In this, the learning zone is analogous to Vygotsky's (1978) zone of proximal development (ZPD) for cognitive growth. In this zone, with the support and feedback of knowledgeable others, the learner acquires new skills and knowledge. In sports, the role of the knowledgeable other may be fulfilled by coaches, peers, or the athletes themselves via bio- and cognitive feedback or video feedback (Hitchcock & McAllister Byun, 2015).

If the new-skill demands greatly exceed athletes' current skill levels, they may move into the *danger zone* in which they face a high probability of failure when attempting to acquire new skills that too greatly exceed their current skill levels. The result of this move into the danger zone may be skill regression, high anxiety, loss of confidence, and possibly even quitting the sport. Again, this is similar to Vygotsky's conception of cognitive growth since the new learning must be within the learner's cognitive capacity, aided by the knowledgeable other.

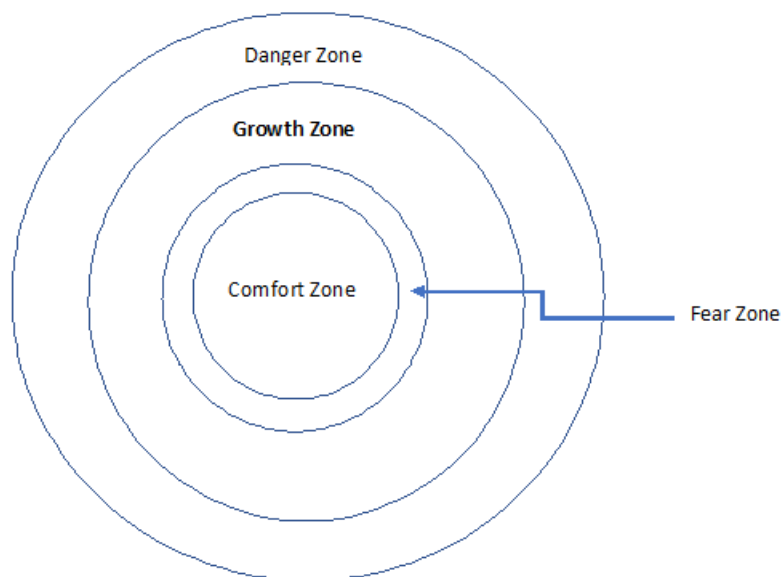


Figure 1: The comfort zone, fear zone, growth zone, and danger zone

The goal of the growth zone is for athletes to reach a new and larger comfort zone that includes the new skills and knowledge they have acquired (Figure 2). White (2008) incorrectly refers to the growth zone as “the optimal performance zone” (p. 4); rather, most growth will occur at suboptimal levels, in a recursive, nonlinear, and emergent manner. Athletes are unlikely to grow at an optimal level nor give evidence of optimal performance during the learning phase. However, this growth can be supported by consideration of the athlete's OCP (discussed below). Once athletes reach their new

comfort zone, in which they can execute the new skills in an effortless and low-stress manner, their skill levels may become closer to optimal performance. Yet, this new comfort zone is merely a plateau from which they will then enter a new growth zone as they build new skills and become more able performers.

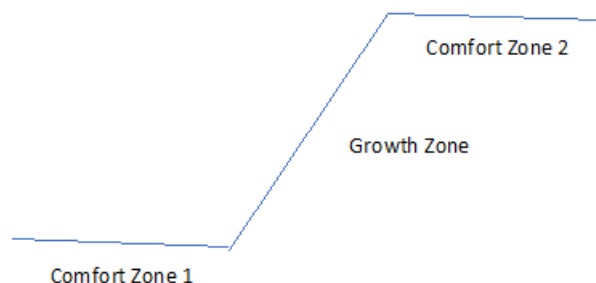


Figure 2: Transition to new comfort zone through learning
(Modified from White, 2008).

On leaving the first comfort zone, there may be a small dip in performance as athletes move through the fear zone. Actual growth will be nonlinear and recursive.

