Athens Journal of Sports

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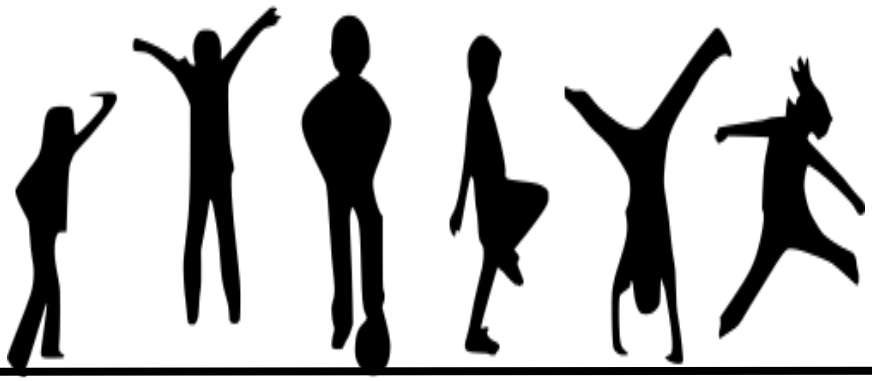

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The *Athens Journal of Sports* (AJSPO) is an Open Access quarterly double-blind peer reviewed journal and considers papers from all areas of sports and related sciences. Many of the papers published in this journal have been presented at the various conferences sponsored by the Sport, Exercise, & Kinesiology Unit of the Athens Institute & the Panhellenic Association of Sports Economists and Managers (PASEM). All papers are subject to Athens Institute's Publication Ethical Policy and Statement.

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President's Message

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The current issue is the third of the thirteenth volume of the *Athens Journal of Sports (AJSPO),* published by the Sport, Exercise, & Kinesiology Unit of the Athens Institute under the aegis of the Panhellenic Association of Sports Economists and Managers (PASEM).

Gregory T. Papanikos
President
Athens Institute

27th Annual International Conference on Sports: Economic, Management, Marketing & Social Aspects 10-13 May 2027, Athens, Greece

The Sports Unit of ATINER organizes its **27th Annual International Conference on Sports: Economic, Management, Marketing & Social Aspects, 10-13 May 2027, Athens, Greece** sponsored by the Athens Journal of Sports. The aim of the conference is to bring together academics and researchers of all areas of sports. Please submit a proposal using the form available (https://www.atiner.gr/2027/FORM-SPO.doc).

Academic Members Responsible for the Conference

Dr. Gregory T. Papanikos | Dr. Maria Konstantaki | Dr. Chris Sakellariou | Dr. Sharon Claire Bolton | Dr. Valia Kasimati | Dr. Cleopatra Veloutsou | Dr. Christos Anagnostopoulos

Important Dates

- Abstract Submission: **13 October 2026**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **12 April 2027**

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- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
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The Sports Unit of ATINER will hold its **23rd Annual International Conference on Sport & Exercise Science, 26-31 July 2027, Athens, Greece** sponsored by the Athens Journal of Sports. You may participate as stream leader, presenter of one paper, chair a session or observer. Please submit an abstract (email only) to: atiner@atiner.gr, using the abstract submission form (https://www.atiner.gr/2027/FORM-FIT.doc).

Important Dates

- Abstract Submission: **29 September 2026**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **28 June 2027**

Academic Member Responsible for the Conference

- Dr. Maria Konstantaki, Academic Member, Athens Institute & Senior Lecturer, Buckinghamshire New University, UK.

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- Ancient Corinth and Cape Sounion

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Making Sense of Gameplay in Team Sports and Games: From Theories of Learning to Teaching Practices

By Vincent Pigeon, Luc Nadeau± & Paul Godbout°*

Since the seminal publication on the Teaching Games for Understanding Model (TGfU), there has been several additional Game-Understanding Based Approaches (GUBAs) put forward in the literature concerning teaching team sports and games (TSG). The characteristics of three leading learning theories (behaviorism, cognitivism and constructivism) are summarized under the scope of the practices used to teach TSGs. These practices and the content taught (in both depth and breadth) should both vary depending on the cognitive level and experience of the learners. As prerequisites to understanding gameplay, the authors consider (a) a shared gameplay vocabulary, (b) the learners' perception of gameplay, and (c) reflection on action as a door opener toward game understanding. Putting the light on gameplay understanding means a profound reassessment of teachers' practices (Pigeon et al., 2026) which could navigate between pedagogical approaches and their underpinning learning theories depending on the teaching-learning context.

Keywords: *team sports and games; game-understanding based approaches; gameplay; learning theories; teachers' practices*

Introduction

In modern physical education, team sports and games (TSGs) occupy a significant place in the school curriculum and in sport education[1] as well. Since the seminal publication of Bunker and Thorpe (1982) on the Teaching Games for Understanding Model (TGfU), there has been several additional models put forward in the literature with regard to gameplay understanding as a central component of the TSG pedagogical content knowledge. We refer to these models as being game-understanding based approaches (GUBAs) (Pigeon et al., 2026). The shift from a skill-based and teacher-centered approach to a game-based and student-centered approach for the teaching/ learning of TSGs has, in itself, meant a reexamination of the conduct of PE lessons. Moreover, the refocus toward gameplay and a realignment on students' needs and characteristics, in a developmental, multidimensional and educational perspective, has led to the recognition of gameplay understanding as a key catalyst for learning.

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[1]In this article, sport education refers to children's, adolescents' and older students' educational experiences in out-of-PE- lessons sport programs offered them under the form of intramural and interschool competition, community-led sport leagues programs, specialized summer camps, etc. Through coaching, PE-trained educators and other sport educators contribute largely to the participants' sport education.

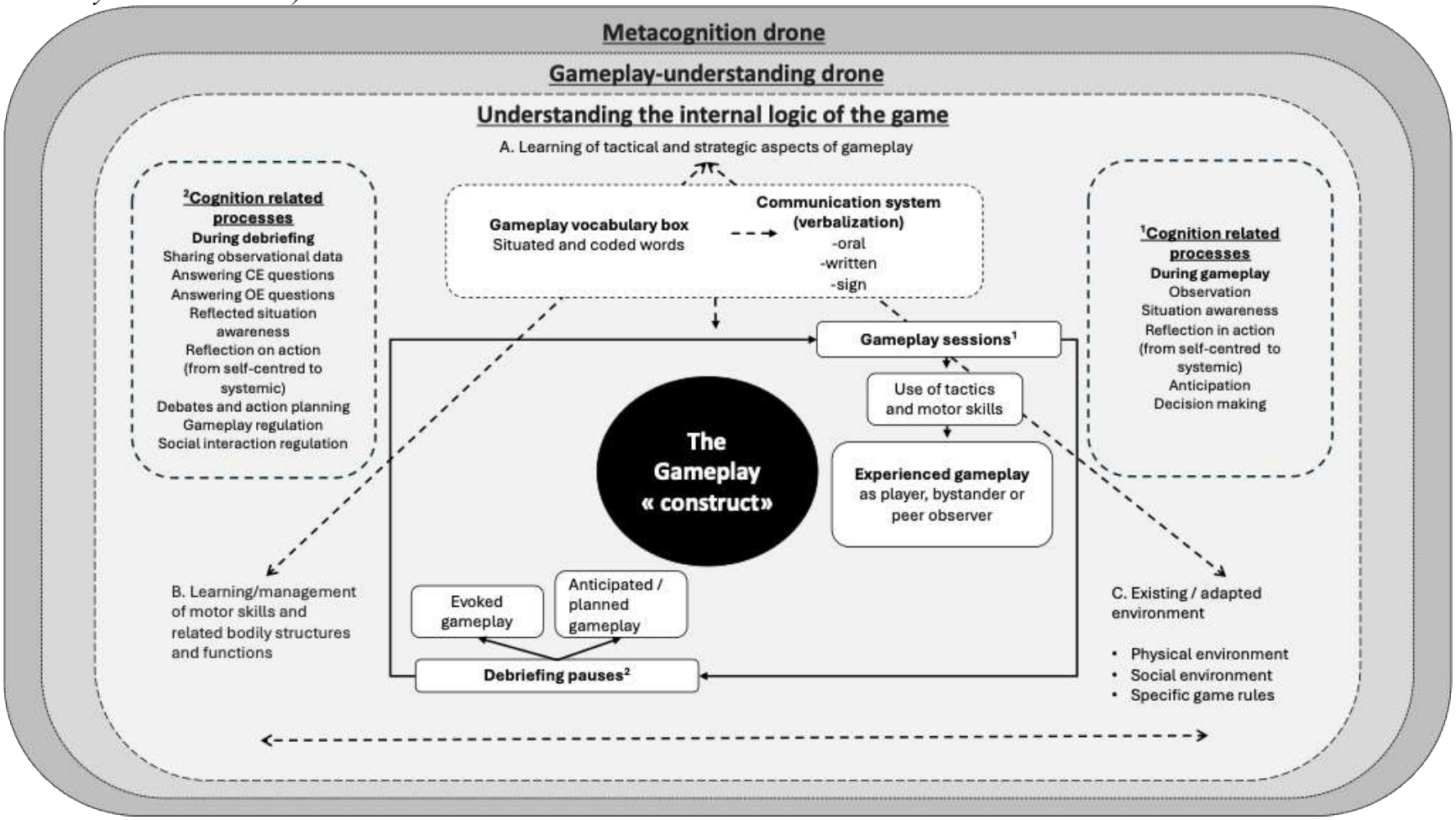
In everyday life, understanding means grasping the meaning of words (mastering more or less complex concepts or constructs), establishing or recognizing relationships between ideas, events or people, applying or developing rules if and when appropriate. In short, understanding implies mentally functioning successfully with regard to convergent or divergent thinking (Cropley, 2006; Guilford, 1967), using one's practical, analytical or creative intelligence (Sternberg, 1985; 2005). Expressed in a different way:

> [. . .] understanding is about *grasping* and *seeing* in which one is able to grasp mentally how the different aspects of a system or structure depend upon one another and is able to anticipate how changes in one part of the system will lead (or fail to lead) to changes in another part as well as see new possibilities (Almond, 2015, pp. 18-19).

Therefore, as stated by many authors, students' understanding of the game must be a central concern for PE teachers while teaching TSGs (Bunker & Thorpe, 1982; Godbout & Gréhaigne, 2020), considering that during gameplay, players' actions must depend upon teammates and opponents' actions. In other words, to play well and achieve the collective goal of defeating the opponent, they must constantly anticipate the movements of their teammates and the opponent's tactics to ultimately adapt their actions accordingly in order to score goals and prevent the opponent from scoring.

Figure 1 illustrates the systemic nature of gameplay understanding which may be viewed as the result of proper/meaningful connections between various elements of the learning system pertaining to (a) concepts, ideas, and mental schemas and processes leading to tactics and strategy, (b) motor skills and related bodily structures and functions, and (c) the social and physical environment, including specific game rules. Dotted lines joining these three fulcrums illustrate the potential reciprocal influence of these elements in a gameplay context. Beyond the cognitive and physical dimensions, connections between these elements have repercussions on each student's social and affective development not discussed in this paper. At the center of the figure, one finds the **gameplay construct** (illustrated by a nonexistent black design in Figure 1 as a projection of the game understanding drone), that is a virtual representation of elements of gameplay (action rules, play organization rules and motor skills) and their relationships. The unfolding of the PE lesson involves mainly two complementary components: (a) **experienced gameplay** (as a player, a formal observer or a bystander, related to a gameplay session conducted according to agreed-upon rules in some adapted physical environment; (b) **evoked gameplay** and **planned gameplay** related to a debriefing pause involving various types of exchanges among students or between students and their teacher. Experienced gameplay and related exchanges draw from the cognitive, physical, social and affective dimensions of the student and, in return, have an impact on them. Two interacting dimensions, the cognitive and physical ones, remain particularly solicited in the understanding/ learning process. Above the visible bidimensional system, one may think of some hovering consciousness functioning as a drone computer, targeting the experienced gameplay and the evoked one.

Figure 1. *Bidimensional Illustration of the Systemic Nature of Gameplay Understanding and Related Communication Tools (gameplay vocabulary and verbalization)*



On the right- and left-hand sides of the figure, various cognition-related tasks/ processes involving the learner one way or the other may be thought of as light projectors targeting either the experienced gameplay (during play sessions) or the evoked gameplay (during debriefing pauses). Depending on the level of cognitive activation of the system (use of underpinning learning theory), projectors associated with particular processes or tasks may produce convergent lighting (which illuminates known connections) whereas others, associated with different processes/ tasks, emit divergent lighting (which illuminates new forming connections). At a lower level of activation, some projector may stay inactive, the concerned cognitive process not being activated. Each process has its particular light that enlightens particular connections between elements of the construct. Those enlightened connections are registered by a hovering drone computer (gameplay-understanding drone) and, once confirmed, stored in a learning file (long-term memory file) as either declarative, procedural or conditional knowledge). Depending again on the level of cognitive activation of the system, the gameplay construct may be envisioned as a puzzle whose pieces (connections) are concepts, ideas and elaborated schemas, all contained within a given framework. Connections recognized by the drone computer are readily filed and included in the framework through assimilation. Connections that do not fit in the framework may at first be discarded; should they, however, be confirmed as valid, the drone-computer will adjust the framework through accommodation so that the new connections can be included in the picture.

Finally, above the understanding/learning level, one may think of a second hovering mechanism (**metacognition drone**) whose function is to register the functioning of the drone computer. If not activated, the mechanism stays there, without registering anything. When activated through **metacognitive** awareness, it can detect which projector tends to stimulate the understanding/learning drone and eventually can inform it; this one, in return, may adjust its registering system and pay more or less attention to the lighting provided by one projector or another (metacognitive regulation). The activation of the meta-drone requires an activation of the system at a constructivist or socio-constructivist level.

As part of the system, the **vocabulary box** contains situated and coded words particular to one or several related sports or games while the **communication system** refers to the oral (sometimes written or sign) expression of thoughts and thinking processes (the 'cognition' side of the system) related to varied elements of the system. At some point in the learning process, verbalizing in gameplay language might represent the embodiment of gameplay understanding.

Thus, this figure illustrates a one-student bubble and refers to this student's understanding processes. In the dynamics of a class group, one teacher deals with as many interacting systems as there are students and, consequently, faces the challenge of helping each one of them achieve understanding and learning. In a teaching/ learning context, underpinning learning theories will guide teachers into determining which parts of the system should be activated and to what extent, given the students' level of both cognitive capacity and playing experience. Accordingly, the selected level of activation will bring teachers to choose between (a) acting as the sole leader, (b) considering students as informed accomplices, or (c) acknowledging students as managers of their learning and, thus, playing the role of a facilitator. As it will be

briefly addressed in the section 'GUBA-Related Teaching Practices and Underpinning Learning Theories', readers may note that those choices are not 'cast in stones', as there is no one-size-fits-all pedagogical practice to teach TSGs (Moran et al., 2026; Rink, 2001). Depending on the learning context (e.g., students' background and characteristics, learning objectives), the teacher could wander between (a), (b) and (c). That is to say, a teacher who predominantly wishes to adopt the role of a learning facilitator/ catalyst could be, at some point, acting more as a sole leader to teach, among other things, game rules or technical components of a precise motor skill. Teachers' proficiency to identify the appropriate time to choose and apply these strategies is vital to bring students to understand TSGs and to play them better.

All that being said, the double purpose of this paper is (a) to examine underlying perceptual and thinking processes that make it possible for students to understand gameplay when they engage in TSGs in a learning context, and (b) to acknowledge GUBA teaching practices that make use of such processes under the scope of given learning theories.

Learning Theories Underlying the Teaching/Learning of Team Sports and Games

As suggested by the progressive shift from a teacher- and skill-centered to a student-centered and game-based approach to the teaching/learning of TSGs alluded to in the introduction, one may conclude that there is or will also be a shift in the underlying learning theories involved. Learning theories define the contexts and processes through which learning occurs, providing teachers with models to develop pedagogical practices which in turn should lead to better learning. Over the last 5 or 6 decades, three main theories have shaped instructional design: behaviorism, cognitivism/social cognitivism, and constructivism/social constructivism. It is not the purpose of this paper to discuss each of these extensively; others, like Ertmer and Newby (2013) or Powell and Kalina (2009) for instance, have done it in a better way. The following words from Ertmer and Newby (2013, p. 46) have a particular significance given the context in which new models were developed with regard to the teaching of TSGs: 'Although learning theories typically are divided into two categories, behavioral and cognitive, a third category, constructive, is added here because of its recent emphasis in the instructional design literature.'

Behaviorism

Behaviorists see learning as changes in either the form or frequency of observable performance. Key elements remain the stimulus, the response, and the association the learner makes between the two. In the learning process, there is no attempt to determine the structure of students' knowledge nor to assess which mental processes they need to resort to (Winn, 1990). This author argues that behavioral theory is inadequate to prescribe instructional strategies that teach for understanding. Behaviorists attempt to prescribe strategies that are most useful for building and strengthening stimulus-response associations (Winn, 1990), including the use of instructional cues, practice, and reinforcement. These prescriptions have

generally been proven reliable and effective in facilitating learning that involves discriminations (recalling facts), generalizations (defining and illustrating concepts), associations (applying explanations), and chaining (automatically performing specified procedures). According to Ertmer and Newby (2013, p. 49), 'it is generally agreed that behavioral principles cannot adequately explain the acquisition of higher-level skills or those that require a greater depth of processing (e.g., language development, problem solving, inference generating, critical thinking) (Schunk, 1991)'. This school of thought considers knowledge to be a reality external to the learners that they need to acquire. Thus, based on curricula, competency frameworks, textbooks and pedagogical content knowledge rather than on students' cognitive involvement, the teachers determine and organize what needs to be learned (Jonnaert et al., 2008). It follows that behaviorists adhere to a highly interventionist conception of teaching (Vienneau, 2017) in which teachers seek to shape their students' behavior and actions (Boutin, 2000) by exposing them to certain stimuli (Vienneau, 2017). Students would therefore learn by reproducing the behaviors requested, explained and/or demonstrated by the teacher (Nadeau, 2001).

For instance, having students practice a specific throw, a particular feint or perform a certain motor pattern (e.g., a learning activity to practice a basketball layup while respecting a certain footwork) as demonstrated by the teacher or a student could be representative of a behaviorist approach to learning. Having students use specific words when referring to gestures or particular tactics is also representative of a behaviorist approach to learning. Readers may consult Table 1 and section 'GUBA-related teaching practices and underpinning learning theories' for additional examples.

Cognitivism and Social Cognitivism

Ertmer and Newby (2013) stated:

> Cognitive theories focus on the conceptualization of students' learning processes and address the issues of how information is received, organized, stored, and retrieved by the mind […] Knowledge acquisition is described as a mental activity that entails internal coding and structuring by the learner. (p. 51)

Thus, when thought of as a result rather than a process, understanding is viewed as composed of a knowledge base in the form of rules, concepts, and discriminations (Duffy & Jonassen, 1991).

Cognitivist teaching must be based on students' mental structures, or schemas, to be effective. Information should be organized so learners may meaningfully connect new information with existing knowledge in order to make new connections. Examples of this type of cognitive strategy are analogies and metaphors. In the same line of thought, cognitive strategies may include the use of framing (see Godbout 2023, for a presentation of Data-Frame Theory of Sensemaking and Sensemaking Processes), outlining, mnemonics, concept mapping, advance organizers, and so forth (West et al., 1991). Examples of advance organizers related to team sports are offensive and defensive matrices of play (which 'represent a true systemic view of tactical decisions in play' according to Gréhaigne & Godbout, 2014, p. 107), action plans or strategies in

view of coming matches, and one's 'educated assessment of both competency networks involved into gameplay' (Godbout & Gréhaigne, 2020, p. 443). Whereas strategies may be seen as a short-term advance organizers targeting one or a few coming matches in specific contexts of play, matrices of play may be referred to on a longer term as they relate to the internal logic of the game, regardless of the opponents. In each case, the content of the advance organizer may have been suggested by the teacher, thus relating to cognitivism, or may be progressively developed (constructed) by the learners.

