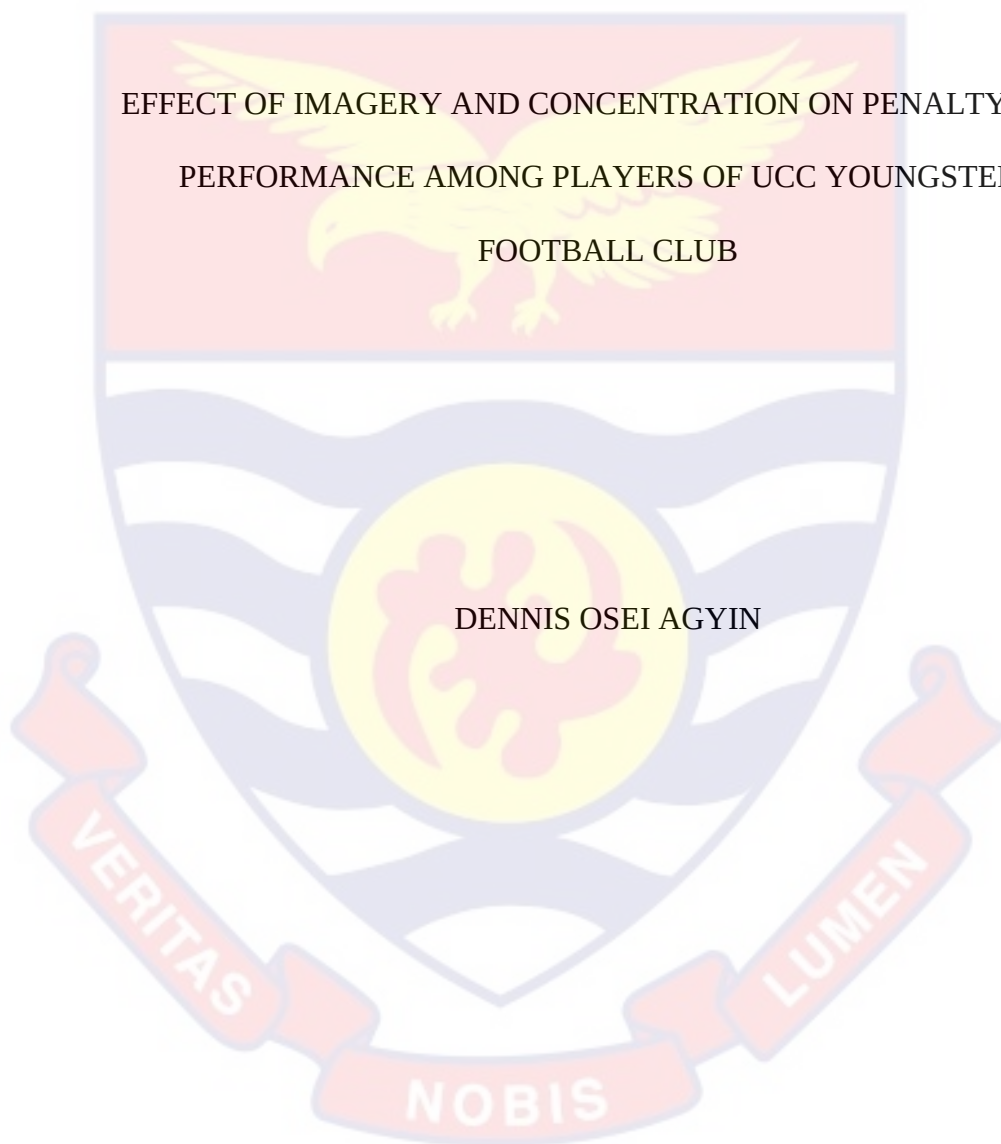


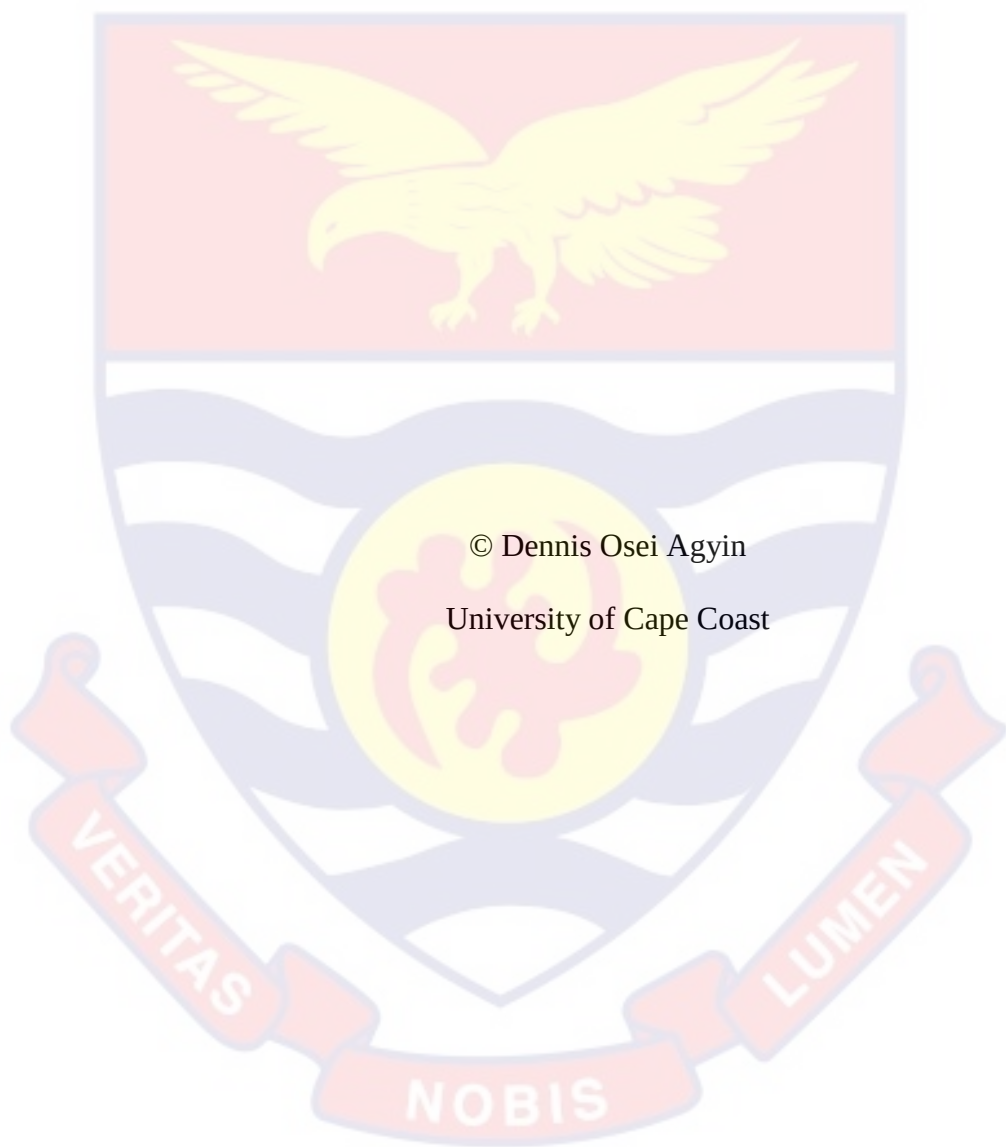
UNIVERSITY OF CAPE COAST

EFFECT OF IMAGERY AND CONCENTRATION ON PENALTY KICK
PERFORMANCE AMONG PLAYERS OF UCC YOUNGSTERS
FOOTBALL CLUB

DENNIS OSEI AGYIN



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BY

DENNIS OSEI AGYIN

Thesis submitted to the Department of Health, Physical Education and
Recreation of the Faculty of Science and Technology Education, College of
Education Studies, University of Cape Coast, in partial fulfilment of the
requirements for the award of Master of Philosophy degree in Physical
Education

SEPTEMBER, 2023

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: Date:

Name: Dennis Osei Agyin

Supervisors' Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: Date:

Name: Prof. Joseph Kwame Mintah

ABSTRACT

Sporting competition at the highest level necessitates high levels of accuracy in movements exhibited in various situations. The ability of players to perform these accurate movements necessitate the employment of pre-shot routines simultaneously with physical, technical, and tactical training. Using a pre-test post-test experimental design, this study investigated the effect of imagery and concentration on penalty kick performance among the players of University of Cape Coast (UCC) Youngsters Football Club. All 30 registered players for the 2022/2023 season took part in the study. Data was collected using a questionnaire and a performance of penalty kicks. The data for this study was analyzed using one-way repeated measure ANOVA and linear multiple regression. The findings of the study revealed a statistical significant difference in penalty kick performance outcome in measurement over time [$F(3, 6) = 6.460, p = .026$]. However, there was no statistical significant difference in penalty kick performances for the players based on psychological variables [$F(6, 12) = 2.396, p = .093$], playing position [$F(9, 14.753) = .762, p = .652$] and experience [$F(9, 14.753) = .799, p = .623$]. The study further revealed that experience ($\beta = -.086, p > .05$), playing position ($\beta = -.269, p > .05$), imagery ($\beta = .032, p > .05$), and concentration ($\beta = .232, p > .05$) are not significant predictors of penalty kick success among the players. It was concluded that the players of UCC Youngsters Football Club differ in penalty kick performance outcomes. However, the players do not differ based on experience level, playing position and psychological variable. It was therefore recommended that coaches and sports psychologists should include the teaching of imagery and concentration exercises into the training of players on penalty kicks.