2.2 Optimal Challenge Point (OCP)

After athletes leave the comfort zone and penetrate the fear zone, they arrive in the growth or learning zone. At this point it is incumbent on each athlete's coach to ensure that conditions for learning are optimal for the athlete. This involves planning learning trajectories, identifying appropriate practice activities, providing practice opportunities with appropriate duration, providing feedback, and supporting the athlete's physical and mental growth.

Yerkes and Dodson (1908) identified a relationship between stimulus and performance in experiments with mice. They found that each subject had a level of stimulus that resulted in optimal performance. When the stimulus level was less than optimal, the subject displayed boredom; when the stimulus level was greater than optimal, anxiety resulted. Each subject's optimal stimulus level was different. This is an example of one form of the Yerkes–Dodson law.

Over the years, the Yerkes–Dodson law has taken a variety of forms, including relating arousal and performance, motivation and learning, motivation and performance, anxiety and performance, and task complexity and performance (Teigen, 1994). Distinctions were also made between simple tasks, requiring relatively high levels of arousal, and complex tasks, which generally require rather low levels of arousal to reach optimal performance. In the current context, the formulation of the Yerkes–Dodson law as a relationship between arousal and performance or learning is the most appropriate.

Stulberg and Magness (2017) reinforced that stress is necessary for growth. They state that periods of stress followed by periods of rest result in growth, and that the development of new skills comes from struggle. Thus, stress is the stimulus for players

to move from the comfort zone to the growth zone. The growth, which involves struggle, will be nonlinear, recursive, and emergent.

A significant move forward in the area of motor learning was the formulation of an OCP framework (Guadagnoli & Lee, 2004). Guadagnoli and Lee (2004) posited relationships among nominal task difficulty, functional task difficulty, contextual interference, and OCP when learning a motor skill. Nominal task difficulty is the level of difficulty of the task, without reference to the athlete's ability. For example, in basketball, an uncontested layup would carry a low nominal task difficulty, while a behind-the-back dribble would be assigned a higher nominal task difficulty. A player's predicted performance on the task would depend on the nominal task difficulty and the player's skill level. This relationship is referred to as functional task difficulty. The performance of a beginner would be expected to decline rapidly as the nominal task value increased, while the performance of a skilled or expert player would decline much less rapidly as the nominal task value increased.

Functional task difficulty takes the player's skill into account. Thus, most tasks for an expert player would carry a low functional task difficulty, whereas, for an intermediate player, functional task difficulty would be considerably higher for some skills. Guadagnoli and Lee (2004) identified OCP for motor learning by relating functional task difficulty to the amount of interpretable information available to the athlete in a given situation, and they interpret motor skill learning as a problem-solving activity: "*A fundamental assumption ... is that learning is a problem-solving process in which the goal of an action represents the problem to be solved and the evolution of a movement configuration represents the performer's attempt to solve the problem*" (p. 213).

Key to this position is that athletes acquire feedback from performing the activity and learn through that feedback to modify (or not) the actions taken. The feedback may be biofeedback, cognitive feedback, visual feedback (such as through watching videos of their performance), or verbal feedback from coaches. For example, a skilled player performing an uncontested layup will acquire very low levels of feedback, while an intermediate player learning to box out for rebounds will acquire significantly more information from feedback. Guadagnoli and Lee (2004) state that OCP (and thus optimal learning conditions) occur when the amount of interpretable information is maximized. This OCP will be different for every player: For the expert player, practising layups against taller opponents or even against double teams may be optimal; for an intermediate player, practising behind-the-back dribbles may at first be optimal against no opposition, and later against an opponent, and still later in game situations may be optimal for learning.

The above examples illustrate how the coach can manipulate the situation through contextual interference—increasing or decreasing contextual variables to provide the optimal level of interpretable information for the athlete. If the contextual interference is too great, suboptimal learning occurs since the athlete cannot process all the available information. This is similar to cognitive load theory (Sweller, 1988), which states that there are limits on the number of items that can be processed by working memory, and

it is necessary to limit extraneous cognitive load factors so that the problem-solver can focus on the intrinsic cognitive load that the task requires.