Finally, some critics are of the opinion that cognitivism puts too much emphasis on memorization and recall of facts to the detriment of higher-order skills such as creativity and problem solving. For their part, cognitivists claim that the ability to recall facts and concepts is essential to higher-order thinking, and therefore the two are interdependent rather than mutually exclusive (Brown et al., 2014).

In turn, the premise underlying social cognitivism, or social cognitive theory (SCT) (Bandura, 1986), is that learning is a cognitive process inseparable from the context in which it occurs, like the family or the school for instance (de la Fuente et al., 2023). The theory sustains that portions of an individual's knowledge acquisition can be directly linked to observing others within the context of social interactions, experiences, and outside media influences (Margolis & Mead, 2022). In this line of thought, Bandura (1977) developed a theoretical model of observational learning, defined as a social learning process that involves observing and modeling the behavior of others, in which they made a distinction between learning and performance. Learning was associated with the ability to describe observed behavior at a later time, whereas performance represented the extent to which the individuals' behavior changed through observation (i.e., that they actually engaged in the observed behavior) (Fryling et al., 2011).

From a practical point of view, cognitivism relies on understanding rather than on sheer memory. Instead of blindly reproducing a motor skill, the student is explained the purpose of the movement and its kinetic requirements. For instance, a pass to a partner does not always require as much force compared to a shot on goal since the ball holder wants the teammate to catch the pass, contrary to the goalkeeper. Moreover, during a handball lesson, a teacher could explain that a relevant pass is generally made to a teammate who is at more than an arm's length away from an opponent to prevent it from being intercepted. Readers may again consult Table 1 and section 'GUBA-related teaching practices and underpinning learning theories' for additional examples.

Constructivism and Social Constructivism

Ertmer and Newby (2013) highlight differences between constructivism and cognitivism, as well as behaviorism related to knowledge conceptualization; they wrote:

> Constructivists do not share with cognitivists and behaviorists the belief that knowledge is mind-independent and can be 'mapped' onto a learner. They do not deny the existence of the real world but contend that what we know of the world stems from our own interpretations of our experiences. (p. 55)

Thus, constructivism (individual constructivism) equates learning with creating meaning from experience. Learning always occurs in a context, and this context is inseparable from the knowledge embedded in it (Bednar et al., 1991).

Piaget stated that children's mental schemas are constructed through assimilation and accommodation processes when going through four different developmental stages (Wadsworth, 2004). While the first two stages (sensorimotor and preoperational stages) occur from birth through 7 years of age, the third (concrete operational stage) seems to occur at the time of primary school, from seven to eleven years old. The fourth stage, the formal operational stage, usually takes place later, from eleven years old to adulthood (Piaget, 1953). At the time of the concrete operational stage, children begin to replace intuitive thought with their own logical reasoning. In the formal operational stage, adolescents, up to adulthood, will start using higher levels of thinking or abstract ideas to solve problems (Powell & Kalina, 2009). This implies that game-understanding related learning should be targeted mainly at the formal operational stage corresponding more or less to high school level since, as mentioned by Ertmer and Newby (2013), tasks that require an increased level of processing are usually primarily associated with strategies having a stronger cognitive emphasis (e.g., schematic organization, analogical reasoning) and tasks demanding high levels of processing are better performed with strategies advanced by the constructivist perspective (e.g., situated learning, social negotiation).

Regarding social constructivism, it postulates that learners' construction of knowledge results from social interaction, interpretation and understanding (Vygotsky, 1962). In the same vein, Powell and Kalina (2009) mentioned that: 'In cognitive constructivism, ideas are constructed by individuals through a personal process, as opposed to social constructivism where ideas are constructed through interaction with the teacher and other students.' (p. 241) As the making of knowledge is inseparable from the social environment in which it is produced, learning is viewed as a process of active knowledge construction within and from social forms and processes (Adams, 2006). In that respect, one can deduce that learning is essentially situated for social constructivists.

Moreover, social constructivism emphasizes the importance of language in the process of intellectual development. Therefore, 'social constructivism is a highly effective method of teaching that all students can benefit from, since collaboration and social interaction are incorporated. (Powell & Kalina, 2009, p. 243) Dialogues or small group debates become the medium by which ideas are shared, discussed and developed. The discussion is often with more knowledgeable others, but this need not always be the case; verbal exchanges with peers can be of equal value. It is with reference to existing knowledge and understanding (schemas) that new ideas and understanding can be constructed during shared verbalization (Pritchard, 2009).

Compared to cognitivism, constructivism relies on understanding as well but based on the learners' construction of knowledge through assimilation and accommodation rather than being dependent of the teacher's choices and explanations. For instance, faced with a high number of lost balls in a prior gameplay session, as reported by teammates observers during the debriefing pause, the team is challenged to develop a strategy and an action plan to be tried out during the next gameplay session(s). Should there be an improvement during following encounters, students might adapt their related mental tactical schema (accommodation), thus confirming a new understanding and learning. As was the case for the two previous learning theories, readers may consult Table 1 and section 'GUBA-related teaching practices and underpinning learning theories' for additional examples.

Which Way Should One Go?

So far, we have seen a glimpse of three main learning theories, behaviorism, cognitivism and constructivism in addition to the social perspectives for cognitivism and constructivism. Faced with these five theories, notwithstanding many others not discussed in this paper, which path should physical educators follow in the teaching/ learning of TSGs? As a premise, the authors take it for granted that the prime objective of the learning program is each student's personal (although possibly shared) development rather than a 'winning at all costs' result, hence an educational perspective. In the next sections of the article, the authors will attempt to discuss a possible answer to the above question. Overall, the teaching-learning context implemented must first be consistent with the students' specific characteristics and, above all, their desire to learn.

Cognitive Maturation as a Key Criterion

Facts are not taught the same way that concepts or problem-solving are; likewise, one's teaching approach differs depending on the proficiency level of the learners involved. The instructional strategies employed and the content addressed (in both depth and breadth) would both vary depending on the cognitive level and experience of the learners (Ertmer & Newby, 2013). It is not a matter of working without a theory but rather a matter of choosing wisely, given information gathered about the students' present level of competence and the type of learning task, the appropriate approach for ensuring the optimal results; different strategies based on different theories appear to be necessary. As stated by Ertmer and Newby (2013, p. 57):

> Jonassen (1991) has described three stages of knowledge acquisition (introductory, advanced, and expert) and argues that constructive learning environments are most effective for the stage of advanced knowledge acquisition, where initial misconceptions and biases acquired during the introductory stage can be discovered, negotiated, and if necessary, modified and/or removed. Jonassen agrees that introductory knowledge acquisition is better supported by more objectivistic approaches (behavioral and/or cognitive) but suggests a transition to constructivist approaches as learners acquire more knowledge which provides them with the conceptual power needed to deal with complex and ill-structured problems.

Although a constructivist approach may be viewed as the proper way of tackling learning, one must recognize that less cognitive-demanding methods may be more appropriate in a 'progressive development' perspective based on the learners' capacities. This is particularly the case when time comes to opt for a social-cognitive or a social-constructivist teaching/learning strategy, especially regarding tactical learning in TSGs.

Fitting Cognitive Load as a Complementary Criterion

Whether within a constructivist or a cognitivist approach, even learners who have reached the formal operational stage, which implies complex mental operations, may nevertheless have difficulties perceiving or managing too much information at the same time. In such instances, limiting extraneous information and using scaffolding may be effective to adapt the learning-activity cognitive load (Harvey & Cope, 2025).

Prerequisites to Understanding Gameplay

Appropriate and Shared Gameplay Vocabulary

Whatever the communication channel applied in the learning process, be it understanding and answering questions, exchanging opinions or ideas, contributing to an action plan, using an observational instrument, providing information to teammates, etc., learners need to use an appropriate situated language, which could prove to be a challenge for learners in TSGs.

As stated by Godbout and Gréhaigne (2021, p. 51): 'Verbalization facilitates learners' reflection, understanding and observation by providing a database in view of exchanging with other players. One must differentiate the learner's construction of tactical knowledge and his/her acquisition of gameplay language.' Essentially, gameplay language is a matter of declarative knowledge. The terminology involved already exists in the learners' social environment and their community's culture, hence the reference to situated language. As learners are exposed to various gameplay experiences, the teacher using his/her pedagogical content knowledge, transmits this declarative knowledge through straightforward information, recall questioning or similar '*behaviorist*' teaching strategies, to help each member of the class group or the team develop a declarative memory (Hove & Martinez, 2024), thus a gameplay vocabulary box composed of situated language (as illustrated in Figure 1). For a more elaborate discussion on students' development and use of gameplay language, readers may consult Godbout and Gréhaigne (2021).

Learners' Perception of Gameplay: Situation Awareness

For learners, understanding gameplay primarily calls for, to start with, experiencing gameplay as a player or an observer and gathering information as the encounter between opponents unfolds. The notion of situation awareness (SA), originally developed by Endsley (1995) in relation with incidents- or crises-related working environments, appears appears to be quite suitable for the conditions in which players find themselves in invasion TSGs. According to Godbout (2023):

> The SA construct relates to an individual's level of consciousness of the particular situation he is involved in, given that the situation calls for some action based on this individual's decision. The efficiency of one's SA is particularly critical in time-constrained situations with potential serious repercussions. (p. 164)

The SA process put forward by Endsley develops in three phases, namely 'the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future' (Endsley, 1995, p. 36). In gameplay, the three phases lead naturally to decision and action.

The perception of the importance of elements in the environment during a match may prove challenging for players and/or observers. Among the varied physical activities, TSGs, and more so invasion TSGs, are the most demanding in terms of tactical complexity (Méndez-Giménez et al., 2012). Throughout a match, while ensuring the defense of its own camp, each team must coordinate its actions to

recapture, conserve, and move the ball toward the adverse camp so as to bring it into the scoring zone and effectively score (Gréhaigne et al., 1997). This implies for instance (a) managing the space with regard to defensive and offensive shifts, (b) taking into account the current configuration of play, that is the positioning of all players, teammates and opponents, on the court, (c) considering which player is in possession of the ball (or of any other object fought for), and (d) considering potential offensive or defensive actions given the competency network of both teams. 'The basic challenge for each player is to cooperate with partners in order to oppose more effectively the opponents either while attacking (keeping defense in mind) or while defending (keeping ready to attack)' (Gréhaigne et al., 2001, p. 60). Given the number of potential turnarounds during a match, TSGs may be portrayed as highly nonlinear activities in addition to forcing significant time constraints on players.

For players and teammates observers, perceiving the gameplay reality goes beyond seeing or looking; it relies on informed observation which, in turn, implies the use of frames of reference. Given the complexity of invasion TSGs, there will be a need for several particular frames targeting different aspects of gameplay such as, for instance offensive players' use of space and positioning during an attack, defensive players' use of space and positioning during the opponents' attack, and so on. SA considered at the time of gameplay may be referred to as either current player-SA or current observer-SA (See Godbout & Gréhaigne, 2022, p. 67 in AJSPO, for more details on various types of situation awareness). While current player-SA sustains reflection in action and leads naturally to decision-making, current observer-SA is more likely to be referred to at the time of reflection on action as will be discussed in the following section. Current observer-SA may also contribute to observational learning mentioned earlier in connection with both later performance and learning, that is the description of observed players' behaviors at the time of reflection on action.

Reflection on Action: Opening the Door Toward Sensemaking of Gameplay Events

Gameplay-related exchanges among learners or between learners and their teacher are often based on perceptions that may be more or less sound depending upon the students' level of experience. However, when exchanges are based on detailed gameplay observations, they usually are more accurate and may lead to more authentic learning (Gréhaigne et al,. 2021). For instance, if players discuss about the exact number of shots on goal they did in the previous match, the information is more objective and relevant than trying to speak out loud about scoring chances. In organizations, the expression 'debriefing' usually refers to 'a meeting that takes place in order to get information about a particular piece of work that has been finished, for example about what was done successfully and what was not' (Cambridge University Press, 2011). In a learning context, following a gameplay session, teachers often plan some kind of pause from the sport activity not only to prevent physical exhaustion but mostly to encourage learners into reflecting on their gameplay experience, identifying problems encountered, verifying prior hypotheses, suggesting possible action plans for following gameplay sessions, etc. In these 'debriefing' pauses, reflection on prior action will be sustained by what Godbout and

Gréhaigne (2022) have labelled reflected situation awareness (RSA) based on frames of reference. They wrote: 'Reflecting on prior game play is a pedagogical strategy that makes it possible for players to evoke reminiscences of last encounters and, through convergent and/or divergent thinking, assess the strategic or tactical efficiency of choices made' (p. 67).

In such debriefings, players of a same team, and teammate observers if it applies, may exchange on their perception of prior gameplay and develop a socially shared SA, given that common frames of reference were used. The particular frames used at this time by players and teammate observers, on which they based their reflected SA, will likely evolve depending on conclusions they draw from their exchanges.

Exchanges between the PE teacher and students, or exchanges among students themselves create many understanding opportunities for the learners: (a) consolidating one's gameplay language; (b) confirming prior gameplay hypotheses; (c) recognizing relationships between ideas, events or players through convergent thinking; (d) establishing new relationships between ideas, events or players through divergent thinking; (e) consolidating action or play organization rules (convergent thinking); (f) hypothesizing new action or play organization rules (divergent thinking); and so on. In reference to Almond's definition of understanding presented earlier, one might consider that gameplay understanding is a matter of progressively establishing connections between words, ideas, events, players, as they relate to TSGs.

GUBA-Related Teaching Practices and Underpinning Learning Theories

The concrete teaching practices used by PE teachers to teach TSG logically depend on the pedagogical approaches they choose to implement, which, as illustrated in Table 1, are usually grounded in particular learning theories. In essence, these practices must be determined by players' needs in terms of learning (how, what and when players must learn). According to the literature on teaching TSGs, practices that are based on socio-cognitivism or socio-constructivism (or on some combination of both) seem more appropriate to teach this kind of activity (Harvey & Cope, 2025; Yan et al., 2023), considering their collective and ever-changing nature. On the other hand, the reader may note that a teacher could sometimes navigate between pedagogical approaches and their underlying theories by using different kinds of practices in accordance with the teaching context. For instance, it could be deemed appropriate for a teacher that is implementing a GUBA to eventually resort to behaviorist practices to teach ultimate-frisbee (often referred to as 'ultimate') constitutive rules/terminology to novice students or even different ways of throwing the frisbee.

Table 1. *Examples of GUBA-related Teaching Practices and Underpinning Learning Theories*

Categories of practices	Subcategories	Concrete practices	Underpinning learning theory
Game related	Basic rules and choice of activity	Teacher presents verbally constitutive rules of the game (immutable) and court arrangement	Behaviorism
		Teacher determining verbally adjustments to some rules with explanations	Cognitivism
		Having students discuss potential adjustments to some rules to be tried out	Socio-constructivism
	Using adapted rules to create problem solving	Teacher uses regular rules only and tells players how to play	Behaviorism
		Teacher determining in advance (in a sequence) different adaptations	Cognitivism
		Players on both teams decide to adapt the game (with the teacher's help) to ensure better equiprobability or to create a specific problem to solve.	Socio-constructivism
Student-tasks related	Observation of performances	Teacher determining content of formal observation with explanations	Cognitivism
		Having teams determine formal observational criteria	Socio-constructivism/ cognitivism
		Having teams discuss frame(s) of reference for informal observation in view of situation awareness	Socio-cognitivism
		Teacher suggesting frame(s) of reference for informal observation in view of situation awareness	Socio- cognitivism
		Teacher showing games statistics of professional players with explanations	Cognitivism
	Reporting/sharing observational data/information and reflective	a- During a pause between gameplay sessions, teacher giving feedback to correct players' gameplay (based on his/her observations and the predetermined learning objectives) b- During gameplay, using stops on site, teacher giving sensory cues related to 'when' and 'how' execute certain actions in play (action relevance and process).	a- Behaviorism b- Cognitivism

Categories of practices	Subcategories	Concrete practices	Underpinning learning theory
	activities	Players having formal observers report results to the class-group	Socio-constructivism/ cognitivism
		Players having formal observers (a) report results to their team (b) for further discussion	Socio-constructivism
		Reflection on observations: (a) self; (b) shared	(a) Constructivism
		Reflection on game play: (a) self; (b) shared	(b) Socio-constructivism
Learning-environment related	Regulation	Teacher writing reminders for adjustments on blackboard	Cognitivism
		Teacher using task cards on the walls as reminders	Behaviorism/ Cognitivism
		Teacher commenting video-recordings of gameplay for the whole group	Socio-cognitivism
		Teams debating on data provided by peer observation or content of videorecording of their gameplay	Socio-constructivism
		Homework: observing matches on TV and writing report	Constructivism
	Learning project (e.g., several sessions are regrouped into a season and/or tournament)	Teacher (a) organizes every step of the learning project alone/(b) organizes every step of the learning project alone but explains why each time in relation with the learning project	(a) Behaviorism (b) Cognitivism
		Students have roles and responsibilities in the organization of the learning project (e.g., a team formation committee; refereeing; the culminating event organizing committee, etc.)	Socio-constructivism

Game-related Practices

Among the biggest concerns for teachers, the main one is ensuring that the proposed game situations are meaningful to students, regardless of the used pedagogical approach or practices. Students are much less likely to engage in any learning process if the game or the context is not meaningful to them. Among other things, not only the stakes of the matches must be of importance to them, but they must also have a sense of belonging to their team (team's affiliation). Therefore, giving weight to match results and ensuring a certain stability to their team formation is essential (Gréhaigne et al., 2021). This last point may be especially relevant for teachers who can create promising learning projects in the form of a season of formal and fair competition ending by a tournament which is in line with what is advocated by Siedentop in the Sport Education Model (Siedentop et al., 2011).

In GUBAs, gameplay modifications are usually either proposed to students or determined by them in order to put forward specific game problems related to their level of play (Gréhaigne et al., 1999). Teachers who choose the rules alone and impose the activity on the students are usually more aligned with a behaviorist or cognitivist approach. Usually, they choose to do so because they don't have much time to teach or the students don't have a lot of experience in sports or games in general. In the same vein, a teacher could use direct teaching practices to 'model' players' behaviors (behaviorism) in order to help them learn new skills or refine flawed ones that prevent them from playing the game adequately. On the other hand, they can progressively adopt a more constructivist approach by involving initiated students in choosing the rules or the context of the game if the time is not an issue. In a 'purely' socio-constructivist view, students with more experience could be led to choose the activity and the rules themselves, and even the adaptations needed to better adjust the level of play so that everyone remains within an optimal learning zone.

Formalized Regulation for Students: Students' Observations and Reflective Activities

These nuances regarding the learning theories could also apply to other categories of teaching practices that are common to most of the GUBAs. For instance, most of them advocate the use of performance observation (players' own observations and perceptions during gameplay as well, as for some, peer observations) to foster players' reflection on the efficacy of the action plan they implemented to solve a specific game problem. The teacher's elected practices to determine the object of the observation and/or the way it will be conducted could be seen either as a cognitivist or constructivist way. Using performance observation in order to determine exactly what students will do and how is more closely related to a cognitivist approach (or in a socio-cognitivist approach if peer observation is proposed), whereas giving students the outlines and directions on performance measurement so that they can determine their own measurement object and strategy is more consistent with a socio-constructivist paradigm.