KEYWORDS

Arousal

Concentration

Distractions

Imagery

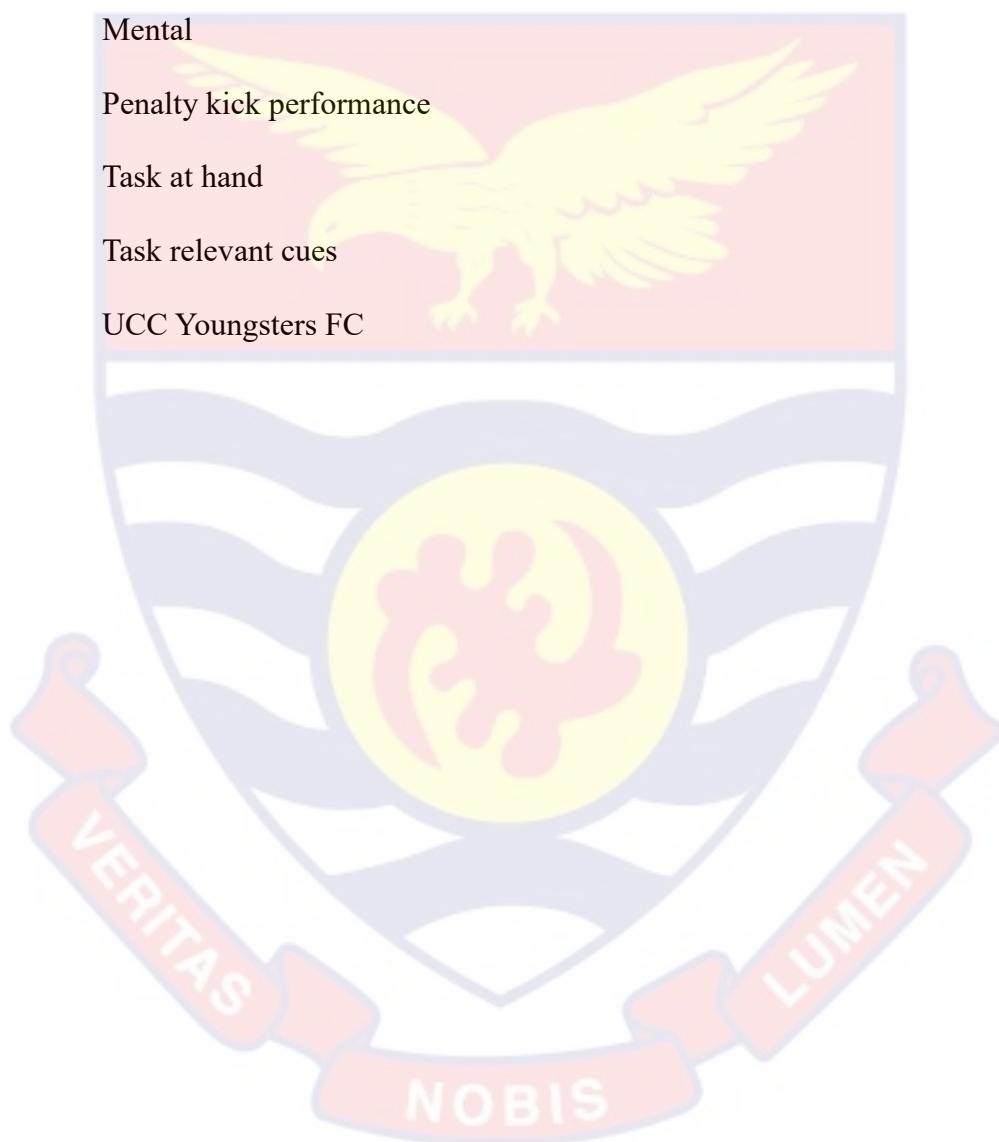
Mental

Penalty kick performance

Task at hand

Task relevant cues

UCC Youngsters FC



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DEDICATION

To my mentors, Prof. Joseph Kwame Mintah and Dr. Prosper Narteh Ogum



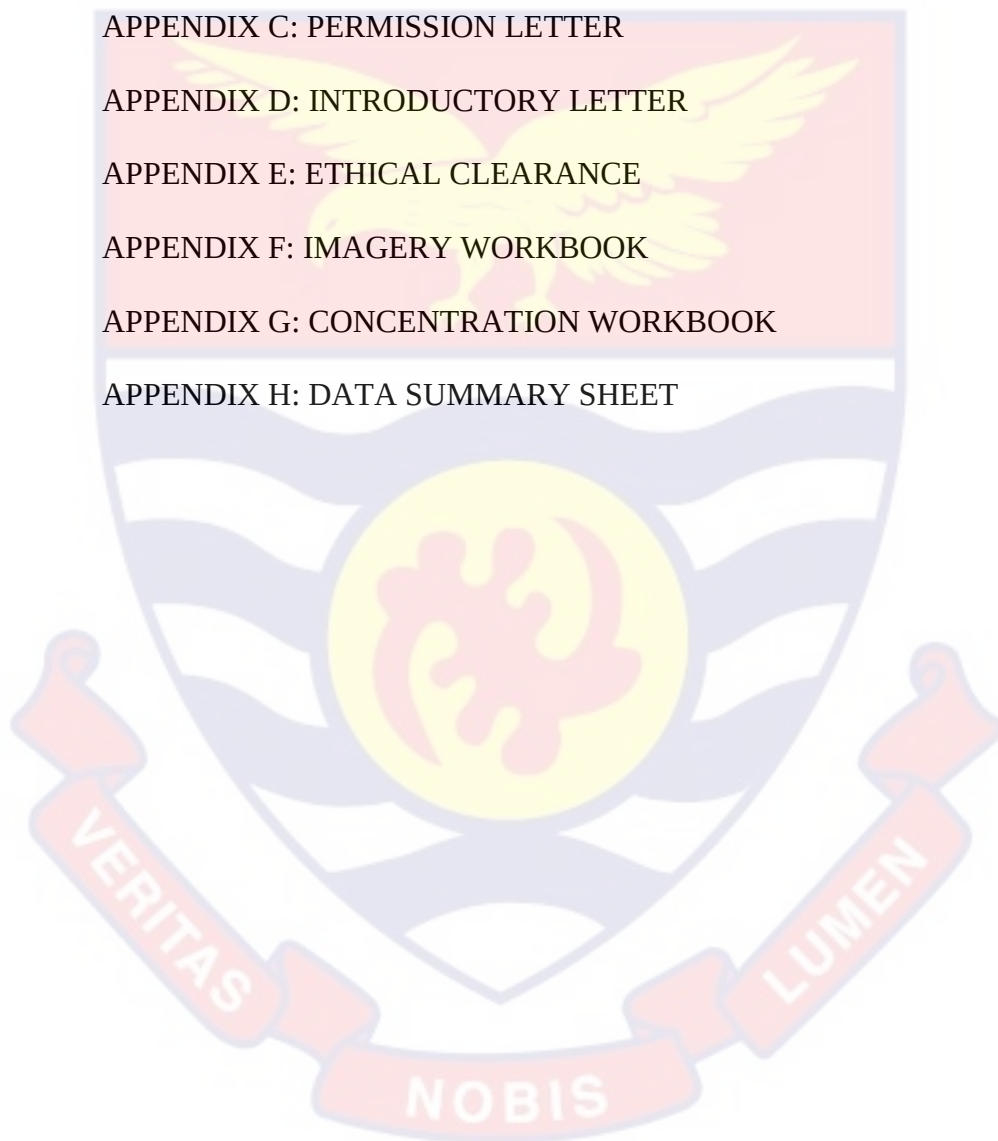
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LIST OF ACRONYMS

DTMS	Domestic Transfer Management System
FIFA	Fédération Internationale de Football Association
GFA	Ghana Football Association
IFAB	International Football Association Board
SM	Spotlight Metaphor
UCC	University of Cape Coast



CHAPTER ONE

INTRODUCTION

Competitive football is a low scoring game where outcomes are usually determined by a slight margin of victory. Penalty kicks are often the deciding factor in many competitive football matches especially when the regulations of the tournament require a winner at all cost after a draw game (Almeida, Volossovitch, & Duarte, 2016). Given the importance of scoring each of these shots in the penalty shootout for the outcome of the entire game, the pressure on the players to perform well will be very high (Liu, Gomez, Lago-Peñas, & Sampaio, 2015). This is caused by the stressful nature of elite sport and the competitive environment which places many demands on players resulting in increased arousal, a decrease in self-confidence, tensed muscles and sweaty palms (Lopes, Araújo, Duarte, Davids, & Fernandes, 2012). Similarly, increase in pressure due to distraction have an influence on the player which will then cause a decrease in performance, due to these distractions (DeCaro, Thomas, Albert, & Beilock, 2011).

However, players must learn to cope with arousal that accompany their preparation and performance during penalty kicks. Hence, there is the need to have strategies to control arousal and distractions as well as optimize penalty kick performance. Such strategies that have been proposed is the use of mental training interventions such as imagery and concentration training (Huys et al., 2009; Makaruk et al., 2019).