Another contextual factor is practice scheduling. Afsanepurak *et al.* (2012) found that when first learning a new skill, blocked practice (repetition of the same skill multiple times) is most effective; when a reasonable skill level has been achieved, random practice, such as in a scrimmage situation, helps to reinforce skill retention. This is consistent with the OCP framework, with its problem-solving stance. However, it is important to note that each player's OCP is different (Wadden *et al.*, 2019).

Contextual interference can involve manipulating the intensity of activities (Aschendorf *et al.*, 2019), time constraints (Burlot *et al.*, 2018), and the form of coaches' feedback (Turman, 2007). It could also involve manipulating other variables, such as the presence or absence of spectators, peer encouragement, noise levels, or distractions.

While Guadagnoli and Lee (2004) developed the challenge point framework as a theoretical basis for motor skill learning, it has been applied in a number of contexts, including motor skill development in patients with Parkinson's disease (Onla-or & Winstein, 2008); motor skill development in children (Balali *et al.*, 2019; Pesce *et al.*, 2013); medical education (Guadagnoli *et al.*, 2012); and biofeedback interventions (Hitchcock & McAllister Byun, 2015).

In discussing the validity of the challenge point framework, Fischer (2012) claims that the framework has been validated in surgery, golf, driving, and complex timing tasks. However, there has been limited research on the validity of the challenge point framework in team sports such as basketball. This paper helps to address this research gap.

3. Research Questions

- 1) How aware are Canadian university women's basketball coaches of comfort zones and OCP?
- 2) How are these concepts applied in the coaches' practice planning?
- 3) What issues do the coaches find in applying the comfort zone and challenge point concepts?

4. Methodology and Method

This study employed a mixed methods methodology (Teddlie & Tashakkori, 2009). A 46-question Likert-scale survey was developed and piloted to five retired women's basketball coaches, resulting in the wording of two questions being changed to increase clarity. In addition, five constructed-response questions were included in the final survey. Fifty-two questionnaires were sent to all 52 head coaches of Canadian university women's basketball teams. They were asked to complete anonymous surveys using SurveyMonkey® and to forward the survey link to their assistant coaches. Participation was voluntary and anonymous, and no data were disclosed to coaches or other

participants. The surveys contained both qualitative and quantitative questions. The written responses were analyzed using content analysis (Krippendorff, 2013). Quantitative responses were analyzed using descriptive statistics, correlation analysis (Spearman's ρ ; Corder & Foreman, 2014), and concordance analysis with Kendall's w (Kendall & Gibbons, 1990). Likert responses were coded using 1=Strongly Agree, 2=Agree, 3=Neither Agree nor Disagree, 4=Disagree, 5=Strongly Disagree. Therefore, a lower mean response score indicated agreement (e.g., *Players must adapt to my system*; $M=2.35$, $SD=1.04$ indicated strong agreement) while a larger mean response score indicated disagreement (e.g., *The concept of comfort zones is of no use to me as a coach*; $M=4.1$, $SD=0.77$ indicated strong disagreement). The open-ended survey questions were analyzed using content analysis to identify commonalities and themes.

5. Results

Surveys were sent out to the 52 Canadian universities that have women's basketball teams. Twenty coaches completed the survey, representing a 38% response rate. The mean level of experience of the coaches was 19.5 years with a standard deviation of 14.48 years. There was a broad range of experience, from 0 years (first-year coach) to 49 years. Coaches were asked to identify their most important function (Figure 3).

As shown in Figure 3, the coaches identified developing young people as their most important function (50%). The second most important function was teaching (25%), and other functions included communication, motivation, and listening. Only 10% of coaches identified winning as their most important function.