Another shared feature between GUBAs is, as mentioned above, the opportunity given to players to reflect on their actions during the game in order to consider

possible game solutions to play better. When the theme of the reflective activity is determined by the teacher, for example in the form of a pre-match speech or feedback given to participants during or after the game, the primary aim is to quickly draw students' attention to specific aspects of performance that they consider important for playing more effectively. The teacher could also use open-ended questions on specific aspects of the game to do so. This kind of practice would be more aligned with a cognitivist/socio-cognitivist paradigm. Two sets or periods of gameplay interspersed by a systematic team-discussion period (often referred to as debate of ideas) could also be proposed to students to allow them to discuss their observations within their team to find ways to improve their gameplay, the intent being to elicit a deeper reflection on their part (Gréhaigne & Godbout, 2021). From a practical point of view, debating with peers is a social learning process for players generally associated with socio-constructivism and considered by the authors as being as much important as acquiring the motor skills required for every action in the game. The way teachers intervene in the debate process could, however, offer a different indication of the pedagogical paradigm used. Indeed, teachers may 'assert themselves' in the discussions and dictate to students what to do (a behaviorist orientation) or propose and explain their own vision of solutions to game problems (a socio-cognitivist orientation). Teachers with a more socio-constructivist approach will prefer to remain supportive during the discussions, listening attentively and alternately to student groups and intervening (scaffolding) only when they request it or when the reflection/discussion stagnate and they are unable to find solutions (Zerai et al., 2008). Either way, the teacher should not assume that simply asking players to discuss their thoughts will automatically lead to effective game plans and strategies. In a socio-constructivist perspective, their main role is to nourish the discussions and be patient and wait for students to reflect further on the problem. If the problem is meaningful enough to the players, they will eventually experiment different actions or game plans to solve it. Teachers should then try to encourage students to search for solutions and, in some cases, emphasize the importance of certain observations or statistics provided by the players.

Overall, if the teacher determines the object of reflection or guides the students toward a specific one, it illustrates a more cognitivist orientation. On the other hand, should a teacher allow students to decide or discover their own reflection subject, a more socio-constructivist approach would then be involved with the purpose of developing students' autonomy. The teacher would then assume that the learning-process time could be far more important and that students have sufficient situation awareness to perform the regulation task correctly. Different teaching practices sustained by underpinning learning theories will undoubtedly activate, at different levels, various systemic cognitive connections as shown in Figure 1. While behaviorist practices may particularly activate the vocabulary box and motor development zones, cognitivism-related practices will activate several connections related to strategic and tactical learning and even more so constructivism-related practices. In both cases, the addition of a social perspective, either socio-cognitivism/socio-constructivism will significantly further increase the level of activation particularly in relation with the social environment and both the social and affective development.

Conclusion

A question that remains: is a cognitivist or a constructivist approach better suited to teach TSGs? Why implement a constructivist approach if being given the answer lets students play better? One of the most important factors to consider when choosing between a cognitivist or constructivist approach to the learning process is the basic nature of team games and sports, particularly for territorial invasion games. Indeed, the random and constantly changing nature of players' actions on the field, combined with the vagaries of luck or chance occurrences, requires players to progressively develop a high degree of autonomy (Malho, 1974). This is truer since gameplay is often continuous and the ability or capacities of teachers to guide and teach numerous players simultaneously is nearly impossible. Thus, this desire to empower players and enable them to understand the game seems to align much better with constructivist or socio-constructivist principles, taking for granted that learners' cognitive development is sufficient. However, this form of learning sometimes requires a significant amount of time or resources, which is not always available to teachers, especially in schools where the number of sessions of physical education classes is often insufficient and the ratio teacher-students too high, making proper scaffolding difficult.

Furthermore, beyond the teaching strategies used by teachers, it is crucial to remember that most students naturally adapt to their environment and learn the game even if the teaching strategies are not optimal. The most striking example that justifies the essence of socio-constructivist approaches is seeing children engaging in free play in parks and learning to play the sport on their own, without adult supervision, simply by playing and observing friends.

In addition, learning to play TSGs involves learning not only about the internal logic of the game and about collective tactics and strategies, but also about rules and terminology in addition to the mastery of particular motor skills. Despite their focus on understanding, GUBAs cannot escape this reality. As a result, even if a particular game-understanding approach is considered as being cognitivist or constructivist, it is likely that at some point, PE teachers will resort to behaviorist strategies to teach either rules of the game, gameplay vocabulary or motor skills.

Finally, designing a particular approach to be constructivist or socio-constructivist does not make it so necessarily. In the end, it is the way a particular teacher implements the approach that brings students either to rest on the formers' instructions or to take charge of their learning with the help of an informed facilitator.

References

Adams, P. (2006). Exploring social constructivism: theories and practicalities. *Education* 34(3): 243-257.

Almond, L. (2015). Rethinking Teaching Games for Understanding. *Agora for PE and Sport* 17(1): 15-25.

Bandura, A. (1977). *Social learning theory*. New-Jersey: Prentice-Hall.

Bandura, A. (1986). *Social foundations of thought and action*. New-Jersey: Prentice Hall.

Bednar, A.K., Cunningham, D., Duffy, T.M., Perry, J.D. (1991). *Theory into practice: How do we link?* In GJ Anglin (ed), 88-101. Instructional technology: Past, present, and future. Denver, CO: Libraries Unlimited.

Boutin, G. (2000). Le béhaviorisme et le constructivisme ou la guerre des paradigmes [Behaviorism and constructivism, or the war paradigms]. *Québec français* (119): 37-40.

Brown, P.C., Roediger, H.L. III, McDaniel, M.A. (2014). *Make it stick: The science of successful learning*. Cambridge: The Belknap Press of Harvard University Press.

Bunker, D., Thorpe, D. (1982). A model for the teaching of games in the secondary school. *Bulletin of Physical Education* 17(1): 5-8.

Cambridge University Press (2011). *Cambridge business English dictionary*. Cambridge: Cambridge University Press.

Cropley, A. (2006). In praise of convergent thinking. *Creativity Research Journal*, 18(3): 391–404. https://doi.org/10.1207/s15326934crj1803_13

Duffy, T.M., Jonassen, D.H. (1991). Constructivism: New implications for Instructional Technology? *Educational Technology*, 31(5): 7–12.

Endsley, M.R. (1995). Towards a theory of situation awareness in dynamic systems. *Human Factors*, 37(1): 32-64.

Ertmer, P.A., Newby, T.J. (2013). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance Improvement Quarterly,* 26*(*2): 43-71.

Fryling, M.J., Johnston, C., Hayes, L.J. (2011). Understanding observational learning: An interbehavioral approach. *The Analysis of Verbal Behavior*, 27(1): 191-203. https://doi.org/10.1007/BF03393102

Fuente (de la), J.D., Kauffman, F., Boruchovitch, E. (2023). Editorial: Past, present and future contributions from the social cognitive theory (Albert Bandura). *Frontiers in Psychology*, 14:1258249. https://doi.org/10.3389/fpsyg.2023.1258249

Godbout, P. (2023). Situation Awareness: A pivotal process for sensemaking and decision making in the learning and practice of physical activites. *Athens Journal of Sports,* 10(3): 163-180. https://doi.org/10.30958/ajspo.10-3-3

Godbout, P., Gréhaigne, J.F. (2020). Revisiting the Tactical-Decision Learning Model. *Quest*, 72(4): 430-447. https://doi.org/10.1080/00336297.2020.1792953

Godbout, P., Gréhaigne, J.F. (2021). Game-Play Language and Game-Play Intelligence– Wording, Planning, and Enacting Action Plans in Team Sports. *Athens Journal of Sports,* 8(1): 47-64. https://doi.org/10.30958/ajspo.8-1-2

Godbout, P., Gréhaigne, J.F. (2022). Making sense of decision making in invasion team sports – A teaching/learning perspective in Physical Education. *Athens Journal of Sports,* 9(2): 59-78. https://doi:10.30958/ajspo.9-2-1

Gréhaigne, J.F., Godbout, P. (2014). Dynamic systems theory and team sport coaching. *Quest,* 66(1): 96-116. http://dx.doi.org./10.1080/00336297.2013.814577

Gréhaigne, J.F., Godbout, P., Bouthier, D. (1997). Performance assessment in team sport. *Journal of Teaching in Physical Education,* 16(4): 500-516.

Gréhaigne JF, Godbout P, Bouthier D (2001) The teaching and learning of decision making in team sports. *Quest,* 53(1): 59-76

Gréhaigne, J.F., Godbout, P., Mahut, N. (1999). L'enseignement des jeux par la compréhension: une revue de question [The teaching of games: A review]. *STAPS,* 20(48): 81-93. https://doi.org/10.3406/staps.1999.1124

Gréhaigne, J.F., Wallian, N., Godbout, P., Poggi, M.P. (2021). Modèle d'apprentissage des décisions tactiques: une approche centrée sur les élèves [Tactical-Decision Learning Model: A student-centred approach]. *eJRIEPS,* 49 : 56-91. https://doi.org/10.4000/ejrieps.5999

Guilford, J.P. (1967). *The nature of human intelligence*. New-York: McGraw-Hill.

Harvey, S., Cope, E. (2025). Making learning happen in Teaching Games for Understanding with cognitive load theory. *Education Sciences*, 15(5): 631. https://doi.org/10.3390/educsci15050631

Hove, M.J., Martinez, S.A. (2024). *Biological psychology* (rev. ed.). Fitchburg, MA: ROTEL Project

Jonassen, D.H. (1991). Evaluating constructivistic learning. *Educational Technology*, 31(9): 28–33.

Jonnaert, P., Vander Borght, C., Defise, R., Debeurme, G., Sinotte, S. (2008). *Créer des conditions d'apprentissage: Un cadre de référence socioconstructiviste pour une formation didactique des enseignants* [Creating conditions for learning: A socio-constructivist framework for teacher training]. Bruxelles: De Boeck Supérieur.

Mahlo, F. (1974). *Acte tactique en jeu* [Tactical action in play]. Paris: Vigot.

Margolis, M.V., Mead, T. (2022). *Educational learning* theories (3rd ed.). Education Open Textbooks.

Méndez-Giménez, A., Fernández-Río, J., Casey, A. (2012). Using the TGFU tactical hierarchy to enhance student understanding of game play. Expanding the Target Games category. *Cultura, Ciencia y Deporte*, 20(7): 135-141. http://doi.org/10.12800/ccd.v7i20.59

Moran, D., Behan, S., Macnamara, A., Horgan, P., Taylor, J. ((17 Apr 2026). Game is the teacher? Understandings and misunderstandings of games-based approaches. *Physical Education and Sport Pedagogy,* 1–20. https://doi.org/10.1080/17408989.2026.2657291

Nadeau, L. (2001). *La validation d'un outil de mesure de la performance au hockey sur glace en situation réelle de match* [Validation of a performance measurement tool for ice hockey in real match situations]. PhD dissertation. Québec, Canada: Université Laval. http://hdl.handle.net/20.500.11794/17777

Piaget, J. (1953). *The origins of intelligence in children.* New-York: W W Norton & Co.

Pigeon, V., Nadeau, L., Poulin-Beaulieu, I., Godbout, P. (2026). Teaching Team Sports and Games: A plethora of approaches based on the understanding of gameplay in the scientific literature. *Cogent Social Sciences,* 12(1). https://doi.org/10.1080/23311886.2026.2648877

Powell, K.C., Kalina, C.J. (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Education*, 130(2): 241-250.

Pritchard, A. (2009). *Ways of learning - Learning theories in the classroom* (2nd ed.). London: Routledge.

Rink, J.E. (2001). Investigating the assumptions of pedagogy. *Journal of Teaching in Physical Education, 20*(2), 112–128. https://doi.org/10.1123/jtpe.20.2.112

Schunk, D.H. (1991). *Learning theories: An educational perspective.* New-York: Macmillan.

Siedentop, D., Hastie, P.A., Van der Mars, H. (2011). *Complete guide to sport education* (2nd ed). Champaign, IL: Human Kinetics.

Sternberg, R.J. (1985). *Beyond IQ: A triarchic theory of human intelligence*. Cambridge: Cambridge University Press.

Sternberg, R.J. (2005). The theory of successful intelligence. *Revista Interamericana de Psicología/Interamerican Journal of Psychology,* 39(2): 189–202.

Vienneau, R. (2017). *Apprentissage et enseignement : Théories et pratiques* [Learning and teaching: Theories and practices] (3rd ed.). Montréal: Gaëtan Morin Éditeur.

Vygotsky, L.S. (1962). *Thought and language*. Cambridge, MA: MIT Press.

Wadsworth, B.J. (2004). *Piaget's theory of cognition and affective development*. London: Longman Publishing.

West, C.K., Farmer, J.A., Wolff, P.M. (1991). *Instructional design: Implications from cognitive science*. New-Jersey: Prentice Hall.

Winn, W. (1990). Some implications of cognitive theory for instructional design. *Instructional Science*, 19(1): 53–69.

Yan, J., Jones, B., Smith, J.J., Morgan, P., Eather, N. (2023). A systematic review investigating the effects of implementing game-based approaches in school-based physical education among primary school children. *Journal of Teaching in Physical Education*, 42(3): 573-586. https://doi.org/10.1123/jtpe.2021-0279

Zerai, Z., Rezig, M., Zghibi, M. (2008). Débats d'idées et apprentissage chez les filles en sport collectif [Girls' debates of ideas and learning in team sports]. *eJRIEPS*, 13: 78-93. https://doi.org/10.4000/ejrieps.6125

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Advancing Women's Soccer: Interconnected Challenges in Athlete Health and Equity

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Women's soccer has experienced unprecedented global growth, yet this expansion is shadowed by a high prevalence of anterior cruciate ligament (ACL) injuries and persistent systemic inequities. This exploratory narrative synthesis (2004–2026) aims to bridge the gap between biomechanical risk and social justice by examining the interconnected challenges of injury prevention and equity. The review identifies that female athletes face significant biomechanical vulnerabilities, including increased knee valgus and altered muscle activation patterns, which are exacerbated by "gender-blind" footwear design. Currently, 82% of female players in top leagues report discomfort or pain related to cleats designed for male morphology. Simultaneously, the study explores the underrepresentation of Black women in soccer, highlighting how socioeconomic barriers and chronic underfunding (particularly at Historically Black Colleges and Universities) limit access to elite development. Findings show a staggering resource gap, with average HBCU athletic expenditures ($11M–$12M) dwarfed by those of Power Five institutions ($150M+). The synthesis concludes that addressing these disparities requires an interdisciplinary paradigm shift. Technical innovations, such as the Kofa Agilita women-specific cleat, are presented as essential social interventions. By prioritizing sex-specific biomechanical needs and equitable resource distribution, the sport can foster an environment where athlete health and performance are no longer compromised by systemic neglect.

Keywords: *ACL injury prevention; footwear biomechanics; Black women's sport; HBCU athletics*

Introduction

Women's soccer has experienced exponential growth in participation and professionalization worldwide, yet this expansion is shadowed by significant challenges that threaten the long-term health and equitable development of the sport. This research addresses two critical, interconnected issues: the alarmingly high prevalence of knee injuries, particularly anterior cruciate ligament (ACL) tears, among female players, and the persistent lack of diversity, specifically the underrepresentation of Black women, at all levels of competition. These two problems, one biomechanical and one systemic, are mutually reinforcing and demand a holistic, interdisciplinary approach for resolution.

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Historical Context and Growth of Women's Soccer

The global history of soccer is expansive, tracing its origins to ancient variations like "Tsu Chu" in China (5000–300 B.C.) and "Calcio Fiorentino" in Renaissance Italy, before its standardized codification in 1863 (Wood, 2008). While women's participation was initially slow to develop, the formation of FIFA in 1904 marked a pivotal step toward global organization (Wood, 2008). In the United States, the National Collegiate Athletic Association's (NCAA) sponsorship of women's sports in 1982 significantly propelled the sport's domestic growth (Lewis, 2023). This trajectory accelerated with the establishment of the Women's World Cup in 1991 and the subsequent successes of the USWNT, notably their victory in the 1999 World Cup (FIFA, n.d.; Timm-Garcia, 2019), which catalyzed the growth of professional leagues and increased public interest (Wikimedia Foundation, 2023). Today, women's soccer boasts a global player base of 29 million, including 4.2 million in the United States (FIFA, n.d.; Culpan & Meier, 2016).

Resource Inequity in Soccer Leading to the Gender Divide

The global landscape of professional soccer, while celebrating the immense success and growing popularity of the women's game, is fundamentally marked by a persistent and deep-seated disparity in resources compared to men's soccer (Harman, 2022). This literature review synthesizes academic research exploring the nature and consequences of this inequity, which spans financial investment, player compensation, media coverage, and access to quality training environments. The consensus across scholarly work is that these institutionalized disparities reflect and reinforce broader societal gender biases, despite evidence of the economic viability and athletic excellence of women's soccer (Fuder et al., 2024; Scheadler & Wagstaff, 2018).

Purpose

This exploratory review article aims to synthesize existing research on the interconnected challenges of injury prevention and equity in women's soccer. Specifically, the scope of this review encompasses an examination of the biomechanical factors contributing to knee injuries in female players, a critical analysis of the limitations inherent in current soccer footwear designs, and an exploration of the systemic barriers that hinder the participation and success of Black women in the sport. Ultimately, this work advocates for interdisciplinary research and innovative solutions, identifying critical areas for future investigation across kinesiology, biomechanics, sports medicine, and social sciences to promote the health, performance, and equitable participation of all female soccer players.

Methods

Research Design

This study employs an exploratory narrative synthesis approach to map the intersection of physiological risk and systemic resource inequity within women's professional, collegiate, and amateur soccer. Given the multi-disciplinary nature of this inquiry (which spans biomechanical engineering, sports medicine, sports social work, and critical race theory) this design was selected to facilitate the systematic integration of highly heterogeneous data types. This framework allows for the concurrent synthesis of quantitative kinetic datasets (e.g., joint loading, traction mechanics) and qualitative sociological analyses concerning institutional disparities.

Search Strategy and Information Sources

A systematic comprehensive literature search was executed across five electronic databases to capture both clinical and social science literature: PubMed/ MEDLINE, Scopus, Web of Science, SPORTDiscus, and JSTOR. To ensure inclusion of the most contemporary advancements in athletic footwear technology and the accelerating landscape of women's sports professionalization, the timeline was restricted to peer-reviewed articles, dissertations, and official technical reports published between 2004 and 2026. The search strategy utilized combinations of Boolean operators (AND, OR) alongside targeted MeSH terms and keywords. The precise search string architecture was structured as follows: "ACL" OR "knee kinematics" OR "valgus stress" OR "neuromuscular control" OR "traction" OR "stud configuration" OR "footwear design" OR "soccer cleats"; "gender-blind design" OR "Black women in sport" OR "systemic barriers" OR "intersectionality" OR "racial disparity" OR "socioeconomic access" OR "Historically Black Colleges and Universities" OR "HBCUs".

Screening Flow and Selection Outcomes

A total of 842 records were initially identified through the electronic database searches. After removing duplicates (194 records), the titles and abstracts of 648 studies were independently screened for general relevance. Of these, 512 studies were excluded during the abstract phase for failing to meet core thematic boundaries (e.g., investigating non-soccer cohorts, examining purely cardiovascular metrics, or focusing exclusively on male biomechanics). The remaining 136 articles underwent rigorous full-text evaluation against strict inclusion and exclusion criteria. To be retained for final synthesis, studies were required to meet specific selection criteria outcomes:

1. Focus explicitly on female soccer populations (youth, collegiate, or professional/ elite),
2. Provide primary quantitative empirical data or formal meta-analyses regarding lower-extremity injury mechanisms, anthropometric foot morphology, or shoe-surface traction interfaces, or

3. Directly examine the structural, institutional, or socioeconomic factors affecting sport access, funding, or psychological well-being among marginalized populations, specifically Black female athletes and sports programs at historically underfunded academic institutions.

Following full-text assessment, 74 articles were excluded for failing to provide cross-disciplinary data or for utilizing non-peer-reviewed blog posts (except where explicitly bounded as primary source material for cultural discourse analysis). Ultimately, 62 primary sources met all criteria and were included in the final qualitative and quantitative synthesis.