Background to the Study

Sporting competition at the top level necessitates a high level of accuracy in movement executions exhibited on several occasions, against

various opponents, and in various situations (Schlappi-Lienhard & Hossner, 2015). The ability of players to perform open and close-ended skills in a perfect or, at the very least, near-perfect way has an enormous influence on teams' performance outcomes (Hazell, Cotterill, & Hill, 2014).

While physical, technical and tactical training prior to matches is essential in getting players prepared for competition, psychological preparation is essential but often overlooked and underused by teams worldwide (Bompa, Blumenstein, Hoffmann, Howell, & Orbach, 2019). Players must achieve a psychological state that allows them to execute their well-learned skills; hence, research has shown the importance of pre-shot psychological routines simultaneously with physical, technical, and tactical training positively affecting players' performance and athletic development (Richard et al., 2021).

Imagery, often called "mental visualisation" or "seeing in the mind's eye" is a visual and auditory sensation that mimics perceptual experiences when there are no requisite cues for the relevant perception (Waters, Barnby, & Blom, 2021). Within the field of sports, imagery is considered the production or re-production of experiences based on memorial information (Budnik-Przybylska, 2014). Budnik-Przybylska further stressed that imagery involves the imager's conscious control of near-sensorial, near-perceptual, and near-affective traits and allows imaging to arise in the absence of a true stimulus antecedent linked with the actual experience.

The visualisation process comprises information about what the individual observes in the image and can be viewed from the first-person or the third-person standpoint (Butler, Rice, Wooldridge, & Rubin, 2016).

According to Fabrigar, Wegener and Petty (2020), when the action is portrayed in the first-person standpoint (internal visual imaging), the individual is seen as though he is taking part in the actual event; that is, via their own eyes. Fabrigar et al. added that the individual would assume the position of an observer in the third-person standpoint and would see the action from outside of themselves, to look as if they see themselves appearing on television or a stage. For this reason, the third-person perspective is often referred to as external visual imaging. For imagery to be effective, all the human senses are crucial in perceiving experiences learned. Therefore, imagery must integrate as many human senses as possible to assist with the reproduction of an experience. Hence, according to Thorndike (2013), mental imagery must include movement, visuals, audio, feeling, smelling, tasting, feelings, ideas, and behaviours.

Imagery content and functional level have been divided into five groups (Hallsson, 2013). The first type of imagery is cognitive-specific imagery (CS), which comprises the mental practice of clear-cut techniques (Kaur, 2018). An example of a CS imagery exercise includes a soccer player rehearsing a corner kick with imagery, which would picture how he moves his body as he kicks the ball. The next type is cognitive general (CG) imagery, which is used to rehearse a team's entire game plan, strategies of play, and routines. For example, a coach making his basketball players imagine their roles on the field. The third group is motivational-specific (MS) imagery which is characterized by images and sensations of specific goals or goal-oriented behaviours (Cumming & Williams, 2013; Kaur, 2018). A player imaging themselves performing well, winning a competition, standing on the

podium, and achieving their goals is an example of motivational specific (MS) imagery. The motivational general-mastery (MG-M) imagery is the fourth type of imagery. It is a broader picture imagery that frequently includes excellent coping and control of difficult conditions. MG-M imagery aims to maintain or increase a player's confidence by imagining performing confidently (Moran, 2016). The last category is motivational general-arousal (MG-A) imagery, where the player concentrates on feelings of emotions like arousal and competitive anxiety (Stewart & Hall, 2017). This type of imagery can assist the player in reaching their desired arousal state through an imagery that either calms or gears the players up.

According to Eaves, Riach, Holmes and Wright (2016), image creation generally begins once people close their eyes. Eaves et al. believe that the individual retrieves information from the long-term memory, and processes it inside the working memory to produce or reproduce new experiences that have not yet occurred. In the long-term memory, other imagery sub-processes occur. The sub-processes include modifying the characteristics of the image, detecting specific details of the image, and sustaining images for an extended period (Hartmann et al., 2015).

Incorporating imagery mental practice in training programmes significantly impacts personality and sports performance. The goal for coaches and players' usage of imagery techniques in sports include learning and practicing skills as part of pre-match rituals and match strategy initiatives, examining and analysing situations and games, stress management, increasing attention focus, developing self-confidence and as a rehabilitation procedure for injury recovery (Kuan, 2014; Williamon & Jónasson, 2017). Furthermore,

imagery reduces the time required to obtain various techniques and tactical components, improves the thinking abilities of players, eliminates negative thoughts, improves self-control, reduces tension and fear, and promotes good coordination of the temporal and spatial aspects of motor tasks (Moran, 2016).

The bio-informational theory by Lang (1977) offers a cognitive explanation of how imagery works. This theory states that an image represents a structured, limited set of propositions. Each of these propositions is made up of stimulus, response, and meaning propositions, and they represent logical connections between ideas. Stimuli from outside and the environment within which events occur, for example, how one feels the heat from the sun on his face or the loudness from the spectators, are stimulus propositions. The goal of the meaning proposition is to understand the importance of each of the input and output stimulus occurrences and the repercussions of the movements, so that the imager can derive alternative connotations of a scene and determine the action to do during the visualisation process (Gapin & Herzog, 2014; MacInnis & Price, 1987; Schack, Essig, Frank, & Koester, 2014). Response propositions describe an individual's intellectual, emotional, and behavioural reactions regarding the stimulus in the environment and, specifically, how an individual might behave in everyday life. Integrating these ideas into the mental visuals is critical to improving performance. Thus, imagery vividness rises more when imagery instructions contain stimulus, response, and meaning propositions (Calmes, Holmes, Berthomieux, & Singer, 2004; Hazell et al., 2014). Evidence shows that scripts containing stimulus, response, and meaning propositions boost performance more than scripts containing simple stimulus propositions (Smith & Collins, 2004).

Multiple research investigations on a number of variables have been undertaken to either confirm or dismiss the effectiveness of imagery on arousal and sports performance. For example, Predoiu et al. (2020) examined the essence of imagery techniques before and during training and competitions. The findings confirmed that imagery could help enhance motor abilities, physical strength, self-confidence, attention focus, and decreased arousal. The authors added that through the use of imagery, players' performances are improved.

Jose, Joseph and Matha (2018) investigated the impact of visualisation training intervention on psychological characteristics and sports performance in selected sports. The study employed a minimum of six weeks of mental imagery practices using scripts and video playback techniques. The study revealed that mental imagery practices improve performance in various sporting disciplines. In Nigeria, Adegbesan (2010) investigated if imagery usage could predict soccer players' confidence in sports. The findings of the study showed an association between general arousal imagery use and players' confidence during sports performance.