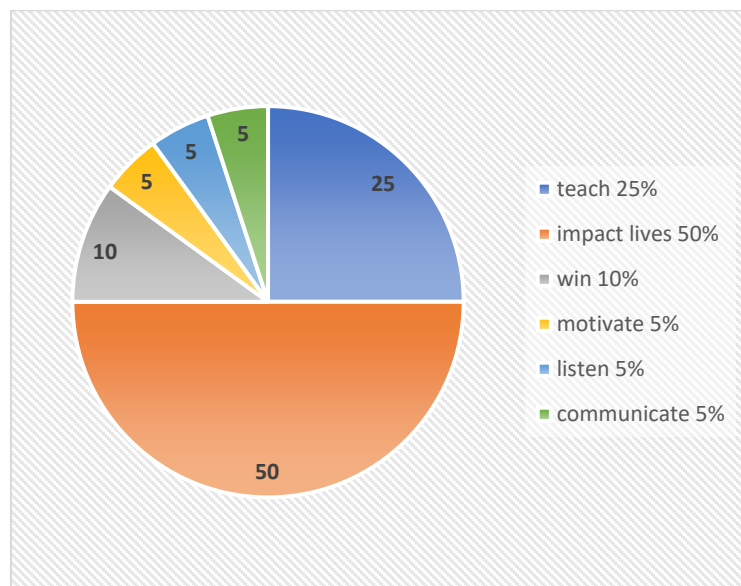


Figure 3: The most important function as a coach

Analysis of the Likert-scale responses yielded a 140-page correlation table. Selected significant correlations are included in the results section of this paper. Table 1 gives the descriptors used for the correlation coefficients.

Table 1: Correlation descriptors

Correlation coefficient	Descriptor
0.00 to 1.99	No correlation
2.00 to 3.99	Weak correlation
4.00 to 5.99	Moderate correlation
6.00 to 7.99	Strong correlation
8.00 to 1.00	Very strong correlation

5.1 Comfort Zones

There was wide agreement among coaches that to grow, players need some level of stress or arousal. There was a significant agreement with statements such as *Without stress, there is no growth* (M=2.2, SD=0.745) and *Some stress can be a positive thing* (M=1.65, SD=0.572). There was recognition that coaches need to provide growth opportunities through appropriate practice and game opportunities: *Coaches need to provide opportunities for players to grow beyond their comfort zones* (M=1.2, SD=0.510); *It is important for players to grow beyond their comfort zones* (M=1.2, SD=0.510).

Coaches were more ambivalent with regard to players playing within their individual comfort zones: *It is important for players to play within their individual comfort zones* (M=2.65, SD=1.24). This can be explained through the context in which coaches want their players to be in their comfort zones (Figure 4).

So, when a player is shooting a foul shot or making an uncontested layup, they should be firmly in their individual comfort zones and feel little or no stress. Alternatively, when guarding a player or breaking a double team, there needs to be a significant level of stress in order for the player to push their level of play to a higher level.

When contrasting practices versus in-game decisions, there was relatively little consideration of players' comfort zones: *I consider my players' individual comfort zones when practice planning* (M=3.05, SD=1.07) versus *I consider my players' individual comfort zones when making in-game decisions* (M=2.9, SD=1.55). However, coaches indicated that comfort zones were a consideration in their coaching.

Q2 In which situations do you want your player functioning within their personal comfort zones? [Check all that apply]