Data Extraction and Systematic Derivation of Conclusions

Data from the final pool of 62 studies were extracted using a standardized digital template to capture authorship, sample demographics, specific athletic competitive levels, independent variables (e.g., cleat stud geometry, institutional funding brackets), and dependent outcomes (e.g., rotational torque, ligamentous failure rates, self-efficacy scores). Conclusions were systematically derived utilizing a three-stage iterative synthesis matrix to guard against biased aggregation:

1. Categorical and thematic grouping wherein extracted data were isolated into distinct analytical domains. Biomechanical data were organized into structural categories (e.g., hormonal influences on ligament laxity vs. foot-fixation under high-velocity cutting maneuvers). Concurrently, sociological and financial data were categorized by systemic factors (e.g., capital allocation disparities in Predominantly White Institutions [PWIs] versus Historically Black Colleges and Universities [HBCUs]).
2. Cross-disciplinary intersection mapping wherein thematic matrices were systematically cross-referenced to locate precise relational overlaps. Specifically, the technical and physical limitations of athletic footwear (such as the historical industry reliance on scaled-down men's lasts) were mapped directly against institutional purchasing frameworks and financial constraints. This stage traced how an athlete's physical vulnerability is compounded when executing maneuvers in substandard equipment due to institutional underfunding.
3. Critical inductive synthesis wherein final conclusions were systematically generated by synthesizing the mapped data through an intersectional lens. By evaluating the combined weight of physical risk factors and socioeconomic neglect, the synthesis determined how the historical underrepresentation of diverse cohorts in sports science research leads to generalized, potentially counterproductive injury prevention paradigms. The final synthesis establishes a unified, auditable logical pathway proving that ergonomic footwear equity functions as an active mechanism of social and clinical intervention.

Results: The Dual Challenges of Health and Equity

Biomechanical Risk Factors and Injury

Despite the sport's prominence, the alarmingly high incidence of knee injuries, particularly non-contact ACL tears, is a growing concern for the longevity of female athletes' careers (Brockway, 2023; Lewis, 2024; Warren & Pennington, 2025). Existing research consistently demonstrates that female soccer players exhibit significant biomechanical differences compared to their male counterparts that contribute to this risk (Thomson et al., 2022; ACSM, 2023). These differences include an altered lower extremity alignment and kinematics, often manifesting as increased knee valgus, an inward collapse of the knee, that is more pronounced during dynamic tasks such as landing, cutting, and pivoting, consequently placing greater stress on the ACL (Fortune Journals, n.d.; Grassi et al., 2023). Furthermore, females tend to exhibit greater hip internal rotation and adduction, which can exacerbate knee valgus and ACL loading (Fortune Journals, n.d.). Differences are also observed in landing mechanics, with female athletes often landing with less knee flexion and greater quadriceps activation, increasing anterior shear forces on the tibia and subsequently increasing ACL strain (Fortune Journals, n.d.; PMC, n.d.). Finally, altered muscle activation patterns, specifically a potentially less dominant hamstring activation relative to the quadriceps, may contribute to the increased ACL risk in females (Weingart et al., 2022).

Footwear Limitations and Biomechanical Exacerbation

These inherent biomechanical vulnerabilities are exacerbated by the widespread use of sports equipment, particularly soccer cleats, that is often ill-fitting and inadequately designed to meet female-specific needs (Lewis, 2024). Current soccer cleats are frequently designed primarily for male athletes and simply scaled down in size for women (Wrack, 2023; Stefanyshyn et al., 2000). This "shrink it and pink it" approach disregards distinct anatomical features of the female foot, such as a narrower heel, wider forefoot, and often a higher arch (Footalk, 2019; Soccer.com, 2014). Ill-fitting footwear can lead to discomfort, pain, blisters, altered movement patterns, and increased risk of injury, as confirmed by a European Club Association study which found that 82% of female soccer players in the top leagues reported issues with their cleats (Wrack, 2023).

Beyond fit, another limitation lies in traction systems. While traction is vital for performance, cleats designed for male force output may provide excessive grip for women, who typically generate less lower body power (News Detail, 2023). This potentially increases rotational forces at the knee joint during directional changes, a known risk factor for ACL injuries, as excessive rotational traction can cause the foot to become fixed while the body continues to move (Thomson et al., 2022; Andriacchi et al., 2009). Research specifically examining the interaction between stud design and ground reaction forces in female soccer players is less prevalent, highlighting a critical gap in optimal footwear development.

Anatomy and the Imperative for Sex-Specific Design

A modern soccer cleat is a complex, highly engineered athletic tool comprising several integrated structural elements, all of which are essential for supporting the athlete's foot and facilitating the complex, dynamic movements of the sport. The structural components begin with the Upper, the part encasing the foot, providing containment, ball feel, and fit through various materials, lacing systems, and specialized "Touch Zones" (Nike, n.d.). The Heel Counter, a rigid insert at the rear, is critical for providing stability to the hindfoot and controlling excessive movement during rapid changes of direction (Nike, n.d.). The Toe Box must allow adequate space for natural toe splay, which is essential for balance, stability, and avoiding discomfort (Roach, 2023).

The Outsole/Sole Plate forms the structural foundation, typically made of high-performance polymers that balance flexibility and rigidity to transfer force to the ground (Nike, n.d.). Attached to the sole plate are the Cleats, or Studs, which are designed in varying shapes and lengths to optimize linear and rotational traction on different surfaces, such as firm ground (FG) or soft ground (SG) (Chanis, 2022; Thomson et al., 2022). Finally, the removable Insole provides comfort, cushioning, and arch support, playing a crucial role in managing moisture and distributing plantar pressure (Roach, 2023).

Despite continuous innovations in materials and traction systems in the broader footwear market, including laceless designs and adaptive fit technologies (Adidas X Speed Portal; Adidas, n.d.; Nike, n.d.), the historical lack of dedicated research and development for women has led to a major shortfall in design (Karolidis & Hahn, 2023; Full article: A mechanical comparison, 2024). A growing body of research underscores the anatomical and biomechanical differences that necessitate a sex-specific approach across three domains (1) *Foot Morphology*: Women generally possess a narrower heel relative to their forefoot width compared to men, meaning standard cleats may fail to provide adequate heel lockdown, resulting in instability (Footalk, 2019). (2) *Plantar Pressure and Arch Height*: Women often exhibit higher arch heights and unique patterns of plantar pressure distribution, requiring tailored insoles for proper arch support and comfort (ACSM, 2023). (3) *Force Production*: Traction patterns must be optimized for the typically lower force output of female athletes to avoid excessive rotational grip that exacerbates ACL risk (Thomson et al., 2022; News Detail, 2023).

These distinctions unequivocally highlight that simply scaling down men's cleats is a notion of disrespect that compromises comfort, performance, and, most critically, increases the risk of lower extremity injuries in female soccer players at every competitive level.

Systemic Barriers to Diversity

In addition to health concerns, the underrepresentation of Black women in soccer, particularly at elite collegiate, professional, and leadership levels, represents a fundamental equity challenge (Gonzalez, 2023). Research indicates a clear disparity in participation rates compared to White counterparts (Harrison & Hardin, 2018; Lapchick et al., 2023). Systemic barriers, most notably socioeconomic disparities, play

a significant role, as the financial prerequisites for elite development, such as access to quality coaching, training facilities, and expensive travel teams, disproportionately affect marginalized communities (Harrison & Hardin, 2018; Nargiso et al., 2020). Furthermore, cultural factors and a lack of media visibility for Black female soccer players can limit positive role models and discourage participation among young Black girls (Norman, 2020; Baxter, 2023). The consequences of this lack of diversity extend beyond statistics, impacting team dynamics and failing to fully reflect the diverse communities that the sport aims to serve (Norman, 2020).

Disparity in Financial Investment and Compensation

One of the most examined aspects of resource inequity is the vast difference in financial compensation and investment, which extends beyond simple pay-per-game metrics to overall operating budgets and prize money (Stahler & Pennington, 2025). Studies on the United States Women's National Team (USWNT), a globally dominant force, illustrate a stark contrast in earnings compared to the less-successful men's team, despite the women's higher profits and television ratings in certain periods (Braciska, 2018; Utah Law Digital Commons, 2024).

This pay discrepancy is often justified by organizations using the argument of lower revenue generation in women's sports (Utah Law Digital Commons, 2024). However, scholars argue that this claim is flawed, as it fails to account for the historical lack of investment and media attention that created the current economic gap (Agha & Berri, 2021; Fuder et al., 2024). Furthermore, the disparity in global prize money for major tournaments, such as the FIFA World Cup, remains astronomical, with the men's prize pool significantly outstripping the women's, even as the women's prize money increases (Vanderbilt Law, 2019). The trickle-down effect of this funding gap is evident at the professional club level, where salary caps in women's leagues have been documented to be dramatically lower than those in men's leagues, with many female players globally receiving minimal or no wages for their play (Priddy, 2018; Vanderbilt Law, 2019).

Inequitable Working Conditions and Facilities

The resource gap extends beyond financial figures and impacts the tangible working conditions and development opportunities for female athletes. The lack of investment in infrastructure, including training facilities, pitch quality, and travel accommodations, often leaves women's teams with second-tier resources (Braciska, 2018). The necessity for better-resourced development programs is highlighted in research, especially for elite women's sports in countries with higher overall gender inequality (Hoffmann et al., 2006).

Beyond facilities, the underrepresentation of women in coaching and management positions is another key resource deficiency. Scholarly work suggests that the perpetuation of male-dominated sports organizations, which prioritize hiring men into leadership roles, creates a less supportive environment for female players and sustains the cycle of gender inequality (Priddy, 2018). In addition, research reveals a significant gap in sports science attention, with a clear underrepresentation of studies focusing on

the specialized training, injury prevention (e.g., ACL injuries), and match analysis of professional female soccer players (PMC, 2024). This dearth of specialized knowledge acts as a resource barrier, limiting the ability to maximize female players' performance and safety.

Resource Scarcity and Systemic Disadvantage in HBCU Athletics

Historically Black Colleges and Universities (HBCUs) have long served as vital centers for education, culture, and social mobility, often operating under conditions of systemic capital deprivation compared to Predominantly White Institutions (PWIs) (HBCU Money, 2025; Williams & Davis, 2019). This chronic underfunding of the institutions as a whole cascade directly into their athletic departments, creating profound and persistent resource disparities that hinder competitiveness, impede facility maintenance, and limit the capacity to support student-athletes fully (Elliott & Kellison, 2019; Granger, 2021). Academic literature consistently frames this resource gap using theoretical perspectives, such as Resource Dependency Theory, which posits that an organization's resources determine its overall power and sustainability, demonstrating that HBCUs are the most under-resourced members of the NCAA (Elliott & Kellison, 2019; Quarterman, 1992).

Financial and Budgetary Disparities

A key theme in the literature is the vast difference in annual athletics expenditures and revenue generation between HBCUs and PWIs. Studies comparing athletic budgets confirm that HBCU peer groups spend significantly less than their PWI counterparts across all major categories, including operating expenses, head coach salaries, recruiting, and athletic aid (Elliott & Kellison, 2019; Duby & Chen, 2023). For example, annual athletics expenditures for MEAC and SWAC institutions often average between $11 million and $12 million, figures that are dwarfed by the budgets of Power Five conference schools, which can exceed $150 million (HBCU Money, 2025).

This financial struggle is fundamentally linked to the institutions' smaller endowments and their mission of serving a higher proportion of low-income, first-generation students who rely heavily on financial aid, limiting the schools' internal ability to subsidize athletics (Gasman, 2009; Priddy, 2018). Consequently, HBCU athletic departments do not generate significant revenue through conventional means and often must divert institutional funds, raise student fees, or rely on locally sourced donations to sustain programs (HBCU Money, 2025).

Operational and Infrastructure Deficiencies

The under-resourced nature of HBCU athletics manifests tangibly in substandard facilities and aging infrastructure. Scholars and coaches have noted that the difference in facilities (e.g., fields, weight rooms, training centers) is a visible consequence of systematic underfunding, with HBCU teams often unable to provide the same resources that are "second nature" at well-funded PWIs (Spokesman-Recorder, 2023; Elliott, Kellison, & Cianfrone, 2019). This lack of funding for long-term initiatives, such as

facility renovations and additions, can negatively affect recruitment and the overall student-athlete experience (Southern Regional Education Board, 2023).

Furthermore, administrators and coaches at HBCUs often operate with smaller staff sizes and are forced to take on more responsibilities (e.g., coaching/teaching alongside administrative duties) and are paid significantly less than their PWI peers (Elliott & Kellison, 2019). The lack of dedicated marketing or external relations staff is also cited as a barrier to maximizing revenue generation and engaging potential sponsors (Elliott, Kellison, & Cianfrone, 2019).

Competitive and Policy-Related Disadvantages

Resource limitations directly impact HBCU athletic competitiveness and create unique policy challenges: (a) "Guarantee Games" and Competitive Disparity: HBCU football programs often participate in "guarantee games" against higher-resourced PWIs to generate much-needed revenue, receiving a payment for an almost guaranteed, demoralizing loss (Journey Magazine, 2019). While this provides financial intake, research suggests the contracts may not be as lucrative as they should be, and the talent disparity remains a key issue, primarily driven by the ability of PWIs to offer better resources and exposure to recruits (Journey Magazine, 2019; Lillig, 2009, as cited in Elliott & Kellison, 2019); (b) NCAA Policies: NCAA policies, such as the Academic Performance Program (APP) and its metrics (Academic Progress Rate and Graduation Success Rate), have been criticized for unfairly penalizing under-resourced HBCUs (SLR, 2022). By holding institutions to standards without accounting for the inherent disparities in institutional resources available to support student success, the policy can inadvertently perpetuate systemic inequalities and threaten postseason eligibility, further limiting revenue opportunities (SLR, 2022); and (c) Name, Image, and Likeness (NIL): Recent policy changes surrounding NIL and scholar-athlete compensation pose a new challenge for HBCUs, which must find ways to compete for top talent in a landscape where PWIs can leverage their massive resources and alumni networks to establish lucrative deals (Southern Regional Education Board, 2023).

In conclusion, the resource challenges faced by HBCU athletic departments are inseparable from the historical and systemic underfunding of the institutions themselves (NEA, 2025). While these programs hold immense cultural pride and serve as vital engagement tools for alumni and the community, their financial sustainability is constantly threatened by inadequate operational budgets, aging facilities, and policies that fail to account for the deep-seated financial inequalities in American higher education (HBCU Money, 2025; Southern Regional Education Board, 2023).

The Role of Media and Stereotypes

Unequal media coverage is a crucial factor contributing to and justifying resource inequity. Women's soccer often receives significantly less broadcast space and is frequently subjected to a sexualized or patronizing portrayal in the public eye, in contrast to the focus on athletic performance for men's soccer (Braciska, 2018; Fuder et al., 2024). This disparity in representation is not benign; it directly influences public perception and the commercial valuation of the sport.

Experimental research challenges the notion that the lower demand for women's soccer is solely due to lower perceived skill. Studies have shown that when the gender of players is obscured, the perceived quality ratings of men's and women's performance do not significantly differ, suggesting that existing gender stereotypes, which portray women as less capable or inferior athletes, artificially depress the demand and, consequently, the investment in women's soccer (Taylor & Francis Online, 2023). This cycle of lower investment, poor media coverage, and resulting lower economic returns creates a self-fulfilling prophecy that reinforces the initial gender bias (Fuder et al., 2024).

The academic literature consistently demonstrates that the resource inequity in women's soccer is not simply a market-driven outcome but a complex issue rooted in historical, institutional, and cultural biases. Disparities in pay, facilities, coaching representation, and scientific research attention perpetuate an environment that undervalues female athletes. Moving toward true equity requires not only equal pay but also a systemic reevaluation of resource allocation, significantly increased institutional investment, and an end to discriminatory media representations (Fuder et al., 2024; Utah Law Digital Commons, 2024).

Discussion

This review highlights the complex interplay between biomechanical factors, suboptimal footwear design, and systemic inequities in women's soccer. The disproportionately high rate of ACL tears is fundamentally linked to biomechanical predispositions, which are exacerbated by the widespread use of equipment that fails to accommodate the female athlete's unique anatomical and functional requirements. Simultaneously, the underrepresentation of Black female athletes underscores the systemic challenges related to access, resources, and culturally appropriate support. These experiences align with existing research demonstrating that inequitable resource distribution functions as a social determinant of athlete health, shaping not only physical injury risk but also self-esteem, identity, and motivation (Sabo & Veliz, 2020; López & McDonough, 2021). Taken together, the results highlight not only biomechanical concerns but also the psychosocial cost of inequitable equipment access, which disproportionately affects women and athletes at HBCUs. These systemic barriers directly undermine confidence, belonging, and sport performance (Bennett & Gioia, 2020; Carson & Polk, 2022), core determinants of athlete well-being.

At the systems level, providing women with equipment designed specifically for their needs represents more than an ergonomic improvement, it is a corrective action against long-standing inequities in funding, access, and gender responsiveness within sport. Research in sport psychology and sport social work consistently demonstrates that when athletes feel adequately resourced and supported, they exhibit higher levels of self-efficacy, confidence, motivation, and perceived control, all of which are predictors of improved performance (Henriksen & Stambulova, 2017; Myer et al., 2016).

Conversely, inequitable distribution of equipment functions as a social determinant of athlete health, reinforcing systemic disparities that begin in youth sport and intensify through college. Women, especially those at underfunded and

historically marginalized institutions, internalize these inequities as indicators of their value or worth within their programs (López & McDonough, 2021). This marginalization affects not only physical safety but also psychological readiness, identity development, and long-term sport participation.

The existing literature compellingly argues that a paradigm shift is needed in the design and development of soccer cleats for women. The historical reliance on scaled-down men's models disregards fundamental sex-based differences and has led to far too many ACL tears. Future research must prioritize a user-centered approach, integrating detailed biomechanical analyses of female-specific movements with advanced material science and innovative design principles. This includes creating women-specific lasts, optimizing stud patterns to efficiently execute pivoting and cutting with optimal rotational traction, and incorporating durable insoles that sustain their cushioning and proper arch/heel support beyond a single season of play, addressing a key complaint from players (Wrack, 2023).

Furthermore, addressing the systemic barriers that limit the participation of Black women requires a multi-faceted approach, encompassing initiatives to increase access to quality training, promote equitable talent evaluation, and foster inclusive and supportive environments. Research specifically examining the footwear needs and experiences of Black female soccer players is notably scarce, highlighting an important area for extension to an often unheard and unseen, yet vital, athlete population (Harrison & Hardin, 2018; Prempeh & Pennington, 2025a,b).

In summary, the continued success of women's soccer hinges on innovative, evidence-based solutions that prioritize the health, performance, and equitable participation of all female athletes. Kinesiology scholars and footwear developers play a vital role in this endeavor, providing the scientific foundation for informed decision-making in equipment design and policy development. By acknowledging and accommodating the unique needs of this growing demographic, the industry can contribute significantly to a future where women's soccer is both thriving and equitable, allowing female collegiate athletes to perform at the highest level without it being in exchange for their health.

Alternative Perspective & Dialectical Balance

While the imperative for sex-specific footwear design is clear, a comprehensive epidemiological perspective requires acknowledging that ACL injury etiology is inherently multifactorial, and equipment modification constitutes only a single variable within a broader preventative framework. Biomechanical counterarguments suggest that focusing primarily on footwear structural design may overshadow the critical roles of neuromuscular control, hormonal fluctuations across the menstrual cycle, and fatigue-induced kinematic changes, which independently influence ligamentous strain regardless of cleat geometry (Renstrom et al., 2008; Hertel & Denegar, 2012). Furthermore, caution must be exercised to avoid bio-essentialist generalizations; morphological metrics and force-production profiles vary significantly across a heterogeneous female athletic population, meaning a universal "women's last" may not inherently accommodate every individual foot structure or running gait. Sociologically, critics of material interventions might also argue that providing advanced footwear risks

offering a superficial, techno-centric solution to deeply entrenched structural inequities. Improved equipment access, while vital, cannot serve as a proxy for the comprehensive systemic overhauls required to rectify broader disparities (such as unequal access to certified athletic trainers, dedicated strength and conditioning specialists, and high-quality pitch maintenance) which remain the primary drivers of health and performance disparities at marginalized institutions.