It is evident that imagery positively affects the perceptions in sports competitions, making most players consider it to beef up performance, which may increase performance. Therefore, it is no surprise that past and current studies have shown that successful performance in competition depends on how athletes can employ imagery prior to and during performances.

Concentration is another essential psychological construct that affects sports performance. Concentration refers to the capacity to gaze mental effort on task-relevant cues while rejecting distractors (Goldschmied, Raphaeli,

Moothart, & Furley, 2022). Concentration requires a player's conscious effort to devote cognitive resources to things that appear essential to them at a given time (Chae & Choi, 2019). For example, players will consciously listen to their coaches' instructions and team talks at a team meeting before an important game.

Concentration is divided when players have the capacity to do more than one activity simultaneously (Santos, Memmert, Sampaio, & Leite, 2016). When concentration is divided, the nature of the task (its complexity) and whether the two activities need the same or distinct cognitive processes determine task accomplishment (Vaughan & Laborde, 2021). For instance, hockey players are capable of dribbling the ball whilst also seeking a teammate who happens to be in an excellent location to receive a pass. Selective concentration may also focus on one activity while remaining aware of changes in a separate task (Moore & Zirnsak, 2017). A goalkeeper, for example, must focus solely on the trajectory of a ball in flight instead of the actions of the opponents in the penalty area when defending a corner kick.

Sources of distraction on a player's concentration come from external or the outside world or from internal or inside our minds (Rapp & Tirabeni, 2020). According to Rapp and Tirabeni, the external source of distraction refers to external stimuli that draw the individual's concentration from the expected goal. On the other hand, internally driven distractions encompass a wide range of ideas, sentiments, and physiological sensations, impairing our attempts at concentrating on the challenge at hand.

The idea is that players direct too much attention to themselves (to their emotions, negative self-thoughts, stress, and arousal) or the environment

(crowd noise or watching an opponent) during a performance and concentrate less on the task at hand (Pedret & Shu, 2019). Pedret and Shu further reiterated that due to the internal and environmental focus, players become impractically aware of their fear, arousal, and possible flaws. This leads to a lack of concentration on task-relevant information, leading to unskilled and sometimes even terrible performances due to fewer resources available to process the task at hand (Guillot, Desliens, Rouyer, & Rogowski, 2013). Marhamah (2019) asserts that these stressors must be addressed quickly so that the attentional focus returns to the task at hand and improves outcomes amid adversity.

The spotlight metaphor (SM) by Posner (1980) stipulates that concentration resembles a cognitive laser that shines a restricted portion of one's area of vision while ignoring stimuli outside the lighted zone. Scholars of the SM also propose that concentration beams can be intentionally diverted to other points in space (Bartolomeo & Chokron, 2002). They demonstrate, for example, that our mental beam of focus is never entirely "lost" but might be aimed towards the "inappropriate" goal unrelated to the job at stake, beyond our control, or too distant in the future (Burton & Raedeke, 2008). The SM reminds us that players always control where they "light" their concentration beam. Posner contends that SM can have an external and internal focus of concentration. The SM enables skilled players to analyse a situation to determine whatever choices are accessible, focus on a specific target in their immediate surroundings, and allow players to switch between different concentration foci as the situation requires (Moran, 2012).

A study was conducted in Spain by Campos, Valdivia-Moral, Zagalaz, Ortega and Romero-Ramos (2017) about the influence of stress management on athletes' confidence, anxiety, and concentration. The research aimed at describing nervousness, confidence in oneself, and concentration levels in football players. Campos et al. concluded that players show high levels of concentration during competition, which aids in controlling the emergence of state anxiousness, permitting players to keep a high sense of self-assurance during competitions, which also results in optimum performance.

Another study in America by Abdollahipour, Wulf, Psotta and Palomo Nieto (2015) looked at an externally driven focus of concentration on gymnastics ability. The study employed the services of experienced gymnastics participants who performed under three different focus situations and executed a maximal vertical leap with a 180° spin while in the air, with both hands passing the front of their chest throughout the movement. Regardless of their high degree of expertise, providing them with an outside focal message revealed a significant improvement in their performance in gymnastics.

Research conducted in Nigeria by Ohuruogu, Jonathan and Ikechukwu (2016) to disclose how to prepare psychologically for optimum performance in sports competition indicated that what people say to themselves while performing may be beneficial or harmful. However, these and linked sentiments can impact self-confidence, thus impacting sports performance. The study recommended that athletes must employ all mental efforts to concentrate on the challenge at stake and eliminate any other distractions.

Players must obtain adequate concentration to eliminate extraneous factors (such as the crowd) that may impair performance.

It is evident that concentration positively affects the perceptions in sports competitions, making most players consider it to beef up performance, which may increase performance. Therefore, it is no surprise that past and current studies have shown that successful performance in competition depends on how a player can employ concentration before and during a performance.

The penalty shootout, also known as kicks from the penalty spot, has been developed in football to declare a winner after extra time if a knock-out match fails to identify a winner. A penalty shootout is a sequence of several kicks from the penalty spot until a team has a higher number of goals over their opponents after each team has taken five kicks or one of the teams has a goal edge over their opponents after taking a similar number of kicks during the sudden-death situation (International Football Association Board [IFAB], 2023). The success of penalty shootouts is attributed to elements such as psychology (the ability to focus on the challenge at stake whilst avoiding distractors), skill (shooting technique), physiology (overcoming fatigue from 120 minutes of play), and probability (the direction in which the goalkeeper moves) (Abdelkader et al., 2021).

According to IFAB (2023), Law 14 of the Fédération Internationale de Football Association (FIFA) Laws of the game of football stipulates that a penalty kick is awarded when a violation leading to a direct free kick is committed within the penalty area. According to the law, when the regulations of a tournament necessitate a team winning at all cost following a drawn

match or home-and-away game, the permissible processes to select the champion are: a) away goal rule; b) two halves of extra time of not more than 15 minutes apiece; and c) penalty kicks. In the case of the penalty kicks, the teams engage in a toss. The side that wins the coin toss opts to execute the kick first or second. The teams then take five alternate spot kicks. If the results are tied when both teams have completed five penalties, shooting shall continue until a team scores one goal more than the other team out of the same number of kicks (sudden death).