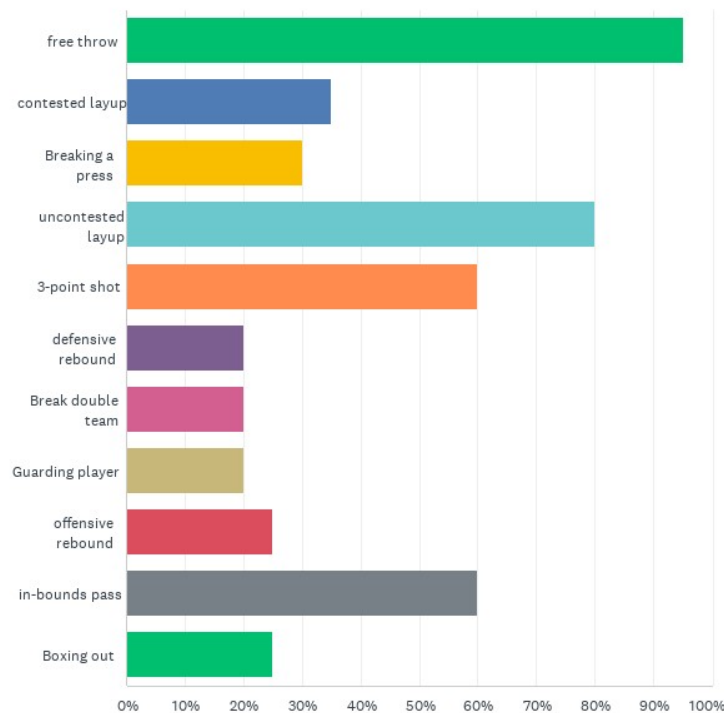


Figure 4: Situations in which coaches want their players to function within their personal comfort zones

A surprising result was the strong correlation between coaches who tailor their practices to players' skill levels and coaches who pay attention to players' individual comfort zones during games ($\rho=0.694$, $p<0.001$). This relationship perhaps allowed coaches to make better use of strategies and substitutions during games.

There was strong disagreement with the statement *The concept of comfort zones is of no use to me as a coach* ($M=4.1$, $SD=0.77$). There was, understandingly, a moderate negative correlation between coaches who valued going beyond players' comfort zones and coaches who valued staying within player's comfort zones ($\rho=-0.544$, $p=0.013$). There was also a moderate correlation between coaches who valued going beyond players' comfort zones and encouraging risk-taking ($\rho=0.543$, $p=0.013$). These coaches tailor practices to players' skill levels and encouraging risk-taking ($\rho=0.496$, $p=0.026$).

There was a somewhat surprising moderate correlation between coaches who valued going beyond players' comfort zones and coaches who stated that players' comfort zones are not the coaches' problem ($\rho=0.476$, $p=0.034$). This may reflect some confusion among coaches as to exactly what was meant by the two concepts.

There was a moderate correlation between coaches who valued going beyond players' comfort zones and coaches who focused on team comfort zones as opposed to individual comfort zones ($\rho=0.504$, $p=0.023$). This may reflect the difficulty of modifying

practices to address each player's individual comfort zone through differentiation of activities. There was a moderate correlation between coaches who valued going beyond players' comfort zones and encouraging risk-taking ($\rho=0.543$, $p=0.013$)

In addition, there was a strong correlation between coaches who valued staying within players' comfort zones and a focus on team comfort zones ($\rho=0.632$, $p=0.003$) as well as a moderate correlation between staying within comfort zones and providing players with methods to address fear of the unknown ($\rho=0.479$, $p=0.033$). Once again, this may have reflected confusion around the individual nature of comfort zones, or perhaps the difficulty of shaping practices to individual players' needs.

There was also a moderate correlation between coaches who provided opportunities to grow beyond players' comfort zones and a focus on team comfort zones ($\rho=0.504$, $p=0.023$), and surprisingly, a moderate correlation between coaches who provided opportunities to grow beyond players' comfort zones and coaches who stated that players' comfort zones are not their problem ($\rho=0.476$, $p=0.034$).

5.2 Optimal Challenge Point (OCP)

The concept of OCP was relatively less well known by coaches. Only 35% of coaches indicated that they were aware of the OCP framework ($M=3.1$, $SD=0.994$). Interestingly, a larger percentage (40%) indicated that they used the OCP framework in their practice planning ($M=3.25$, $SD=1.26$). This may indicate that coaches, while vague on the OCP framework, understand the need to tailor practices to players' individual skill levels. At the same time, the response to *The OCP framework is of no use to me as a coach* ($M=3.25$, $SD=1.44$) was effectively neutral, possibly again indicating the low levels of understanding of the OCP framework.