Conclusion: Footwear as a Biomechanical and Social Intervention

The synthesis of biomechanical data and sociological inquiry presented in this review reveals a stark reality: the high rate of ACL injuries in women's soccer is not an architectural flaw of the female body, but rather a consequence of an unlevel playing field. The historical reliance on "gender-blind" equipment is a tangible manifestation of resource inequity that compromises the health of female athletes (Pennington et al., 2026 a, b; Prempeh & Pennington, 2025a, b).

Proper accommodation can prevent eventual short- and long-term injuries. The solution developed from the culmination of this research is the *Kofa Agilita* (KA), a novel women's specific cleat attempting to close the gender gap in sports equipment with the goal of enhanced comfort and mitigating injury risk (Prempeh & Pennington, 2025a, b). The introduction of the *Kofa Agilita* represents a paradigm shift from passive adaptation to active accommodation. By integrating specific technical features, the KA cleat directly addresses the "gender-blind" design failures identified in this review A women-specific last featuring a narrower heel cup and a contoured arch support eliminates the mediolateral instability and "heel slip" typical of scaled-down men's cleats. This design feature minimizes the compensatory kinematic patterns that routinely increase strain on the anterior cruciate ligament (ACL). The stud configuration is calibrated to align with the distinct force-production profiles and biomechanical loading patterns characteristic of many female athletes. By optimizing rotational traction, the KA prevents excessive "foot-fixation" during high-velocity pivots. High-performance polymers within the sole plate ensure that structural integrity does not degrade mid-season. This durability is an essential variable for athletes at historically underfunded institutions, where frequent equipment replacement is financially prohibitive.

Empirical evaluations of the Kofa Agilita indicate profound psychological and behavioral shifts among participants: (a) Athletes utilizing the KA report heightened feelings of institutional visibility and equity, noting that equipment tailored to their physiology makes them feel "seen," "prioritized," and "equal." (b) Self-efficacy increases as athletes are liberated from preventable pain, chronic discomfort, and outdated, ill-fitting gear. (c) Perceptions of authentic inclusion and structural support actively enhance student-athlete motivation, institutional commitment, and sport adherence. (d) Eradicating the psychological distractions of physical discomfort and the ambient "fear of injury" yields measurable improvements in athletic execution.

However, a robust analysis must acknowledge that "female physiology" is not monolithic; variations in anthroposcopic metrics, baseline conditioning, and

playing surfaces introduce nuanced contextual variables. While the KA addresses aggregate morphological trends, individual biomechanical variances mean that footwear modification remains a singular, albeit vital, component of a multi-faceted injury prevention paradigm. By systemic rectification of these physical disparities, the provision of women-specific footwear evolves into a mechanism of psychosocial empowerment.

For athletes at HBCUs and other marginalized programs, the *Kofa Agilita* cleat serves as a mechanism of dignity and equity. In environments where chronic underfunding often forces athletes to utilize second-tier resources, providing equipment designed specifically for their physiology is a powerful social intervention.

When an athlete is provided with a tool that acknowledges her unique biology and racial identity, the benefits transcend the physical paradigm. Athletes benefit from psychological readiness, wherein the "fear of injury" is reduced through evidence-based design enhances self-efficacy and on-field confidence. Athletes gain institutional validation by virtue of high-quality, sex-specific gear which signals that the athlete's health and performance are high-priority investments, countering the internalization of systemic neglect. Also, the sport gains sustainable participation. By mitigating preventable injuries, we preserve the talent pipeline of Black women in soccer, ensuring they remain in the sport long enough to transition into the leadership and coaching roles where they are currently most underrepresented.

Thus, the introduction of an equitable, women-specific cleat is not merely a product innovation, it is a social intervention that counters inequity, promotes athlete dignity, and strengthens holistic performance outcomes (Nipper & Pennington, 2025; Pennington et al., 2026 a, b). It represents a tangible step toward addressing the gender gap in sports resources and toward creating environments in which all athletes, regardless of gender, race, or institutional funding level, can thrive.

References

ACSM. (2023). *ACSM's guidelines for exercise testing and prescription* (11th ed.). Wolters Kluwer.

Adidas. (n.d.). *adidas US*. Official Website.

Adidas. (n.d.). *X Speedportal*. Adidas Online Shop.

Agha, N., & Berri, D. J. (2021). *Economic perspectives on women's sports: Market demand and the value of professional leagues*. Brookings Institution Press.

Andriacchi, T. P., & Dyrby, C. O. (2009). Interactions between the shoe and the athlete. *British Journal of Sports Medicine*, *43*(Suppl 1), i86–i91.

Bauldin, A., Schiller, D., & Rushbrook, T. J. (2020). *Article of footwear with self-cleaning cleats* (U.S. Patent No. 20160286904). U.S. Patent and Trademark Office.

Baxter, K. (2023, July 15). USWNT hopes its record diverse World Cup roster will inspire next-gen stars. *Los Angeles Times*.

Bennett, E. V., & Gioia, A. (2020). Athlete well-being and performance: The role of psychological needs and environmental factors. *Sport, Exercise, and Performance Psychology, 9*(2), 202–217.

Braciska, H. (2018). *One nation, one team: A historical analysis of inequalities between men's and women's professional soccer* [Undergraduate honors thesis, College of the Holy Cross].

CrossWorks. https://crossworks.holycross.edu/cgi/viewcontent.cgi?article=1012&context=gsw_stu_scholarship

Brockway, B. (2023). ACL injuries in women's soccer: A growing concern. *The Athletic*.

Bundesliga. (2020, March 18). All you need to know about soccer. *bundesliga.com Bundesliga website*.

Carson, S. L., & Polk, G. (2022). Sport social work: Addressing structural inequalities and athlete well-being. *Journal of Social Work Practice, 36*(4), 467–480.

Chanis, A. (2022, January 10). What's the difference between SG and FG soccer cleats? *Master Soccer Mind*.

Culpan I. & Meier C. (2016). Sport and the political economy: considerations for enhancing the human condition. *Athens Journal of Sports* 3(2): 143-154.

Duby B. & Chen S. (2023). Race and gender hiring and expansion of minority donor base in division-I athletic fundraising. *Athens Journal of Sports* 10(1): 19-38.

Dufek, J. S., & Bates, B. T. (1991). Biomechanical factors in running injuries. *Sports Medicine*, *12*(5), 288–302.

Elliott, K., & Kellison, T. (2019). Perceptions of the Fiscal Challenges Facing Athletic Departments of Historically Black Colleges and Universities. *Journal of Intercollegiate Sport*, *12*(1), 16–35.

Elliott, K., Kellison, T., & Cianfrone, B. (2019). Budgeting for success: Comparing finances between Historically Black Colleges and Universities and Predominantly White Institutions. *Journal of Intercollegiate Sport*, *12*(1), 59–76.

FIFA. (n.d.). *Women's World Cup USA 1999*.

Footalk. (2019). *The differences between men's and women's feet and why it matters for footwear*.

Fortune Journals. (n.d.). A critical analysis of the factors contributing to anterior cruciate ligament injuries in female athletes. Retrieved from http://www.fortunejournals.com/articles/a-critical-analysis-of-the-factors-contributing-to-anterior-cruciate-ligament-injuries-in-female-athletes.html

Fuder, A., Hemwall, K., Kaczkofsky, B., Martens, Z., & Zhang, Z. (2024).[13] An unlevel playing field: Institutionalized gender inequalities & discrimination in soccer. *Reading Physical Culture*. https://sites.lsa.umich.edu/reading-physical-culture/2024/05/03/an-unlevel-playing-field-institutionalized-gender-inequalities-discrimination-in-soccer/

Full article: A mechanical comparison of the translational traction of female-specific and male soccer boots. (2024). *Sports Engineering*.

Gasman, M. (2009). *Envisioning black colleges: A history of the United Negro College Fund*. Johns Hopkins University Press.

Gonzalez, G. (2023). *The Black Women's Player Collective: Advancing Black Women in Soccer*.

Grassi, A., Tosarelli, F., Cucchi, D., Della Villa, S., Zaffagnini, S., & Di Paolo, S. (2023). Two-dimensional and three-dimensional biomechanical factors during 90° change of direction are associated to non-contact ACL injury in female soccer players. *International Journal of Sports Physical Therapy*, *18*(4), 887–897.

Gupton, M., Terreberry, R. R., & Matuszewski, P. E. (2023). Haglund deformity. In *StatPearls*. StatPearls Publishing.

Granger, K. (2021). *HBCU Athletic Administrators' Perception Toward Creating A Graduate Level Curriculum for Directors of Athletics* (Ed.D. Dissertation, Texas Southern University). Digital Scholarship @ TSU.

Harman J. (2022). Gender equality and institutions as the driving force of football performance: Women vs men. *Athens Journal of Sports* 9(1): 25-36.

Harrison, C. K., & Hardin, J. (2018). Race and gender in college sport: Still a long way to go. *Journal of Sport Management*, *32*(2), 163–177.

HBCU Money. (2025, July 29). *Balancing the Ledger: A Comprehensive Analysis of Athletics vs. Research Spending (MEAC/SWAC vs. SEC/Big 10)*. https://hbcumoney.com/2025/07/29/balancing-the-ledger-a-comprehensive-analysis-of-athletics-vs-research-spending-meac-swac-vs-sec-big-10/

Hertel, J. & Denegar, C. R. (2012). Practice-Based Research Networks: Making Clinical Research a Reality in Athletic Training. *Journal of Athletic Training*, *47*(5), 487–488. https://doi.org/10.4085/1062-6050-47.5.04

Hoffmann, R., Lee, J., & Waisman, I. (2006). The impact of gender equality on the performance of national women's soccer teams.*International Journal of Sport Finance*, *1*(2), 108–122.

Hong, J. (2006a). *Magnetic therapy massage slipper* (Korean Republic Patent No. 20090042879A).

Hong, J. (2006b). *Shoes for pressing the reflex zone* (China National Intellectual Property Administration Patent No. 209191980U).

Hutchison, P. (2019, October 15). Regulations for soccer cleats. *SportsRec*.

Joseph, L. (1963). *Shoe leveling insole* (U.S. Patent No. US8695235B2). U.S. Patent and Trademark Office.

Journey Magazine. (2019, January 22). *HBCUs vs PWIs: Why Division I historically black athletic programs struggle against predominantly white institutions*. https://journeymagonline.com/articles/hbcus-vs-pwis-why-division-i-historically-black-athletic-programs-struggle-against-predominantly-white-institutions/

Karolidis, E., & Hahn, M. (2023). UO Knight Campus article.

Lapchick, R., Salazar, N., Wright, B., & Chung, E. (2023). *Race and gender report card: College sport 2021–22*. The Institute for Diversity and Ethics in Sport.

Lewis, A. (2023, July 21). The history makers and the groundbreakers: How the US became women's soccer's dominant force. *CNN*.

Lewis, T. (2024). Sexist science in soccer harms women in an epic own goal.

López, J., & McDonough, M. (2021). Gendered experiences of inequity in sport participation and injury prevention. *Women in Sport and Physical Activity Journal, 29*(2), 84–93.

Luximon, A., & Goonetilleke, R. S. (2001). Foot shape and size of Chinese. *Ergonomics*, *44*(13), 1277–1293.

Mamchii, O. (2024, August 8). Most popular sports in the world in 2024. *Diplomatic Conferences, New York*.

Mendoza, J. (2022, November 29). What is stoppage time? Here's why the World Cup has so much extra time added. *USA Today*.

Nargiso, N., Hernandez, N. R., Cribbs, A., Hayes, Y., Hill, K., Hoyd, T., & Grider, J. (2020). Why HBCUs athletic programs have not reached top-tier status.

NEA. (2025). *NEA HBCU 2023 Update: Continued Crisis for HBCUs*. National Education Association. https://www.nea.org/sites/default/files/2025-06/33011_nea-research-land-grant-university-brief_final.pdf

News Detail. (2023, September 29). ACSM releases expert consensus statement: The biological basis of sex differences in athletic performance. *ACSM_CMS*.

Nike. (n.d.a). *Mercurial Superfly 9 elite firm-ground soccer cleats*. Nike.com.

Nike. (n.d.b). *Tiempo legend VI SG-pro anti clog traction soft-ground soccer cleat*. Nike.com.

Nipper, Z. & Pennington, C. G. (2025). Team Culture as a Function of Team Success. *Athens Journal of Sports*. 12(4), 1-17. DOI: 10.30958/ajspo.X-Y-Z.

Norman, J. (2020). *We here: The Black athlete, activism, and the age of protest*. Silver Press.

Nwokolo, C. (2023, February 9). Top 10 best women's football leagues in the world 2023. *Top Soccer Blog*.

Ooofos. (n.d.). *About Oofos*. Oofos.com.

Pennington, C. G., Prempeh, M. & Ellman, C. (2026, April 8). *Examining Resource Inequity, Injury Risk, and Psychological Well-being Among Female Soccer Players at HBCUs.*

Tri-State Regional Sport Psychology Conference, Seton Hall University, South Orange, New Jersey.

Pennington, C. G., Prempeh, M. & Ellman, C. (2026, February). *The Psychosocial and Biomechanical Cost of Inequitable Soccer Footwear for Female HBCU Athletes.* Association for Applied Sport Psychology (AASP) Mid-Atlantic Conference, Rowan University, Glassboro, New Jersey. DOI: 10.13140/RG.2.2.20275.08480Physiopedia. (2017). *Arches of the foot*.

PMC. (2024). *A bibliometric study on the evolution of women's football and determinants behind its growth over the last 30 years*. https://pmc.ncbi.nlm.nih.gov/articles/PMC11679993/

PMC. (n.d.). Biomechanical and performance differences between female soccer athletes in National Collegiate Athletic Association Divisions I and III. Retrieved from https://pmc.ncbi.nlm.nih.gov/articles/PMC2140072/

Prempeh, M. & Pennington, C. G. (2025a). Deconstructing Soccer Footwear: An Anatomical Review with Implications for Female Athlete-Specific Design. *Universal Journal of Sport Sciences. 5*(1), 24-30. DOI: 10.31586/ujss.2025.6130.

Prempeh, M. & Pennington, C. G. (2025b). Advancing Women's Soccer: Historical Growth and Challenges Concerning Athlete Health and Diversity. *Universal Journal of Sport Sciences. 5*(1), 18–23. DOI: 10.31586/ujss.2025.6102.

Priddy, J. (2018). *The damaging effects of intersectionality and layers of oppression on United States female soccer players* [Undergraduate thesis, Gettysburg College]. The Cupola: Scholarship at Gettysburg College. https://cupola.gettysburg.edu/cgi/viewcontent.cgi?Article=1765&context=student_scholarship

Quarterman, J. (1992). An analysis of the functions, characteristics, and backgrounds of athletic directors at historically black colleges and universities. *Journal of Black Studies*, *23*(1), 118–137.

Renstrom, P., Ljungqvist, A., Arendt, E., Beynnon, B., Fukubayashi, T., Garrett, W., ... & Engebretsen, L. (2008). Non-contact ACL injuries in female athletes: an International Olympic Committee current concepts statement. *British Journal of Sports Medicine*, *42*(6), 394-412.

Roach, D. (2023, October 7). Anatomy of supportive insoles. *Flow Feet Orthopedic Shoes*.

Sabo, D., & Veliz, P. (2020). *The State of Girls and Women in Sport.* Women's Sports Foundation.

Scheadler, T., & Wagstaff, C. R. D. (2018). Sports, gender, and the media: The influence of gender on athlete recognition and exposure. *Journal of Sport and Social Issues*, *42*(6), 467–487.

SLR. (2022, June 30). *NCAA Academic Performance Program Harms Historically Black Colleges & Universities' Athletics*. Sports Law Review. https://www.sportslaw.org/docs/NCAA_Academic_Performance_Program_Harms_HBCU_Athletics.pdf

Soccer.com. (2014). Women's cleats – The real deal. Retrieved from https://www.soccer.com/guide/the-difference-between-womens-mens-soccer-cleats

Southern Regional Education Board. (2023). *The Future of Athletics at HBCUs*. https://www.sreb.org/sites/main/files/file-attachments/2023_hbcubrief_athtrack_final.pdf

Spokesman-Recorder. (2023, December 21). *Funding disparities keep HBCU sports at a disadvantage*. https://spokesman-recorder.com/2023/12/21/funding-disparities-keep-hbcu-sports-at-a-disadvantage/

Stahler, T. & Pennington, C. G. (2025). How Name, Image, and Likeness Affects College Athletics. *International Journal of Sports, Exercise and Physical Education*. *7*(1), 197-201. DOI: 10.33545/26647281.2025.v7.i1c.175.

Stefanyshyn, D. J., Nigg, B. M., Fisher, V., & Read, J. B. (2000). Shoe-midsole stiffness and vertical impact forces in running. *Journal of Biomechanics*, *33*(3), 351–358.

Taylor & Francis Online. (2023). *Gender information and perceived quality: An experiment with professional soccer performance*. https://www.tandfonline.com/doi/full/10.1080/14413523.2023.2233341

Thomson, A., Kryger, K. O., Canada, Wannop, J. W., & Qatar. (2021, December 21). Hey coach, doctor, physio, podiatrist, dad, mum – what football boot is best for me. *Journal of ASPEtar*, *10*.

Thomson, C., Whiteley, R., Bleakley, C., & McCall, A. (2022). Risk factors for anterior cruciate ligament injury in female soccer players: A systematic review and meta-analysis. *Sports Medicine*, *52*(11), 2673–2692.

Timm-Garcia, J. (2019, July 23). The match that changed women's football. *CNN, Cable News Network*.

Utah Law Digital Commons. (2024). *Gender pay equity: An analysis of the United States Women's National Team soccer settlement*. https://dc.law.utah.edu/cgi/viewcontent.cgi?article=1381&context=ulr

Vanderbilt Law. (2019). *Red card on wage discrimination: US soccer pay disparity highlights inadequacy of the Equal Pay Act*. https://scholarship.law.vanderbilt.edu/cgi/viewcontent.cgi?article=1033&context=jetlaw

Warren, L. & Pennington, C. G. (2025). ACL Tears and the Female Athlete. *Universal Journal of Sport Science.* 5(1), 6039-6044. DOI: 10.31586/ujss.2025.6039.

Weingart, A., Rynecki, N., & Pereira, D. (2022). A review of neuromuscular training and biomechanical risk factor screening for ACL injury prevention among female soccer players. *Bulletin of the Hospital for Joint Diseases*, *80*(3), 253–259.

Wikimedia Foundation. (2023, October 3). *Women's soccer in the United States*. Wikipedia.

Williams, D. A., & Davis, M. H. (2019). The enduring struggle: The unequal funding of public HBCUs. *Journal of Higher Education Management and Policy*, *1*(2), 45–60.

Wood, R. J. (2008). *A football history: From its origin to now*. Soccer History Timeline.

Wrack, S. (2023, June 27). Survey finds 82% of female players experiencing pain wearing football boots. *The Guardian*.

Zohaib, M. (2018). Prevalence of flat foot in different age groups: A systematic review. *Journal of Pakistan Medical Association*, *68*(11), 1706–1712.

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Paradoxes in the System: Public Service Sport Broadcasting between Mandate and Market

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The allocation of sports broadcasting rights has become a central field of media law, competition law, and democratic theory in Europe. This article argues that public service broadcasters occupy a structurally paradoxical position within the sports rights market: they simultaneously function as competitive market actors and as constitutionally mandated providers of public value. This dual role generates persistent tensions between market rationality and democratic communication requirements. The article develops a legal-economic analysis of this paradox, focusing on welfare-economic justification, distortions in rights markets, and the fragmentation of public communication through global digital platforms. It concludes that the central challenge in Europe is not the elimination of this paradox but its governance under conditions of intensified marketisation and platform capitalism. It will be shown, that in future there will be a lot of pressure for public service broadcasters in Europe in the allocation of sports broadcasting rights and in fulfilling their key function.