During the taking of the kicks, the ball is placed 11 metres (12 yards) from the centre of the goal line. The goal is 7.32 metres (24 feet) wide by 2.44 metres (8 feet) high. The shooter must be known, with the rest of the players positioning themselves out of the penalty area or at least 9.15 metres (10 yards) from the ball. The opposing goalkeeper should have at least one foot on the goal line, looking at the player who is to kick the ball, positioned between the goalposts, and avoid touching the goalposts, crossbar, or goal net until the ball is kicked (Brams & Ismail, 2018; Csató, 2021).

During penalty shootouts, penalty kickers use a variety of aiming tactics. Kuhn (1988) did one of the initial studies on penalty kicking strategies and found that penalty kickers employ one of two tactics. Kickers could employ the open-loop (keeper-independent) and closed-loop (keeper-dependent) strategies during penalty kicks. The open-loop or keeper-independent strategy requires the kicker to disregard the goalkeeper and instead focus on the shooting action. Players who use this strategy are primarily concerned with power.

On the other hand, the closed-loop, also known as the keeper-dependent strategy, occurs when the kicker plays a reactive role and bases his choice on the keeper's actions. This approach involves a delayed kicking phase in which the kicker purposely slows their body cues to evaluate the keeper's body cues and position. This strategy depends on the goalkeeper acting anticipatorily quickly to provide the kicker with the opportunity to obtain valuable features needed to generate an appropriate reaction to change their striking technique appropriately.

In modern soccer contests, one thing is clear: the overall face of soccer has changed. Set-pieces, like penalty kicks, are becoming more important since they could be the only opportunity a side may get in a match; hence most major soccer events, including the World Cup, Olympic Games, and various national and club championships for various federations, have used penalty kicks to choose a winner or to advance a team to the next stage in the competition (Arrondel, Duhautois, & Laslier, 2019). Penalty shootouts have been used to decide many major soccer competitions, most notably the 2006 and the 2022 World Cup finals as well as the 2005, 2008, 2012, and 2016 Champions League finals.

On the African terrain, the Confederation of African Football (CAF) has been using penalty kicks in the federation's soccer competitions, including men's competitions (African cup of nations and African nations championship), women's competitions (African women's cup of nations), club competitions (CAF champions league, CAF confederations cup, CAF super cup and CAF women's champions league) and youth competitions (U17 African cup of nations, U20 African cup of nations and the U23 African cup

of nations) (Njororai, 2014). The 2012, 2015, and 2021 African cup of nations finals and the 2004 CAF Champions League finals have all been decided by penalty shootouts. In Ghana, the 2021 MTN FA Cup finals saw Accra Hearts of Oak Sporting Club beating Obuasi Ashantigold Sporting Club in the penalty shootouts to win the tournament (GFA Communications, 2021).

Irrespective of the precise nature of the penalty kick situation, the players experience anxiety (cognitive, somatic, or both) (Arrondel et al., 2019). Whenever penalty kicks are awarded, the playing phase of the game frequently grinds to a halt or becomes highly focused on the penalty kicking phase, allowing the player to perform the kicking technique solo. The potential to distribute performance responsibilities among teammates is reduced (Navarro, Van der Kamp, Schor, & Savelsbergh, 2018).

The risk of experiencing anxiety increases when a scenario gets less impacted by ambient forces because the players must bear nearly all responsibility for the situation (Lopes, Araújo, & Davids, 2014). The penalty kicker has an advantage in that they have a high chance of success. These aspirations might have negative psychological consequences, such as increased pressure and anxiety impairing performance. Psychological pressure intensifies whenever players are assessed or publicly critiqued (Mesagno & Beckmann, 2017). As a result, penalty takers do poorly whenever a lot is at stake or stakes are high (Arrondel et al., 2019).

Several instances of penalty misses have occurred in the world. Banerjee (2022) gave instances of famous penalty misses in the world cup. Brazil was eliminated from the quarterfinals of the 1986 World Cup after failing to reach the semi-finals in 1982. Brazil's match versus France ended in

a 1-1 stalemate, with France finally winning in a penalty shootout. England's 2006 World Cup squad, often regarded as "the golden generation" failed to advance beyond the quarterfinals, losing in a penalty shootout to Portugal. England missed three of their four penalties, with Frank Lampard, Steven Gerrard, and Jamie Carragher failing to score from the spot. Banerjee added that David Trezeguet, France's Euro 2000 hero missed his penalty in the shootout, which proved costly for France as Italy avenged and won the World Cup.

On the African terrain, Zambia won their maiden and only African Cup of Nations in 2012, defeating Ivory Coast 8-7 through penalty kicks in the grand finale. The match ended goalless after extra time when Ivory Coast captain Didier Drogba, missed a penalty in the second half of regular play. Arsenal striker Gervais Lombe Yao Kouassi, popularly known as Gervinho, sent his shot wide. Stoppila Sunzu sealed the win to give Zambia an unforgettable triumph (Chipande, Mwale, & Chita, 2019).

According to Chipande et al. (2019), the 1992 African Cup of Nations Final was played on January 26, 1992, in Dakar, Senegal between Ghana and Ivory Coast. The significance of the penalty shootout stems from the fact that it was the first time in a CAF major international final that each player on the field of play took a kick from the penalty spot. Ivory Coast won its first African Cup by defeating Ghana 11-10 on penalties following a scoreless drawn game. Another instance of penalty misses in the Ghanaian contest occurred at the 2010 FIFA World Cup. In what has to be among the worst injustices in football history, Ghana almost reached the World Cup semi-finals but for Luis Suarez deliberate hand ball on the goal line. Ghana was

consequently awarded a penalty kick. Asamoah Gyan, Ghana's all-time top scorer, took the kick, but his shot smacked off the crossbar. After Ghana's morale was crushed, Uruguay ended up winning the penalty shootout 4-2 (Njororai-Simiyu, 2019).