There was a strong correlation between coaches who employ effective teaching strategies and encourage risk-taking ($\rho=0.643$, $p=0.002$). This also was shown with a strong correlation between practice modifications and OCP ($\rho=0.779$, $p<0.001$), reflecting understanding of OCP principles. Knowledge of OCP principles was also strongly correlated with coaches providing methods for reducing fear of the unknown ($\rho=0.718$, $p<0.001$).

5.3 Impact on Practice

The concepts of comfort zone and OCP were both used in practice planning, either explicitly or implicitly. To do this, coaches require knowledge of each player's strengths and weaknesses: *I need to have accurate assessments of each of my players' skills and knowledge* ($M=1.35$, $SD=0.65$). Unsurprisingly, there was a moderate correlation between coaches who tailor their practices to players' skill levels and paying attention to players' individual comfort zones in practice planning ($\rho=0.536$, $p=0.015$).

The coaches typically try to tailor their practices to fit their players' skill levels—*I design practice activities tailored to each of my players' skill levels* ($M=2.7$, $SD=1.1$); *I design practice activities to challenge each of my players' skill levels* ($M=1.8$, $SD=0.6$)—although this is not always possible. Coaches were neutral, specifically concerning players' comfort

zones: *I consider my players' individual comfort zones when practice planning* (M=3.05, SD=1.07).

Practices typically aim to build players' skills (M=1.25, SD=0.4), knowledge of basketball (M=1.2, SD=0.400), and strategic thinking (M=1.3, SD=0.56). Practices both reinforce previously learned skills (M=1.7, SD=0.71) and introduce new skills based on players' strengths (M=2.1 SD=0.94), although coaches were clear that players must adapt to the system specified by the coach (M=2, SD=0.89).

Coaches used appropriate techniques for teaching and reinforcing new skills. When first teaching a new skill, they used blocks of practice to build skill levels (M=1.85, SD=0.48); after the skill had been mastered, they randomly included drills that reinforced the newly learned skills (M=1.75, SD=0.54). These techniques are consistent with research on learning (Seabrook *et al.*, 2004). Attempts were made to adjust practices to fit each player (*When acquiring new skills, I modify practice to suit each player's current skill level*; M=2.55, SD=1.07) as much as possible. This response echoes to some extent the OCP framework and contextual interference, although it was not specifically referenced. Coaches did modify practice conditions to challenge each player: *I routinely adjust practice conditions to provide adequate challenge for each player* (M=2.00, SD=0.63). Adjustments to practice are shown in Figure 5.