Keywords: *public service broadcasting; sports rights; public value, EU media law; competition law; platform capitalism; audiovisual regulation*

Introduction: Sports Rights as a Legal-Political Battleground

The allocation and commercialization of sports broadcasting rights has become one of the most contested domains of contemporary media law and policy. What appears at first glance as a purely economic market for audiovisual content is in fact a densely regulated field at the intersection of constitutional law, European Union competition law, media regulation, and democratic theory (Bertling, 2025a; Billing & Harding, 2014; Miller et al., 2001).

Sports broadcasting rights are no longer merely commercial commodities. They function simultaneously as cultural goods, instruments of political identity formation, and mechanisms of social integration. EU media law explicitly recognises this dual nature by allowing Member States to secure public access to events of major societal importance (cf. Bertling, 2025b; Hutchins & Rowe, 2013; Doyle, 2013).

Within this framework, public service broadcasters occupy a structurally contradictory position. They compete for scarce and expensive premium sports rights while simultaneously being bound by constitutional and statutory mandates requiring pluralism, diversity, and democratic communication. This duality raises fundamental questions regarding legitimacy, proportionality, and institutional design.

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The study is guided by three research questions:

RQ1: How can Public Value be conceptualized in public service sports broadcasting?
RQ2: Which structural tensions emerge between commercial sports rights markets and public service obligations?
RQ3: How do these tensions affect diversity, inclusion, and democratic accessibility?

State of Research

The role of public service media in Europe has a long-standing tradition within communication and media studies and is predominantly discussed from a normative perspective. Public service media are regarded as key institutions of democratic public spheres whose functions extend beyond purely market-driven logic. In addition to their informational and educational functions, they are also attributed an integrative role: they are expected to reflect social diversity, represent minorities, and promote social cohesion (cf. Moore, 1995; Habermas, 1962).

Comparative analyses of media systems demonstrate that public service broadcasters fulfill a stabilizing role, particularly within democratic-corporatist systems. Their legitimacy is derived not primarily from audience ratings or advertising revenues, but from the societal value they generate. Media economic and media policy research likewise emphasizes that the legitimacy of public service broadcasting is increasingly defined through its societal contributions rather than through audience reach alone (cf. Luenich et al., 2021; van den Bulck, 2019; Williamson, 1991; Williamson, 1975).

With regard to sports coverage and the associated rights market, media economic and sports communication research points out that rights costs, market logics, and audience orientation constitute central determinants of sports journalistic attention and strongly shape public service broadcasting. The concentration on a small number of highly commercialized competitions thus follows an economic rationale, yet potentially conflicts with public service mandates of diversity and integration cf. Bertling 2026; Luenich et al. 2021).

At the same time, sports coverage fulfills important societal functions: it creates identity, generates collective experiences, and can foster social integration (cf. Luenich et al. 2021; Hutchins & Rowe, 2012).

To date, however, research has not sufficiently addressed the highly complex interplay between public service obligations, economic and legal conditions, and the media logics associated with them. In order to analyze these interdependencies, Public Value theory offers a promising theoretical foundation.

Theoretical Framework: Public Value

The Public Value approach originally emerged from public administration research, particularly through the work of Moore (cf. Moore, 1995), who conceptualized public organizations not merely as bureaucratic administrative bodies but as institutions actively generating value for society. In his work Moore advances the central argument that public institutions derive their legitimacy not solely from formal mandates or historical tradition, but from their ability to create societal value ("public value"). Public organizations must therefore continuously justify the normative, social, and democratic benefits they provide to society.

Moore's strategic triangle—comprising societal legitimacy and political support, operational capacity, and a clearly defined public value proposition—illustrates that public value emerges within the tension between different and often competing logics of expectation (cf. Moore, 1995; Moe, 2008; Donders, 2012; Parkinson, 2018).

Within media studies, the approach has been applied particularly to public service broadcasting organizations, where it serves as a normative framework for assessing the societal performance of programs and services. Unlike purely economic evaluation models, which focus primarily on audience ratings, market share, or advertising revenue, the Public Value approach also incorporates qualitative and normative dimensions. These include in particular:

- the provision of reliable information and the facilitation of public discourse in support of a democratic public sphere;
- the inclusion of diverse perspectives and social actors to foster pluralism of opinion;
- the representation of different social and cultural milieus in order to promote cultural diversity;
- contributions to social cohesion and integration;
- the provision of journalistic quality, transparency, accountability, and institutional credibility to strengthen trust in public communication (cf. Moore, 1995; Moe, 2011; Moe, 2008; Donders, 2012; Parkinson, 2018).

Public service media are therefore confronted with a dual—or more precisely, triple—responsibility. First, they must manage public resources efficiently and responsibly (economic dimension). Second, they are obligated to represent societal diversity and safeguard democratic discourse (socio-political dimension). Third, they carry a moral and ethical responsibility to ensure journalistic integrity, expose misconduct, and foster trust in public communication. Public Value functions here as an integrative guiding concept that systematically combines these different expectations.

Conceptually, the Public Value approach is rooted in welfare economics. Welfare economics examines the conditions under which societal welfare can be maximized and takes into account collective goods, external effects, and distributive questions. Unlike individualistic utility models that rely

exclusively on willingness to pay or individual preferences, welfare economics also considers goods whose societal benefits extend beyond private demand (cf. Hutchins & Rowe, 2013; Doyle, 2013).

Media offerings—particularly informational and cultural programming—display characteristics of public or merit goods. They generate positive externalities, for example in the form of an informed citizenry, social integration, or democratic stability (cf. Albarran, 2024).

In this context, sports broadcasting can likewise be interpreted as a merit good: its societal benefits—such as collective identity formation, cultural participation, or social cohesion—may exceed the individual willingness to pay of audiences.

Public service broadcasters are expected to fulfill a compensatory role in this regard. They secure broad access to sports, including commercially less attractive disciplines, and counteract potential market failure. In doing so, they contribute to correcting unequal access conditions and safeguarding societal participation.

For the present study, two analytically distinct yet interrelated dimensions of Public Value in sports coverage can be identified:

(1) Socio-Political Dimension: This dimension encompasses the representation of societal diversity, the promotion of social integration, and the visibility of marginalized or underrepresented groups. This includes, for example, adequate coverage of women's sports, Paralympic disciplines, or non-commercialized sports. Public service sports journalism can thus perform a corrective function by compensating for structural selectivities produced by the market.

(2) Economic Dimension: This dimension concerns the efficient use of public resources and the justification of expensive broadcasting rights acquisitions. Particularly in the context of high-cost sports broadcasting rights, the question arises to what extent the resources invested are proportionate to the societal value generated. Public Value serves here as an evaluative benchmark that extends beyond audience ratings and asks what contribution a given offering makes to societal welfare.

The interplay between these two dimensions creates paradoxes that appear increasingly difficult for public service broadcasters in Europe to resolve, leading to an ever-deepening dilemma—as the following section demonstrates.

The Systemic Paradox of Public Service Sport Broadcasting as Public Value

Sport broadcasting does not merely represent sporting activity; it actively constructs its social and economic value. Visibility generates attention, attention produces relevance, and relevance determines the economic value of media rights.

In liberalised markets, allocation is driven by audience demand and advertising or subscription revenues. This mechanism is economically efficient but structurally biased towards already dominant sports. Grassroots sport, women's sport, para

sport, and niche disciplines remain systematically underrepresented (cf. Cooky et al., 2018; Billings & Hardin, 2014).

From a welfare-economic perspective, this reflects a market failure in the provision of merit goods, where social value is not fully captured by private willingness to pay (Albarran 2024). This provides the normative foundation for public service broadcasting in European media systems (cf. Jakubowicz, 2010; Jakubowicz, 2007).

Public service broadcasting is therefore not oriented towards market maximisation but towards ensuring pluralism, integration, and democratic accessibility, as reflected in EU law and constitutional jurisprudence.

The central paradox lies in the fact that public service broadcasters must operate within precisely those markets that appear to contradict their non-commercial mandate.

Premium sports rights—such as the FIFA World Cup, Olympic Games, UEFA Champions League, and national top leagues—generate mass attention essential for maintaining communicative relevance. Without access to such events, public service broadcasters risk losing visibility and, consequently, the ability to disseminate less commercially attractive content.

This creates structural dependency: democratic communication functions rely on participation in commercial markets.

At the same time, public service broadcasters influence market dynamics by incorporating communicative and societal considerations into bidding strategies. This may intensify competition and contribute to rising rights fees (cf. Hutchins & Rowe, 2013; Jakubowicz, 2010; Jakubowicz, 2007).

A recurring normative critique follows: why should licence fee payers finance participation in auctions that contribute to price escalation? The justification lies in the communicative function of premium sport, which generates collective attention structures necessary for public value creation.

A frequent argument suggests that public service broadcasters should withdraw from premium sports rights markets and focus on niche content and investigative journalism. However, this neglects the structural importance of visibility.

Pluralism requires reach. Without mass-audience events, public service broadcasters lose communicative centrality, undermining their capacity to make marginalised content visible.

Investigative sports journalism—covering corruption, doping, and governance failures—illustrates this dependency. While commercially unviable, it performs a crucial democratic oversight function that is indirectly sustained by mass sport attention structures.

Public service broadcasting is embedded in Article 106(2) TFEU, which allows exemptions from competition rules for services of general economic interest. The European Court of Justice recognises public service broadcasting as such a service.

However, sports rights markets raise complex State aid issues. One main criteria require that compensation for public service obligations does not exceed necessary costs. Yet in competitive auction markets, "necessity" is difficult to define because prices are externally determined.

This creates a circular structure: market prices define public costs, while public participation influences those same prices.

As a result, classical State aid doctrine only partially captures the dynamics of sports broadcasting markets. The UK employs a "listed events" system under the Broadcasting Act 1996, ensuring that major sporting events remain accessible on free-to-air television. Germany relies on constitutional jurisprudence of the Federal Constitutional Court and selective listing under the *Medienstaatsvertrag*, reflecting a hybrid model of market reliance and public intervention. France adopts a more interventionist approach grounded in the cultural exception doctrine, ensuring broader free-to-air access to major sporting events (see Council of Europe 1994).

Global platforms such as Amazon and Netflix have fundamentally reshaped sports rights markets. Unlike traditional broadcasters, they treat sports rights as ecosystem assets within broader digital architectures.

Value creation is based on:

- subscription retention
- data extraction
- algorithmic personalisation
- ecosystem integration

Sports rights thus become strategic instruments rather than standalone media products (cf. Billings & Hardin, 2014; Hutchins & Rowe, 2013).

Platformisation produces increasing fragmentation of audiences. Historically, major sporting events created synchronised collective experiences. This shared simultaneity is now replaced by segmented micro-publics distributed across platforms.

From a constitutional perspective, this weakens the integrative function of mass media and erodes shared cultural reference points essential for democratic discourse.

Platform competition produces a structural double bind:

1. Rising global demand increases rights prices
2. Fragmentation reduces communicative value of acquired rights

Public service broadcasters therefore face increasing costs and declining marginal public value.

This constitutes a constitutional as well as economic inefficiency.

Conclusion

Public service sport broadcasting is structurally embedded in a paradox that cannot be resolved within existing legal and economic frameworks.

Public service broadcasters must compete in highly commercialized markets in order to fulfil non-commercial democratic functions. At the same time, their participation contributes to the market dynamics that increase costs and fragment public communication.

EU competition law, State aid doctrine, and media regulation provide partial governance tools but do not eliminate this structural tension.

The central challenge is therefore not the resolution of the paradox but its governance under conditions of platform capitalism. The future of public service broadcasting will depend on whether legal frameworks can preserve democratic communication while limiting the distortive effects of globalized sports rights markets.

Discussion

Three governance models emerge: (1) Mandate restriction. Withdrawal from premium sports markets would reduce costs but undermine visibility. (2) Conditional acquisition.

Premium rights could be linked to measurable public value outputs (e.g. diversity promotion, grassroots reinvestment). (3) Coordinated licensing frameworks. Joint procurement or regulatory coordination could mitigate bidding escalation and preserve access. Each model reflects trade-offs between efficiency, pluralism, and democratic access. For the future, it seems important that there is a model decision that will make public broadcasting and its sports coverage sustainable in the future.

References

Albarran, A. B. (2024). *The media economy*. Routledge.

Bardoel, J., & d'Haenens, L. (2008). Reinventing public service broadcasting in Europe: Prospects, promises and problems. *Media, Culture & Society, 30*(3), 337–355.

Bertling, C. (2026). *Die Abwärtsspirale. Formen, Paradoxien, Störungen des Sportjournalismus und Wege aus seinem Krisenmodus. (The downward spiral: Forms, paradoxes, and disruptions of sports journalism, and ways out of its crisis mode*). Herbert von Halem.

Bertling, C. (2025a). Efficient Combating the Downward Spiral: How the Olympic Movement is Responding to the Market Failure of Sports Journalism & the Rise of Digitalization. In *Athens Journal of Sports.* 2025(1), 31-44.

Bertling, C. (2025b). Public Broadcasting: Between Commerce and Social Welfare – Why the Role of Public Broadcasters is so important in addressing Terrorism and War-related Issues at Major Sporting Events, and why it is so difficult to fulfill. In *Athens Journal of Sports.* 2025(3), 173-180.

Billings, A. C., & Hardin, M. (2014). *Routledge handbook of sport and new media*. Routledge.

Blumler, J. G. (1992). *Television and the public interest*. Sage.

Boyle, R., & Haynes, R. (2009). *Power play: Sport, the media and popular culture.* Edinburgh University Press.

Cooky, C., & Messner, M. A. (2018). *No slam dunk: Gender, sport and the unevenness of social change*. Rutgers University Press.

Council of Europe. (1994). *Protocol on Public Service Broadcasting*.

Donders, K. (2012). *Public service media and policy in Europe*. Palgrave Macmillan.

Doyle, G. (2013). *Understanding media economics*. Sage.

Habermas, J. (1962). *Strukturwandel der Öffentlichkeit*. Suhrkamp.

Hutchins, B. and Rowe, D. (2013) *Sport Beyond Television: The Internet, Digital Media and the Rise of Networked Media Sport*. Routledge.

Jakubowicz, K. (2007). Public service broadcasting in the 21st century: What chance for a new beginning? Terzis, G. (Eds.). *European media governance: National and regional dimensions.* Intellect, 29–49

Jakubowicz, K. (2010). PSB 3.0: Reinventing European PSB. In G. F. Lowe (Ed.), *The public in public service media*. Nordicom.

Luenich M, Starke C, Marcinkowski F, Dosenovic P (2021) Double Crisis: Sport Mega Events and the Future of Public Service Broadcasting. *Communication & Sport.* 9(2). 287-307.

Miller, T., Lawrence, G., McKay, J. and Rowe, D. (2001) *Globalization and Sport: Playing the World.* London: Sage.

Moore, M. (1995) *Creating Public Value – Strategic Management in Government.* Harvard University Press.

Moe, H. (2008). Public service media online? Regulating public broadcasters' internet services—A comparative analysis. *Television & New Media, 9*(3), 220–238.

Moe, H. (2011). Defining public service beyond broadcasting. *International Journal of Cultural Policy, 17*(1), 52–68.

Moore, M. H. (1995). *Creating public value: Strategic management in government*. Harvard University Press.

Parkinson, C. (2018). Public value and public service broadcasting. In *International Journal of Media & Cultural Politics, 14*(2), 147–163.

van den Bulck, H. (2019). Public service media and public value: Theory and practice. In K. Donders, C. Pauwels, & J. Loisen (Eds.), *The Palgrave handbook of European media policy* (pp. 291–309). Palgrave Macmillan.

Williamson O. E. (1975) *Markets and Hierarchies: Analysis and Antitrust Implications. A Study in the Economics of Internal Organization*. The Free Press.

Williamson O. E. (1991) Comparative economic organization: The analysis of discrete structural alternatives. *Administrative Science Quarterly, 36*(2), 269-296.

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Effects of Rational Emotive Behaviour Therapy and Positive Self-Talk on outcomes of Kicks from Penalty Mark among University Football Players in Southwest Nigeria

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Kicks from penalty mark are tie breakers, used in football matches where a winner must emerge. Reports have shown that many university football players have the belief that the outcomes of kicks from penalty mark are based on luck rather than skills. Previous studies have focused more on physiological factors, influencing positive kicks from penalty mark, than on psychological interventions. Therefore, the study was carried out to determine the effects of REBT and PSt on outcomes of kicks from penalty mark among university football players in Southwest Nigeria. A pretest-posttest control group quasi-experimental design, with a 3x3x2 factorial matrix was used. Multistage sampling procedure was adopted. Participants were drawn from first generation federal universities in Southwest Nigeria. Shortened General Attitude and belief Scale (α=0.76) was used to screen and select participants in the team list of male football players. The universities were randomly assigned to REBT (11), PSt (11) and Control (11) groups. The instruments used were Belief in Penalty Kicks Outcome Questionnaire (α=0.82), Penalty Shooting Skill Test (α=0.89) and intervention guides. The data were analyzed, using descriptive statistics, Analysis of covariance, Estimation and Scheffe post hoc at 0.05 level of significance. There was a significant main effect of treatment on outcomes of kicks from penalty mark among the players (F(2; 33) =7.23; partialη2=0.49). The participants in the REBT group had the highest post mean score (7.26), followed by those in PSt (5.45) and control (3.47) groups. There was a significant interaction effect of treatment and playing experience (F(2; 33) =5.15; partialη2=0.41). The players with long playing experience in REBT group had a higher mean score (5.74) than those with short playing experience (4.90). Rational Emotive Behaviour Therapy improved kicks from penalty mark than Positive Self-talk among the participants. Therefore, these therapies should be used as psychological interventions for football players for better outcomes of kicks from penalty mark.