Penalty kicks have been examined in a variety of contexts ranging from analyzing the speed of the ball when struck to the format of penalty kick, keeping your eye on the ball and goal, strategies teams employ during penalty kicks and the impact of some psychological variables on penalty kicks. Bar-Eli and Azar (2009) investigated penalty kick shooting methods and goalkeeper preferences in soccer. After studying 311 penalty kicks and conducting a goalkeeper poll, it was shown that for a successful penalty kick, kickers must kick the ball to the goal. Detecting proper penalty kick strategies in soccer was also examined by Noël, Furley, Van der Kamp, Dicks and Memmert (2015). The keeper-independent penalty approach was found to be more popular than the keeper-dependent penalty approach. However, it was also discovered that there is no difference in penalty kick success rates between the two approaches. Noel et al. concluded that players must use both approaches to be less predictable.

Kerwin and Bray (2006) examined the save rate of goalkeepers on penalty kicks. This study aimed at identifying a location in the goal that goalkeepers find tough to defend during penalty kicks. It was discovered that goalkeepers struggle to save the ball at 600 metres per second, especially when it is hit toward the top-corner. Csató (2021) investigated a practical and equitable penalty kick sequence order. The findings indicated that the ABAB (the order in which kickers in each team alternate after each kick in the

shooting of penalties) and ABBA (the order in which taking the first penalty of each pair of penalty kicks is alternating) ordering are unjust in sequence. The ABAB, however, does well in the sudden-death round, according to the study.

Studies on the efficacy of psychological skill training on penalty kicks have also been conducted worldwide. Makaruk, Porter, Bodasiska and Palmer (2020) investigated whether providing specific concentration and psychological instructions could enhance penalty kick performances in football. Twenty-four experienced male soccer players volunteered to be used in the study. The goalkeeper-independent strategy in penalty taking was used in the study under four different conditions. The findings of the study revealed that concentration; improves neuromuscular automaticity, increases task goal orientation, decreases psychological workload, and reduces state and somatic anxiousness.

Additionally, Timmis, Piras and Van Paridon's (2018) study on the importance of maintaining one's gaze fixed on the targeted position of the ball during penalty kicks in soccer found that for a good penalty kick performance, the eye must be retained on the anticipated trajectory of the ball for an extended period of time. Failed penalty kicks are connected with a brief length of the eye on the ball's targeted location due to a distraction, resulting in the ball being struck centrally.

Harrison, Potts, King and Braun-Trocchio (2021) studied how imagery relaxation treatment improves female footballers' anxiety levels during penalty kick execution. The research included 13 female footballers aged 19-22 with at least two years of experience. In the pre-test, each of the 13 players took

five penalty kicks. The findings showed that visual reality intervention dramatically decreased cognitive and somatic anxiety. In addition, it helped participants relax and lowered anxiety levels, resulting in performance success.

Björkstrand and Jern (2013) assessed how mental imagery rehearsal intervention enhances penalty shootout ability among soccer players. This study's participants were 41 female outfield players aged 15-18 from two football clubs in Turku, Finland. These players were randomly grouped into an experimental group ($n = 21$) and a control group ($n = 20$). The findings demonstrated significant associations between penalty taking abilities and the assessed markers of psychological skills.

In Ghana, Ogum (2018) studied the impact of demographics, anxiousness, and confidence on penalty kick effectiveness among players of Ebusua Dwarfs Football Club. The study found no relationship among age, experience, and playing position on anxiety and confidence levels during penalty kicks. Nevertheless, the ages of the players predicted penalty kick success or failure, with players aged 25 years and above effectively performing their attempts. The conclusion was that the success rate of penalty kicks by experienced players increases as they mature in their profession. Coaches were consequently admonished to pick older players to take penalty kicks since they can concentrate on vital signals.

Considering the increasing importance of scoring each penalty kick for the overall outcome of a match, the stress on the players to execute well will undoubtedly be enormous (Ferraresi & Gucciardi, 2021). Penalty takers who use imagery before the performance are likely to generate exact mental

pictures and deal with the stress associated with taking penalty kicks, resulting in success in their performance (Lindsay, Larkin, Kittel, & Spittle, 2021). Increased pressure from distraction affects the players, resulting in a loss in performance. However, a player who concentrates on task-relevant cues and movements is more likely to deal with the distraction, leading to a successful penalty kick performance (Harris, Vine, & Wilson, 2017). Additionally, effectively utilising both imagery and concentration will result in appropriate concentration control, appropriate mental state, self-confidence, increased self-efficacy, ability to imagine performances, and decreased anxiety, resulting in more success in penalty kick performance (Hazell et al., 2014).

Looking at the significant contribution of imagery and concentration to the development of players and the improvement in the outcome of matches, maximum emphasis must be placed on the usage of imagery and concentration in competitive sports and during penalty kick performance; hence, the need for this research to be carried out to explore the effects of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football club.

Statement of the Problem

Players compete at the highest level in each season for recognition, money and laurels. One of the key performance rituals that these players go through during the season is the taking of penalty kicks. The penalty kick is an important and game-deciding moment in football. Studies on goals scored in matches have shown that most of the goals are scored through penalty kicks making it a pivotal and decisive role in the outcome of many matches (Almeida et al., 2016; Dalton, Guillon, & Naroo, 2015).

Players of UCC Youngster FC are not exempted from this task of taking penalty kicks in football. Even though there is no data at the Central Regional Football Association on the penalty kick situation in the Central Regional Second Division Zonal and Middle league which makes it difficult to estimate the total number of goal scored or missed from the penalty spot, it has been observed that quite a number of goals are missed from the penalty spot by the players of UCC Youngsters Football Club. It has been observed that although the team failed to participate in the Central Regional Division two League for three seasons (between the 2017/2018 and 2019/2020), the team has been eliminated on two occasions out of the three times the team has been involved in penalty kicks during the middle league (Against Cheetah FC in 2015/2016 and Swedru professionals in 2016/2017 seasons). Also, the team missed two out of three and four out of six penalty kicks the team was awarded during the 2019/2020 and 2021/2022 league seasons respectively.

The players attribute this situation to pressure to score due to high expectation from fans and management of the team as well as the pressure to miss due to the distractions (booing and yelling) from the the fans of the opponents. This puts tension on the kicker leading to high arousal levels and low self-confidence in the penalty kicker (DeCaro et al., 2011).