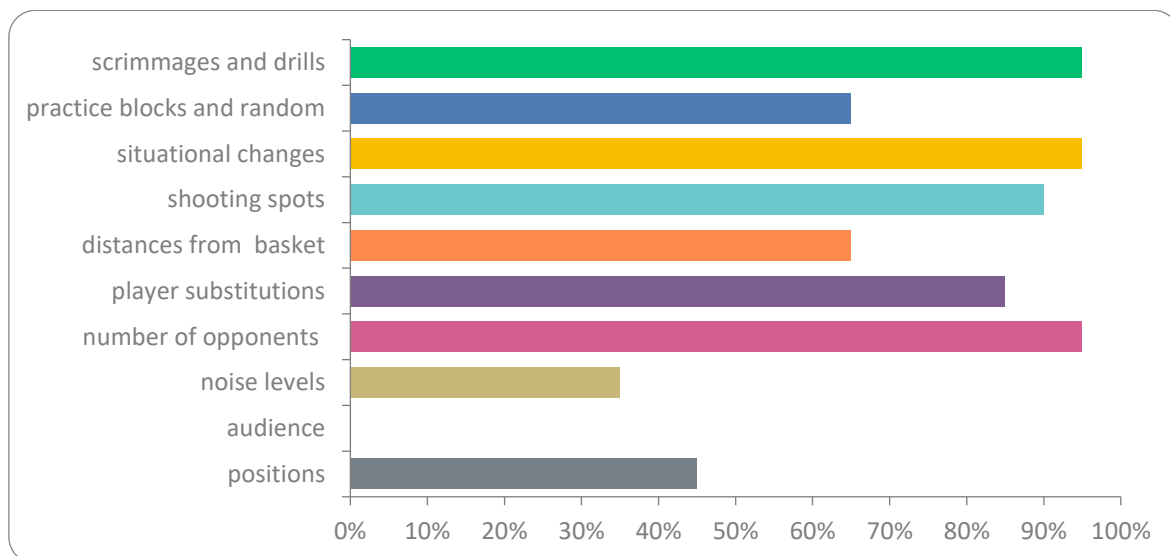


Figure 5: Ways coaches manipulate external conditions

Many of these manipulations are familiar to most coaches and affect players' routines. However, these manipulations are a key feature of the OCP framework and affect players' comfort zones as well. One significant omission was manipulating audiences; for example, having spectators at practice, or increased noise levels at practice. Manipulating these conditions could more realistically mimic game conditions.

These strategies are all examples of manipulating the environment, a key feature of the OCP framework. While only a minority of coaches (35%) indicated they were aware of the OCP framework, it is clear that coaches use techniques related to the framework.

Awareness of the OCP framework was strongly or very strongly correlated with tailoring practices to individual skill levels ($\rho=0.730$, $p<0.001$), utilizing the OCP framework in practice planning ($\rho=0.950$, $p=0.013$) as well as with paying attention to players' comfort zones during games ($\rho=0.5625$, $p<0.001$). The first correlations were expected to illustrate an understanding of the OCP framework, but the last was surprising and demonstrated a relationship between OCP and comfort zones. A second connection between the two concepts was the moderate correlation between awareness of the OCP framework and coaches' use of comfort zones during practice.

There was a moderate correlation between coaches who utilize the OCP framework in practices and encouraging risk-taking ($\rho=0.450$, $p=0.047$) and a strong correlation between the use of the OCP and tailoring practices to players' skill levels ($\rho=0.706$, $p<0.001$). This second, strong correlation is unsurprising since this is exactly what the OCP is designed to do. There was a surprisingly strong correlation between coaches who tailor practices to players' skill levels and coaches who said the OCP was of no use to them ($\rho=0.707$, $p<0.001$). This may reflect the general lack of knowledge among coaches about the OCP framework and how it can be used.

5.4 Feedback

Coaches recognized the importance of feedback and provided a wide variety of feedback to players. Coaches agreed that feedback needs to be immediate ($M=2.05$, $SD=0.86$). Coaches routinely provided opportunities for self-assessment ($M=1.85$, $SD=0.57$), peer feedback ($M=1.95$, $SD=0.59$), and especially video feedback ($M=1.3$, $SD=0.46$). None of the coaches mentioned player bio-feedback, although they may have included that type of feedback in players' self-assessment. Overall, coaches demonstrated sound knowledge of the principles of useful feedback: immediate, specific, and forward-focused.

5.5 Stress and Mental Health

Coaches were aware of the mental dimensions of playing as a high-level basketball player, including managing stress and risk-taking. There was strong agreement with the statement. *It is my job to give players techniques to address fear of the unknown* ($M=2.05$, $SD=0.86$) as well as *My job is to foster positive attitudes among my players* ($M=1.75$, $SD=0.77$). Coaches look for ways to support players' mental health ($M=2.1$, $SD=1.22$) and utilize techniques to reduce or channel players' stress levels ($M=2.7$, $SD=1.19$).

There was somewhat less agreement concerning the use of imagery and mental rehearsals to improve players' performance ($M=2.65$, $SD=1.15$). This is somewhat surprising, given the wealth of research supporting this technique.