Keywords: *Rational emotive behaviour therapy, Positive self-talk, Kicks from penalty mark, University football players*

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Introduction

Kicks from penalty mark, presumed anxiety filled skills, are crucial part of football tournaments. They are frequently used in major football competitions for decision making, particularly when it is mandatory for a team to emerge as winner. At this stage, expressions of anxiety and uncertainties are often observed among players, coaches, spectators and other sport enthusiasts because unpredictable outcomes of kicks from penalty are associated with feelings of apprehension among them. According to Greg, Geir and Mark (2015), kicks from penalty mark outcomes are frequently acclaimed as a "lottery", attributing luck rather than skills level of the players as determinant of its outcomes. The assertion of the probability of kicks from penalty mark being dependent on luck justifies the reason many great and elite football players have suffered the misfortune of missing in international football competitions. Loss of kicks from penalty mark is not only peculiar to elite football players, it is also common among university football players. In the 25th edition of sports competition organized by Nigeria Universities Games Association (NUGA), held at University of Agriculture, Markurdi, Abubakar Tafawa Balewa University (ATBU) engaged hard-fighting Lagos State University (LASU) in kicks from the penalty mark in one of the knock-out group stages of the competition. Lagos State University was rated a better side, but ATBU defeated LASU by 4-2 on penalties. The celebration of victory often expressed by players, fans and coaches when their team wins from favorable results of penalty kicks than the satisfaction they display when the team wins after regulations time, coupled with the expression of greater feelings of disappointment of the loosing team, compared to when they lose as a result of poor performance within regulation time, establishes the uncertainties of outcomes of kicks from penalty mark among them. The perception of the probability of these kicks being unpredictable has made many football players to view it as a lottery venture or an outcome of luck. This assertion can be attributed to some evidences of elimination or loss of stronger football teams at major decisive national and international football tournaments. The impression that outcomes of kicks from penalty mark are dependent on luck could decrease players' ability of being in control of perceived thoughts, thereby heightening anxiety and mediating negatively on performance behaviour of penalty kickers. Olaoye & Fadoju (2021), asserted that it may not be logical to arrive at the conclusion that outcomes of kicks from penalty mark are dependent on luck, because it may erroneously imply that all players who converted their penalty kicks were lucky. Although, players often experience choking when they are included in decisive penalty kicks, but the belief that its outcome is based on luck could become a major stressor for the kickers. Findings from researches conducted on kicks from penalty mark have shown corresponding effects of anxiety on performance outcome of players. Jordet, Hartman, Visscher and Lemmink (2007) examined 400 kicks from penalties held during major tournaments. Findings from their examination showed that the team who knew that their last attempt, if missed, would instantly result to loss of the competition scored 60% of their penalty kicks, while the team who knew that a score in their last attempt would result to a win converted 92%. This corroborates the effect of pressure exhibited by a penalty kicker when a miss will result to loss of competition, and optimism expressed when a successful conversion of the last attempt would result to a win. Therefore, lack of psychological coping resources and its

application in stressful situations, underscores the reason football players experience choking under pressure and lose in penalty kicks. According to Jordet, Hartman, Visscher and Lemmink (2007), kicks from penalty mark is one of very few occasions in a predominantly fast-moving team sport where players are under individual scrutiny and have sufficient time to think about the consequences of failure. The period between the end of extra time and when penalty commences is a crucial moment when players are found to be more anxious, stressed and tensed up as a result inadequate or lack of psychological coping strategies with absence of emotional coordination (Jordet & Elferink, 2012). Consequently, penalty kickers may not have the opportunity to physically rehearse shooting drills when kicks from penalty mark are used for breaking a tie. However, they can have a mental picture on how to get desired results. Therefore, it can be inferred that the coping resources a penalty kicker requires before performance are more psychological than being physical (Olaoye, 2022). The possibility of determining the outcomes of kicks from penalty mark could be anchored on relevant psychological preparations. Psychological skills training that will strengthen thought patterns and reduce feelings of uncertainties associated with outcomes of penalty kicks for sustained perception of control towards the realization of desired results among penalty kickers should be prioritized. These should be structured and designed within the confines of psychological experiences players are likely to be exposed to during every stage of kicks from penalty mark, for enhancement of their control over the outcomes of their penalty kicks, rather than the outcomes being based on luck. Consequently, mental practice such as Rational Emotive Behaviour Therapy (REBT), Positive Self-talk (PSt) and some penalty training strategies could improve performance outcomes of penalty kickers

Rational Emotive Behaviour therapy (REBT) is a cognitive based behavioural therapeutic intervention that can reduce anxiety and increase perception of control of athletes. (Ellis, Albert, & Dryden, 2007). It is a cognitive behavioural guidance technique which is predicated on the premise that the beliefs people have in connection to the disappointments they experience could negatively mediate on their perceptions of thoughts and emotional responses. It is an effective treatment method for reducing severe motives and behaviour (Spencer, 2005). REBT is an eminent psychological provision, associated with two core principles (MacInnes, 2004). It proposes that emotional concerns and disturbances are caused by some specific irrational beliefs people have about something, and that emotional well-being and psychological wellness of individuals are preceded by certain rational beliefs (for example, preferences, anti-awfulising, self-other, or world-acceptance) and or high-frustration tolerance. Ellis (2003), asserted that one of the main pillars of Rational Emotive Behaviour Therapy is that irrational patterns of thinking, feeling and behaving are the cause of much human disturbance, including depression and anxiety. REBTs central premise is that events alone do not cause a person to feel depressed, enraged, or highly anxious. Rather, it is one's beliefs about the events which contribute to unhealthy feelings and self-defeating behaviour (Ellis, 2003). According to Ekechukwu and Onyekuru (2014), Rational Emotive Behaviour Therapy may be used to reduce aggression, depression and other emotional maladjustment problems. REBT has been found to be applicable and effective in treating emotional challenges. Rational emotive behaviour Therapists strongly believe in the rules of logic, cognition, and scientific method application to

daily routines (Ellis, 2003). REBT attempts to move towards psychological training, focusing on skills such as the identification, criticism and substitution of inefficient beliefs and in so doing, it makes use of cognitive, emotive, mental imaging, behavioural and systemic skills (Thompson & Brown, 2007). Its central mechanism is basically for conversion of irrational beliefs to rational ones, through a well patterned ABCDE therapeutic model (Ellis, 2003). The framework is just to identify irrational beliefs, called (B), by unveiling the reason(s) a certain event at (A) brings about unhealthy emotions and behaviour, called (C), a core element of REBT. When the ABC chain is identified, these irrational beliefs are dispelled or disputed at (D). The D is thereafter replaced with rational beliefs, leading to healthy and more acceptable emotions and behaviour, called (E), thereby yielding to new rationale philosophical dispositions. The focus of REBT is that reduction in irrational beliefs can lead to reduction in negative emotional and behavioural dysfunctions.

Also, Positive Self-talk, a related talking psychological intervention which helps to regulate thought patterns and inner discussions with self, for positive prediction of action could be helpful. According to Yasnitsky, Van der Veer, & Ferrari (2014), the capability for internal dialogue or statement is important for productive and independent thoughts. Self-talk, a special area in the field of sports psychology was not embraced in research discuss until researchers started to examine avenues where athletes' thoughts had influences on their motor skills related activities (Williams & Straub, 2006). Self-talk occurs when an individual intrinsically or extrinsically makes a position about something, whether verbal or non-verbal, which is directly or indirectly connected to his feelings, thoughts or actions. It is described as the key to cognitive control and it is usually referred to internal dialogue, including thought content and self-statements (Hardy, Jones & Gould, 1996). Therefore, self-talk can be positive or negative. If it is positive, it enhances optimism and prevents players from internal competitive distractions. It can tell an athlete what to do, where to focus, and get him motivated. Positive Self-talk directs an athlete's attention towards enhancing self-esteem, motivation, attentional focus and performance, whereas negative self- talk can increase anxiety, reduce reinforcement and generate a counterproductive outcome (Hardy & Hall, 2006). This implies that a player's inner feelings, thoughts and outcome of inner dialogue have influence on his overall performance output. Consequently, his decisions and actions will have corresponding effects on his performance outcome. Positive self-talk is an internal and personal consultation a player uses for sustenance of concentration and attention on the task at hand. It is a psychological construct that helps to regulate thoughts, as well as verbal and non-verbal conclusion of an athlete during performance, especially in stressful situations. Psychological skills acquisition, could be influenced by a number of factors. Research findings have established the influence of age, playing positions and experience of penalty kickers on outcomes of kicks from penalty mark. Jordet (2009), established this assertion when he analyzed and compared the rates of conversion of penalty kicks of players who had achieved remarkable feats in world football history, and players who were striving to become potential future players at the time of their involvement in penalty kicks. From his findings, elite players successfully converted only 65% of their kicks from penalty mark, potential future players converted 73.6% while those who never won any medals in their football career were 88.9% successful. It could be inferred that the upcoming stars were more successful because a

high level of anxiety they probably experienced from penalty kicks was perceived in their judgement as an avenue to prove their worth. For players' playing position, Jordet el al (2007), concluded in their findings when they examined different playing position with corresponding conversion rates of their penalty kicks. They hypothesized that Attackers converted 83.2% of their penalty kicks, midfielders converted 79.7% and defensive players converted 73.7%. According to them, the effect of the duration of time the players were on the pitch was considered. They opinionated from their observations that players who had played for 30 minutes or less, converted 86.7% of their penalty kicks. Also, those who played between 31 and 90 minutes converted 81.9% of their penalty kicks, and players who play longer than 91 minutes, converted 80% of their chances. However, their findings did not report psychological status of the player. However, if internal verbal or non-verbal deliberations are included as part of mental trainings, it will be useful in reducing performance stress of being included in kicks from penalty mark among football players, irrespective of their playing positions, experience or age.

Rationale for the Study

Kicks from penalty mark, acclaimed anxiety prone skills are crucial part of football tournaments, used for breaking a tie, especially when it is mandatory for a team to emerge as winner. Before and during this anxiety motivated tie breaker is enforced, expressions of nervousness and curiosity are often elicited by players. Some football players prefer being included in penalty kicks awarded within regulation time, but may prefer being excluded in decisive kicks from penalty mark. This is because penalty kicks played within regulation time may not determine the outcome of the competition. Consequently, the level of anxiousness players experience when included in decisive kicks from penalty mark is higher than when they are to play penalty kicks within regulation time. Prior to this study, a preliminary investigation was carried out by the researchers among football players who took part in Nigeria Private University Games (NPUGA) to investigate their perception on outcomes of kicks from penalty mark. The findings indicated that 93% of the players believed that its outcome is absolutely uncertain, and dependent on luck with presumed feelings of associated competitive anxiety while 89% of the respondents preferred to be excluded from decisive kicks from penalty mark. Coaches, supporters and fans are also anxious when it is enforced when their teams are involved, because its outcome is perceived to be uncertain. In some instances, supporters and fans at the stadium and those following the involvement of their teams in decisive kicks from penalty mark through mass media had moved away from the scene of the tie breaker. This is because they could not withstand the pressure of watching their teams being eliminated. In national and international football competitions, stronger and better teams according to observations and match statistics at the end of regulation time have lost to opposing teams. Also, highly rated and physically skillful players who displayed striking competence in terms of goals scoring within regulation time have lost in kicks from penalty mark. The interval between the end of a football match and when penalty is to be enforced to break a tie is very short. Therefore, it will be very difficult for football players to create time for physical skills training when

they are included in decisive kicks from the penalty mark. However, their psychological endowments and coping abilities will be put to test. This implies that the coping resources a penalty kicker requires are more psychological than being physical. Therefore, the impression that outcomes of kicks from penalty mark are dependent on luck is irrational. This impression can increase anxiety above optimal level, thereby causing self-defeating behaviour and negative self-talk which could lead to negative performance outcome. Psychological skills trainings that can help reduce tension; excessive cognitive and competitive state anxiety could be helpful. There is need to bridge the gap between physical and psychological trainings in preparation for decisive kicks from penalty mark for better outcomes. The researchers' intention was to bridge this gap, thereby investigating the effects of Rational Emotive Behaviour Therapy and Positive Self-talk as psychological interventions on penalty kickers to determine the outcomes of kicks from penalty mark among university football players.

Method

A pretest-posttest control group quasi experimental research design was used for the study. Population for the study comprised all registered male football players in the first-generation Federal universities (University of Ibadan, University of Lagos and Obafemi Awolowo University) in Southwest Nigeria.

Multistage sampling technique was used for selection process of the participants for the study. Firstly, all first-generation Federal universities in Southwest Nigeria were identified. The football teams of participating universities were also determined through their various sports councils. Secondly, all players who took part in the study were screened. After the screening, all the participants were qualified, and they had equal chance of being selected for the study. In the third phase, purposive sampling technique was used to select eleven (11) players, who were considered as the best in each of the teams. Therefore, participants for the study comprised thirty-three (33) male university football players who took part in the football competitions, organized for the pre and posttest kicks from penalty mark.

Instrumentation

Shortened General Attitude and Belief Scale (SGABS)

Shortened General Attitude and Belief Scale (SGABS) was used to assess irrational thoughts and beliefs of the participants about the outcome of kicks from penalty mark. It was used to screen the participants, before being included in the study. Cronbach's alpha was used for re-validation of the instrument and a significant value of 0.76 was obtained.

Believe in Penalty Kicks Outcome Questionnaire (BPKOQ)

Believe in Penalty Kicks Outcome Questionnaire (BPKOQ), a self-developed instrument was administered to generate data on players' perceptions and believe about the outcomes of kicks from penalty mark. It was subjected to Cronbach's Alpha reliability test, with a validity value of 0.82.

Penalty Shooting Skill Test (PSST)

Penalty shooting skill test (PSST), a validated measuring instrument was designed to evaluate penalty shooting skills of the participants. It was used to assess and record the outcomes of the participants' penalty shots. The instrument was validated, using university football team different from the actual study participants, with a reliability value of 0.89.

PSST Measurement

A player scores;

a) 10 points for kicks that cross the goal line, travelling from foot to top corners of goal post in the air. This included shots targeted above 1.90m (in height) from the ground and within 1.50m to the extreme of the upright of the goal post.
b) 7 points for kicks that cross the goal line above 1.20m (in height) from the ground, but below 1.90m and within 1.50m to the extreme of the upright of the goal post.
c) 5 points for kicks that cross the goal line above 0.5m (in height) from the ground, but below 1.20m and within 1.50m to the extreme of the upright of the goal post
d) 3 points for any goal scored from kicks that enters the goal posts, different from (a), (b) and (c) above.
e) 1 point for any kick that touches the ground or the goalkeeper before crossing the goal line, to enter the goal post.
f) Zero point for a missed kick.

Procedure

Setup: Penalty area and full-size goal post with nets, on a regulation field with a ball at the spot of the penalty mark.

Test: Participants start at the penalty spot. A whistle is blown to signify when the player kicks. After the whistle is blown, the penalty kicker moves towards the ball, and makes an attempt to kick it across the goal line in between the goal posts.

Facilities and Equipment for Shooting Test

The following facilities and equipment were used; football field, goal post, net, balls, whistle, measuring tape, sellotape, training cones, recording sheets, pen, marker, ropes and paint.

Intervention Guides

1 Rational Emotive Behaviour Therapy (REBT)
Rational Emotive Behaviour Therapy (REBT) is a thought redirection and irrational beliefs disputing therapy that could reduce stress or overreaction of athletes to task at hand.
2 Positive Self-talk (PSt)
Positive Self-talk is a psychological construct, used to jettison self-doubt or negative thinking that may elicit negative inner response to stressful situations, thereby using appropriate word to trigger desired outcomes, and initiate optimistic actions during decisive kicks from the penalty mark. REBT and PSt training packages were administered at the stadium of participating universities.

Procedure for Data Collection

The researchers sought permission form the Sports Councils and coaches of participating universities on the rationale and objectives for the study, criteria for inclusion of participants, procedure and methods of administering assessment and interventions for data generation. In addition, the researchers solicited for the cooperation of the participants. They all gave consent and documented their readiness to take part in the study.

A Shortened General Attitude and Belief Scale (SGABS) instrument was used to assess the irrational thoughts and beliefs of the participants in a given task such as kicks from penalty mark. A total irrationality score was obtained, by adding together the scores from the irrationality subscales only. Higher scores indicated stronger irrational beliefs. It was administered to all participants at the football pitch of the participating universities by the researchers and four research assistants. Copies of the instrument were collected. And data collated were used to select the participants who scored at least, 65 points and above. All the participants were qualified to take part, and had equal chance of being included in the study/ However, those who took part in the study were identified as the best players by their Coaches. Also, Believe in Penalty Kicks Outcome Questionnaire (BPKOQ) was used to answer research questions.

The three participating universities were randomly assigned to two experimental and control groups. Participants in the two experimental and control groups were made to engage opposing football teams in kicks from penalty mark at the football pitches of the participating universities to create a competitive and anxiety motivated environment. The goal posts were calibrated from 0-10 points.

Each participant played one kick from the penalty mark of the football pitch. The target point(s) of the participants' penalty kicks were immediately recorded by the researchers and assistants on Penalty Shooting Skill test score sheets, to generate baseline data.

Treatment packages for eight weeks on REBT and PSt were given to the experimental groups. The participants of the two experimental groups, the older university being the host, engaged each other in decisive kicks from penalty mark for posttest scores, while a posttest penalty kicks with an opposing football team was also organized for the control group. In ensuring consistency of data collection, the participants whose pre-test scores were recorded were the same players whose post intervention data were obtained, according to the arrangement of the researchers with the coaches in all the groups. They were identified through their jersey numbers and names.

Also, all goals scored within the regulation time were set aside, in accordance with the terms of the study. The posttest data were recorded immediately on the Penalty Shooting Skill Test score sheets. The difference between pretest and posttest penalty kicks scores for the groups were compared to determine significant effects of treatments on experimental groups and whether changes took place in the control group.

Data generated were from 33 players who took part in the study. 11 players were in experimental group of Rational Emotive Behaviour therapy, 11 in Positive Self-talk experimental group, while 11were in control group. The nature of the study does not permits participating teams to have not less or more than 11 players each. This is because only players who played within the regulation time took part in the penalty kicks.

Method of Data Analysis

Copies of completed questionnaire and data generated at pre and posttest were collected, coded and analysed, using descriptive and inferential statistics. Frequency counts, percentages, estimation, scheffe post hoc and Analysis of Co-variance (ANCOVA) were used to test all hypotheses at 0.05 level of significance.

Results

Table 1. *Frequency Distribution of Participants' Position, Age and Playing Experience*

Demographic characteristics		Frequency	Percentage
Player's position	Back	11	33.3
	Midfielder	11	33.3
	Forwarder	11	33.3
Total		**33**	**100.0**
Player's age range	16-18 years	4	12.1
	19-21 years	15	45.5
	22-24 years	8	24.2
	25-27 years	4	12.1
	28-30 years	2	6.1
Total		**33**	**100.0**
Playing experience	Less than 3 years	5	15.2
	4-6 years	12	36.4
	7-9 years	8	24.2
	10 years and above	8	24.2
Total		**33**	**100.0**

The table above shows equal distribution of the participants on playing position. It indicates that majority of the participants were between the ages of 19 and 21, while their average age was 21.64±2.30 years. Also, 24.2% had played for 7 to 9 years and more than 10 years respectively, 36.4% played for 4 to 6 years, while 15.2.% had less than 3 years playing experience.

Answers to Research Questions

Research question one: Is there any universal law that attributes the outcome of from penalty mark to luck?

Table 2. *Perception of any universal law, attributing outcomes of Penalty to luck?*

There is no universal law that attributes the outcomes of kicks from penalty mark to luck	Frequency	Percentage
Strongly disagree	0	0
Disagree	4	12.1
Neutral	8	24.2
Agree	12	36.4
Strongly Agree	9	27.3
Total	**33**	**100.0**

Table 2 shows that 4 (12.1%) respondents disagreed that no universal law attributes the outcomes of kicks from penalty mark to luck, 8 (24.2%) neither agreed nor disagreed while 21 (63.7%) of the participants agreed that there is no universal that attributes the outcomes of kicks from penalty mark to luck. Hence, according to the data collected, the participants agreed that there was no universal law that attributes the outcomes of kicks from penalty mark to luck.

Research Question Two

Will university football players attribute the outcomes of penalty kicks to luck?

Table 3. *Perception on the Attribution of Outcomes of Penalty Kicks to Luck*

Attribution of outcomes of penalty kicks lo luck	Frequency	Percentage
Strongly disagree	3	9.1
Disagree	7	21.2
Neutral	7	21.2
Agree	11	33.3
Strongly Agree	5	15.2
Total	**33**	**100.3**

Table 3 shows that 10 (30.3%) participants do not attribute the outcomes of kicks from penalty mark to luck, 7 (21.2%) neither agreed nor disagreed to the outcomes of their penalty kicks being attributed to luck, while 16 (48.52%) agreed that the outcomes of their penalty kicks were attributed to luck. Hence, it can be concluded from their responses that university football players attributed the outcomes of their penalty kicks to luck.

Research Question Three

Do university football players experience anxiety and pressure during kicks from the penalty mark?