Awareness of OCP was also strongly correlated with supporting players' mental health ($\rho=0.610$, $p=0.014$), a focus on reducing players' stress levels ($\rho=0.740$, $p<0.001$), and moderately correlated with players' use of imagery ($\rho=0.598$, $p=0.005$). All these results recognize the key role of OCP in relation to players' well-being through intelligent practice planning. These results also echo the correlation between use of OCP and the statement that without some level of stress, there is no growth ($\rho=0.584$, $p=0.007$)

During games, there were limited opportunities to address players' comfort zones. As noted earlier, in some (routine) situations, such as shooting foul shots, it is desirable for players to reside solidly in their comfort zones. In more stressful situations, such as shooting a contested three-point shot, a higher level of arousal is necessary for players to push themselves to meet challenges.

In addition, during games, coaches are typically focused on strategic decisions with the goal of winning the game. Consequently, there was limited agreement with the statement *I consider my players' individual comfort zones when making in-game decisions* ($M=2.9$, $SD=1.55$). Clearly, players' individual comfort zones are not and cannot be the primary concern of coaches during games. Coaches attempted to compromise by focusing on team comfort zones during games, although results were mixed when coaches were asked about this idea ($M=2.95$, $SD=1.16$). This somewhat ambivalent response may indicate that coaches are aware that comfort zone, like OCP, is an individual trait.

6. Discussion

Comfort zones and OCP examine similar issues but through different lenses. Comfort zones identify situations in which athletes need to function with peak arousal. An uncontested layup needs to be seen as a routine procedure with a focus on appropriate mechanics, while a contested three-point shot requires the athlete to be sufficiently aroused to successfully complete the procedure.

Optimal challenge points examine situations from the perspective of optimal information. Achieving this optimal information may require the athlete to rise to an appropriate level of arousal; this appropriate level may be within their comfort zone or require the athlete to push through the fear zone to their learning zone to reach the optimal information level.

A very significant issue for coaches is that each athlete's comfort zone is different. Similarly, each athlete's OCP is different and typically will be different for each skill. This makes addressing athletes' comfort zones and OCP very difficult for coaches. Having said that, however, many coaches indicated that they attempt to individualize practice conditions to optimal levels for their athletes whenever possible.

There are striking similarities between education and coaching, particularly with respect to practices. While only 5% of coaches identified teaching as their primary purpose, it is clear that teaching plays a major role in their work.

The coaches demonstrated significant knowledge of sound teaching techniques, especially with respect to giving feedback. They recognized that feedback needs to be immediate, specific, and forward-looking. They also generally utilized a variety of feedback mechanisms, including self, peer, and especially video feedback.

The coaches also recognized the importance of differentiating practice conditions whenever possible to adapt to each player's level of skills and knowledge. Teachers differentiate instruction with respect to content, process, or product to adapt to a

student's level of prior knowledge, interest, and learning modalities (Subban, 2006). Coaches attempt to differentiate and adapt to their players' level of skills, knowledge, and physical abilities. However, this is not always possible, given that coaches need to move the entire team forward. Knowledge of comfort zones and the OCP framework provides coaches with research-affirmed ways to differentiate instruction in their practices. However, this is hindered by the relatively low level of coaches' knowledge, particularly with respect to the OCP framework (only 35% of coaches indicated they were aware of it).

Given that coaches appear to be differentiating instruction, when possible, coaches would benefit from learning about the challenge point framework and how it can be applied to coaching, particularly to differentiating instruction during practices. Coaches are more aware of comfort zones and appear to utilize this concept in their coaching. There was strong disagreement (75%) to the statement *The concept of comfort zones is of no use to me as a coach* ($M=4.1$, $SD=0.77$). Coaches indicated less use of the challenge point framework, with almost half the coaches agreeing with the statement *The OCP framework is of no use to me as a coach* ($M=3.25$, $SD=1.45$). The relatively large standard deviation may indicate that coaches were not fully aware of the OCP framework or how it could be utilized in coaching.

Conflict of Interest Statement

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