Table 4. *Experience of Anxiety/pressure during Kicks from Penalty Mark*

Football players experience anxiety and pressure during kicks from penalty mark	Frequency	Percentage
Disagree	1	3.0
Neutral	3	9.1
Agree	11	33.3
Strongly Agree	18	54.5
Total	**33**	**100.0**

Table 4 shows that 1 (3.0%) of the participants disagreed that university football players experience anxiety and pressure during kicks from penalty mark, 3 (9.1%) neither agreed nor disagreed, while 29 (87.8%) agreed. Hence, it can be concluded from the findings of the study that university football players experienced anxiety and pressure during kicks from penalty mark

Hypotheses Testing

Table 5. *ANCOVA Showing the Main and Interaction Effects of Treatments, Playing Experience and Playing Position on Outcomes of Kicks from Penalty Mark among University Football Players in Southwestern Nigeria*

Source	Sum of Squares	DF	Mean Square	F	Sig.	Eta. Sq
Corrected Model	215.612	17	12.683	3.150	.015	.781
Intercept	154.849	1	154.849	38.463	.000	.719
Pre Penalty outcome	38.612	1	38.612	9.591	.007	.390
Main effect:						
Treatment	58.241	2	29.121	7.233	.006	.491
Playing experience	1.869	1	1.869	0.464	.506	.030
Playing position	12.445	2	6.223	1.546	.245	.171
2-way Interactions:						
Treatment x P. Experience	41.491	2	20.746	5.153	.020	.407
Treatment x P. Position	30.688	4	7.672	1.906	.162	.337
P. Experience x P. Position	0.717	2	0.359	0.089	.915	.012
3-way interactions:						
Treatment x P. E x P. P	4.204	3	1.401	0.348	.791	.065
Error	60.388	15	4.026			
Total	1101.000	33				
Corrected Total	276.000	32				

R Squared= .781 (Adjusted R Squared = .533)

Table 5 shows the main and interaction effect of treatments, playing experience and position on outcomes of kicks from penalty mark among university football players. The results indicate that there was a variance of 78.1 percent, accounted for, by the independent variables.

Hypothesis one: There is no significant main effects of treatments (Rational Emotive Behaviour Therapy and Positive self-talk) and control on kicks from penalty mark among university football players.

Table 4.10 shows that there is a significant main effect of treatment (Rational Emotive Behaviour Therapy and Positive Self-talk) on outcomes of kicks from penalty among university football players in Southwest Nigeria ($F = {}_{(2,33)}7.233$, $p<.05$, $\eta^2=.491$). There is a contributing effect size of 49.1%. The null hypothesis is therefore, rejected.

Table 6. *Estimated Marginal Means on Outcomes of Kicks from Penalty Mark among University Football Players in Southwestern Nigeria*

Treatment groups	Mean ($\bar{X}$)	Std. Error
Rational Emotive Behaviour Therapy (REBT)	7.261	.659
Positive Self-talk (PSt)	5.446	.669
Control	3.468	.719

Table 6 shows the estimated marginal means of treatment on outcomes of kicks from penalty mark among university football players in Southwest Nigeria.

Rational Emotive Behaviour Therapy was the most potent therapy, followed by Positive Self-talk, and the control group.

Table 7. *Estimated Marginal Means of Players' Positions on Outcomes of Kicks from Penalty Mark among University Football Players in Southwestern Nigeria*

Playing position	Mean ($\bar{X}$)	Std. Error
Defender	5.383	.659
Midfielder	6.182	.683
Forwarder	4.443	.617

Table 7 shows the estimated marginal means of players' position on outcomes of kicks from penalty mark among university football players in Southwest Nigeria

Hypothesis two: There is no significant interaction effects of treatments and playing experience on outcomes of kicks from penalty mark among university football players.

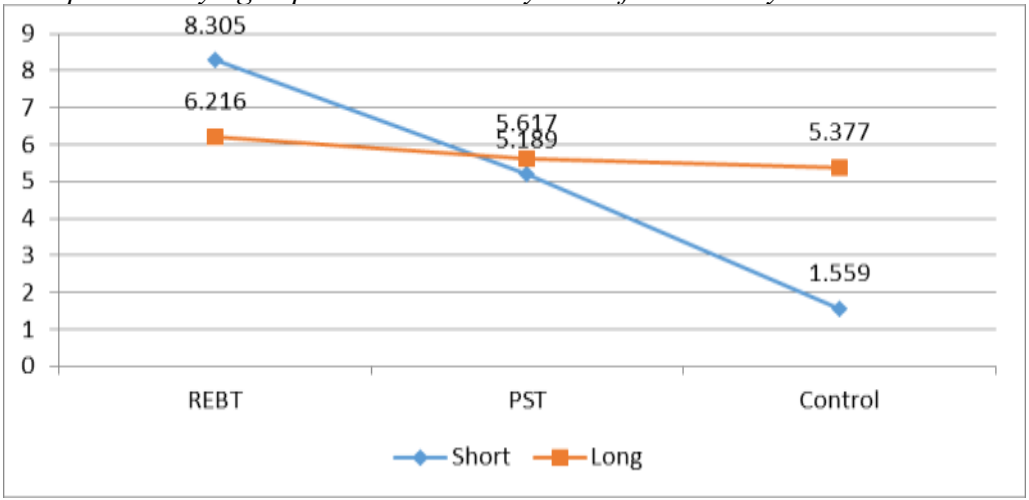
The table reveals that there is a significant interaction effect of treatments and playing experience on kicks from penalty mark outcome among university football players in Southwest Nigeria. ($F = _{(2, 33)} = 5.153$, $p<.05$, $\eta^2=.407$). The hypothesis is rejected. The table also shows the contributing effect size of 40.7%.

Table 8. *Estimated Marginal Means of Treatment and Playing Experience on Outcomes of Kicks from Penalty Mark Outcome among University Football Players in Southwestern Nigeria*

Treatment	Playing experience	Mean ($\bar{X}$)	Std. Error
Rotational Emotive Behaviour Therapy (REBT)	Short	8.305	1.071
	Long	6.216	0.836
Positive Self Talk (PST)	Short	5.189	1.191
	Long	5.617	0.773
Control	Short	1.559	1.000
	Long	5.377	1.022

Table 8 shows the estimated marginal means of treatment and playing experience on outcomes of kicks from penalty mark among university football players.

Figure 1. *Line Graph showing the Interaction Effect between the Treatment Groups and Playing Experience on Penalty Kicks from Penalty Mark*



Hypothesis three: There is no significant interaction effect of treatments and player's position on outcomes of kicks from penalty mark among university football players.

Table 9 shows that there was no significant interaction effect of treatment and players' position on outcomes of kicks from penalty mark among university football players. ($F = _{(2, 33)} = 1.906$, $p>.05$, $\eta^2=.337$). However, the mean difference of data generated indicate that the midfielders, followed by the forward players, converted more of their kicks than the defenders.

Table 9. *Estimated Marginal Means of Treatment and Players' Positions on Outcomes of Kicks from Penalty Mark among University Football Players in Southwestern Nigeria*

Treatment	Player's position	Mean ($\bar{X}$)	Std. Error
REBT	Defender	6.956	1.229
	Midfielder	8.082	1.161
	Forwarder	6.744	1.053
PSt	Defender	3.981	.939
	Midfielder	6.217	1.181
	Forwarder	6.833	1.435
Control	Defender	5.210	1.297
	Midfielder	4.248	1.231
	Forwarder	0.946	.997

Table 9 shows the estimated marginal means of treatment and player's position on outcomes of kicks from penalty mark among university football players in Southwest Nigeria

Discussion of Findings

Kicks from penalty mark are critical for determination of the team who wins at the decisive, elimination stage of football competition. The study revealed that players were under pressure and were anxious when they were included in kicks from penalty mark. This is in line with the findings of Beilock, Carr, MacMahon, & Starkes (2002), where they concluded that pressure could increase players' level of nervousness as a result of its effects on their mental capability, while anxiety underscores the 'choking under pressure' phenomenon, which influence is frequently observed among high profile players when they fail to successfully accomplish performance tasks, especially in highly stressful conditions like kicks from penalty mark. Research findings did not only establish the influence of anxiety and pressure on kicks from penalty mark, but also indicated the reasons accountable for them. Jordet and Hartman (2008) asserted that players converted 92% of their penalty kicks when a certain kick was to determine a winner in order to break a tie. But 61.8% of their kicks was converted when a penalty kick was to keep the team from losing. The difference in the results was probably attributed to choking and penalty stress as a result of failure of perception control by players.

In addition, findings in the study revealed that irrational beliefs and thoughts by the participants about the outcomes of kicks from penalty mark, being dependent on luck accounted for the pressure and anxiety they experienced when included in decisive penalty kicks. This is in agreement with the findings of Greg, Geir and Mark (2015), where they asserted that penalty kicks are frequently attributed to lottery result, which suggests that luck, apart from players' kicking ability, determines its outcomes. In addition, Palacious-Huerta (2003), investigations revealed that the rate of saving a penalty kick, if the goalkeeper remains on a spot was 6% while it was also found to increase to 60% if the goalkeeper dives to either left or right. Also, out of 41% of the kicks that landed 6 feet inside each goal post, only one (8%) of the kicks was saved. This result rules out the influence of luck and suggests that it becomes a factor when there are inaccurate penalty kicks. Although, responses from the participants revealed that outcomes of kicks from penalty mark was dependent on luck, but their beliefs that no law of the universe attributes it to luck was a contrary response. It may be inferred from this assumption that every kicker who converted penalty kick was lucky. But it will be irrational to make this conclusion. If the outcomes of kicks from penalty mark are absolutely dependent on luck, there is tendency for all penalty kickers to rely on luck for the outcomes of their performance. Loss in decisive kicks from penalty mark by a team, acclaimed as a technically better side, according to performance evaluation may be attributed to the impression that its outcome is dependent on luck. Therefore, the researchers disputed the assumption, asserting that the conclusion that kicks from penalty mark outcomes depend on luck is irrational and illogical.

It is pertinent for team handlers to create an enabling psychological environment with a view to predicting and determining its outcome in favour of their teams, and for players to cope. This corroborated the findings of Haggins (2000), where he noted that the most important factor for prediction of outcomes of kicks from penalty mark is to adequately prepare selected players for the tasks. According to

Jordet and Elferink (2012), the period before the commencement of penalty kicks after the expiration of extra time is a critical moment when players manifest the effects of their views on the tie breaker, being a stressor as a result of lack of perceived psychological support. Psychological interventions administered in this study assisted the participants, thereby reducing the anxiousness experienced by players when included in decisive penalty kicks. However, the researchers could not determine other internal and personal intervening variables the participants experienced during the study. Also, research findings established the need for team managers to identify players who are likely to manifest chronic anxiety. Therefore, team handlers have to be intentional about inclusion of mental skills interventions during training sessions.

Results of the study also revealed a difference in mean score value between players with long and short playing experience, establishing that players with longer years of playing experience converted more kicks than players with short playing experience. This is at variance with the findings of Jordet (2009), who gave a report of successful conversion rates of kicks from penalty mark of players, according to the experience they had. In the analysis, it was concluded that experienced players with medals in both national and international competitions (elite players) converted 65% of their penalty kicks, potential future players converted 89% of their kicks while upcoming players who had minimal or no experience converted 73.6% of their penalty kicks.

Findings from the study revealed differences in mean score values for mid-field, defense and forward players. The midfield players had highest rate of penalty conversion, while defensive players had higher conversion rate than forward players (strikers). This is not in agreement with the findings of Hartman, Visscher & Lemmink (2006), where they examined conversion percentage rate among penalty kickers of different playing position. Findings of their study revealed that players who play defensive role converted 73.6% of their penalty kicks, midfielders got 79.6% of their kicks while attackers converted 83.1% of their kicks.

Effects of treatments on dependent variable

The independent variables of Rational Emotive Behaviour Therapy and Positive self-talk accounted for the variation observed in the dependent variable of kicks from penalty mark among the participants. Findings from the study revealed that irrational beliefs and thoughts of the participants accounted for pressure and anxiety they experienced, when included in decisive penalty kicks. The study indicated that the participants perceived kicks from penalty mark outcomes as a form of lottery, the probability of the result of it, being dependent on the lucky team. This impression informed their thoughts formation which made them to have some internal deliberations about their doubts for positive outcomes of kicks from penalty mark. For example, some of the players were thinking about the disappointments and feelings of failure their teams were likely to be exposed to, if they fail to convert their penalty kicks. In addition, some of them wanted to convert their kicks at all cost, thereby increasing their arousal and anxiety beyond optimal level.

PSt was used to dispel distorted thinking that leads to negative self-talk among the participants, while REBT was used to dispute their irrational beliefs about the outcomes of their penalty kicks being dependent on luck, because any illogical belief by athletes about performance outcomes will make them express illogical approach to them. Therefore, the participants were enlightened on the illogicality of the belief that kicks from penalty mark was based on luck. Also, the absolute demand and preference for conversion of penalty kicks made by players contributed to their anxiousness. The theory of REBT proposes that a non-dogmatic preference for expression of beliefs should include five defining characteristics vis-à-vis flexibility or non-extreme beliefs, consistency with reality, logical, and largely functional in their emotional, behavioural and cognitive consequences, which are helpful to individuals in pursuing their basic goals and purposes. This implies that the wishes and desires of players in form of preferences should be flexible because the preferences of an individual are at the core of his psychological health (Dryden & Branch, 2011). Hence, when human beings absolutely hold on to their non-dogmatic preferences and decide not to change it to absolute expression, they could feel healthily concerned about situations and events. The rationality of this event connotes that penalty kickers should be positive about their performances, neglecting and disputing all negative feelings and impression about the outcomes of penalty kicks that could lead to emotional disturbances. In addition, players should not have absolute preferences for conversion of their penalty kicks. Their preferences should not be dogmatic in nature. This implies that they should make provisions for emotional management of situations where the results they get from their penalty performance are not in conformity with their initial plans. Penalty kickers will be free from emotional distractions that could emanate from anxiety and pressure associated with penalty kicks if they have flexible, but not rigid performance intentions.

Conclusion

The study investigated Effects of Rational Emotive Behaviour Therapy and Positive self-talk on the outcomes of kicks from penalty mark among university football players in Southwest Nigeria. Kicks from penalty mark, presumed anxiety motivated skill, are crucial part of football tournaments. Its outcome, when used as tie breaker is often termed 'lottery result', attributing luck, apart from players' kicking ability, as determining the fate of a football team. The impression that outcomes of kicks from penalty mark are dependent on luck could increase anxiety, reduce positive perception, and negatively influence performance behaviour of penalty kickers.

Therefore, it is important that players are given adequate time for mental rehearsal before competing in football tournaments, where the possibilities of enforcing penalty kicks for tie breaking cannot be ruled out. The study hypothesizes provision of structured, effective, specific and result oriented interventions, designed within the confines of psychological experiences the players are likely to be exposed to during penalty kicks. The independent variables of REBT and PSt as the interventions for the study were manipulated on the dependent variable of outcomes of kicks from penalty mark. There were two moderating variables of playing experience and players' position. The study revealed a significant main effect of Rational

Emotive Behaviour Therapy and Positive Self-talk on the outcome variable. The participants in the REBT group had the highest post mean score than those in PSt and control groups. There was a significant interaction effect of treatment on playing experience. The players with long playing experience had a higher mean score than those with low playing experience. Therefore, REBT and PSt therapies should be used as psychological interventions and coping resources for football players for a more predictable kicks from penalty mark outcomes.

Recommendations

1. Outcomes of kicks from penalty mark in football tournaments are associated with pressure and anxiety. Therefore, penalty kickers should be equipped with psychological coping resources to cater for arousal and anxiety beyond optimal level.
2. Based on the significant effects of Rational Emotive Behaviour Therapy and Positive Self-talk therapies on kicks from penalty mark, it is therefore recommended that they should be used as psychological interventions and coping resources for penalty kickers.
3. Team managers should determine players who are psychologically prepared and ready to manage associated pressure of kicks from penalty mark.
4. Team handlers should select more experienced football players for penalty kicks and consideration should be given to mid field players than forward (attacking) and defensive players.
5. Team handlers should always dispute the perception among football players that outcomes of kicks from penalty mark are dependent on luck, because no universal law justifies this. Findings of the study has established that, their outcomes can be dependent on psychological skills.

References

Dryden, W., & Branch, R. (2008). *The fundamentals of rational-emotive behavior therapy*. A Training Handbook, second edition. West Sussex: Wiley.

Ekechukwu, R.O., & Onyekuru, B.U. (2014). *New Dawn In Counselling Psychology, In school and Non school Setting*. Owerri. Career Publishers.

Ellis, A. (2003). Early theories and practices of rational emotive behaviour theory and how they have been augmented and revised during the last three decades. *Journal of Rational-Emotive & Cognitive-Behaviour.*

Ellis, A., & Dryden, W. (2007). *Therapy*. The Practice of Rational Emotive Behavioural Therapy, 2nd ed. New-York: Springer Publishing Company.

Greg, W., Jordet, G., & Mark, R. (2015). On winning the "lottery": psychological preparation for football penalty shoot-outs, *Journal of Sports Sciences*.

Hardy, J., & Hall, C. R. (2006). Exploring coaches' promotion of athlete self-talk. *Hellenic Journal of Psychology*, *3*, 150–163.

Hatzigeorgiadis, A., Zourbanos, N., Galanis, E., & Theodorakis, Y. (2011). Self-talk and sports performance: A meta-analysis. *Perspectives and Psychological Science*, 6, 348-356-0019-5.

Jordet, G., Hartman, E., Visscher, C., & Lemmink, K. A. P. M. (2007). Kicks from the penalty mark in soccer: The roles of stress, skill, and fatigue for kick outcomes. *Journal of Sports Sciences.*

Jordet, G. (2009). When superstars flop: Public status and choking under pressure in international soccer penalty shootouts. *Journal of Applied Sports Psychology,* 21, 125-130.

Jordet, G., & Elferink-Gemser, M.T. (2012). Stress, coping, and emotions on the world stage: The experience of participating in a major soccer tournament penalty shootout. *Journal of Applied Sport Psychology*, 24, 73-91.

MacInnes, D. (2004). The theories underpinning rational emotive behavior therapy: Where's the supportive evidence? *International Journal of Nursing Studies,* 41, 685-695. doi: 10. 1016/j.ijnurstu.2004.02.004.

Olaoye, O.P., & Fadoju, A.O. (2021). Perceived Determinants of Kicks from Penalty Mark Outcomes among Football Players- Psychological Implications. *Journal of Human Kinetics and Health Education*, Lagos State University.

Olaoye, O.P. (2022). *Unpublished Thesis titled 'Effects of Rational Emotive Behaviour Therapy and Positive Self-talk on Kicks from Penalty Mark among University Football Players in Southwest Nigeria*, presented at Post graduate doctoral defence on January 11, 2022.

Palacios-Huerta, I. (2003). Professionals play minimax. *Review of Economic Studies*, 70(2), 395_415. doi:10.1111/1467-937X.00249.

Spencer, S. (2005). *Rational Emotive Behavior Therapy: Its effectiveness with children, A Research Paper submitted in Partial Fulfillment of the Requirements for the Master of Science Degree in Guidance and Counseling*. The Graduate School, University of Wisconsin – Stout, December, 2005.

Thompson, P. H., & Brown, D. T. (2007). *Counselling and Psychotherapy with Children and Adolescents: Theory and Practice for School and Clinical Settings*. 4th Ed., Clinical Psychology Publishing Company.

Williams, J. M., & Straub, W. F. (2006). Sport psychology: Past, present, future. In J. M. Williams (Ed.), *Applied sport psychology. Personal growth to peak performance* (5th ed., pp. 1–14). Boston: McGraw-Hill.: Yasnitsky, A., van der Veer, R., & Ferrari, M. 2014. *The Cambridge handbook of cultural-historical psychology*. Cambridge, U.K.: Cambridge University Press.

Olaoye, O.P., & Fadoju, A.O. (2021). Perceived Determinants of Kicks from Penalty Mark Outcomes among Football Players- Psychological Implications. *Journal of Human Kinetics and Health Education*, Lagos State University.

Olaoye, O.P. (2022). *Unpublished Thesis titled 'Effects of Rational Emotive Behaviour Therapy and Positive Self-talk on Kicks from Penalty Mark among University Football Players in Southwest Nigeria*, presented at Post graduate doctoral defence on January 11, 2022.