Worldwide, penalty kicks have been examined in a variety of contexts ranging from the speed of the ball when the ball is struck (Timmis et al., 2018) to the format of penalty kick performance in soccer (Anbarci, Sun & Unver, 2021), strategies teams employ during penalty kicks (Memmert et al., 2013; Navarro, Van der Kamp, Ranvaud, & Savelsbergh, 2013; Noël et al., 2015), the location players strike the ball to (Timmis, Turner, & Van Paridon, 2014),

the influence of psychological variables (imagery and concentration) on penalty kicks in soccer (Björkstrand & Jern, 2013; Fetean, Monea, & Rosca, 2021) among others.

In Africa, penalty kicks have been studied on the improvement of shooting accuracy (Makurak et al., 2020), the analysis of within-match penalty kick performances of the premier league season from 2009/2010 to 2018/2019 (Horn, De Waal, & Kraak, 2021) and the use of imagery as a performance ritual for elite soccer players during penalty kicks (Dodo, Lyoka, Chetty, & Goon, 2015).

A review of literature on penalty kicks in Ghana revealed the impact of demographic characteristics, anxiousness, and confidence on the execution of penalty kicks among the players of Cape Coast Mysterious Ebusua Dwarfs FC (Ogum, 2018). Very little is known about the impact of imagery and concentration on penalty kicks in Ghana. It is therefore based on the lack of studies on the impact of imagery and concentration on penalty kicks in Ghana and the researcher's observation on the penalty kick situation of the players of UCC Youngsters FC for different year groups that this study was conducted to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football Club in Cape Coast, Ghana.

Purpose of the Study

This study sought to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football Club.

Research Questions

This study answered these research questions;

1. What difference exist in imagery and concentration abilities among the players of UCC Youngsters Football Club?
2. What difference exist in penalty kick performance outcome among the players of UCC Youngsters Football Club?
3. Which variable(s) (experience, playing position, imagery and concentration) predict penalty kick performance among the players of UCC Youngsters Football Club?

Significance of the Study

The study will add to the strategies sports psychologists, coaches, and players use to reduce arousal and improve concentration prior to the execution of penalty kicks. The findings of this study would assist sports psychologists and coaches to identify which psychological variable (imagery, concentration) affects the performance of penalty kicks.

Delimitations

This study was delimited to soccer players registered for the 2022/2023 football season by UCC Youngsters Football Club. This study was also delimited to using only imagery and concentration on penalty kick performance. Again, this study was delimited to the employment of a pre-test post-test experimental design.

Limitations

The small sample size hampered the outcomes of the research. The comparatively minimal number of samples may have reduced the statistical power to identify group differences. Also, more substantial outcomes could be

reported with more participants, enhancing the capacity to generalise what was discovered over all football clubs across Ghana.

Additionally, participants may produce favourably biased results because the study relied on a self-reported way of measuring imagery and concentration abilities before the penalty kick performances. With self-reported surveys, this risk is always present because research participants are often led to assume that higher-rated questions or scores on the questionnaire have a connection with better results.

Definition of Terms

Experience: The number of years a person has spent playing football.

Playing Position: This refers to the role that players assume on the field of play as well as the duties that come alongside.

Athlete: An individual trained to compete in sports.

UCC Youngsters Football Club: A football team owned and financed by the Sports Section of UCC.

Central Regional Football Association: The body incharge of running and sanctioning all football related activities in the central region of Ghana.

2nd division league: The male third-tier division of Ghana's football league system, run by the Ghana Football Association (GFA) through the Regional Football Associations.

2nd division middle league: A zonal championship playoff for teams in Ghana's third-tier league system to promote a team to the second-tier league.

MTN F. A. Cup: A cup tournament organised for clubs playing in the male third-tier of the league system in Ghana through to the topmost soccer division by the GFA.

FIFA U-20 World Cup: A FIFA organised tournament for players not more than 20 years and not less than 16 years at the end of the calendar year the tournament is being held.

Penalty kick performance: It encompasses the technical skill (stance, approach and the kicking action), psychological composure (mental toughness, concentration on the task at hand), and strategic thinking in order to execute a kick from the penalty spot.

Penalty kick success: It is the ability of a player to score a goal from a penalty kick.

Organisation of the Study

This study was organized across five different chapters. The first chapter described the background to the study, the purpose of the study, the statement of the problem, the research questions, significance of the study, delimitations, limitations, definition of terms and organisation of the study. The second chapter reviewed relevant literature on imagery, concentration and penalty kicks. The third chapter detailed the research methods of the study. This includes the population, study area, population, sampling procedure, data collection instrument, data collection procedures, and data processing and analysis plan. The fourth chapter provided the results and discussions, while the fifth focused on the summary, conclusions, recommendations and suggestions for further research. A compilation of referenced materials was provided, as well as appendices.

CHAPTER TWO

LITERATURE REVIEW

This study sought to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football Club of the University of Cape Coast. The available literature on the subject was examined in this chapter. For this reason, books, scholarly articles, conference proceedings, periodicals, magazines, newspapers and research findings, all of which aim at laying the groundwork for the necessity of this study, were looked at under the following sub-headings.

1. Concept of Imagery
2. Types of Imagery
3. Importance of Imagery
4. Factors Influencing Imagery Effectiveness
5. Effect of Imagery on Sports Performance
6. Concept of Concentration
7. Types of Concentration
8. Concentration Abilities in Sports
9. Influence of Demographic Characteristics on Concentration Abilities
10. Effect of Concentration on Sports Performance
11. The Concept of Penalty Kicks in Soccer
12. Format of Penalty Kicks in Soccer
13. Strategies in Penalty Kick Performance
14. Success and Failure of Penalty Kicks
15. Factors Affecting Penalty Kick Performance
16. Theoretical Framework

17. The Bio-informational Theory
18. The Spotlight Metaphor
19. Conceptual Base of the Study
20. Summary

Concept of Imagery

Imagery, often called "mental visualisation" or "seeing in the mind's eye", is a visual and auditory activity that mimics a sense of reality when there are no requisite cues for the relevant perception (Waters et al., 2021). Hall, Pongrac and Buckholz (1985) broadened the concept of imagery to include the mental production or replication of events that replicate the sensation of actually seeing or hearing an object or happening, whether with or without the actual physical sensations or experience. Sadoski (1983) defined imagery based on neurological functioning using Pavio's dual code theory. According to Sadoski, imagery refers to memory coding or cognitive intermediary delivering temporally parallel content that can regulate observable reactions without being consciously seen as a visual blueprint. This definition includes components that function in processing visual and spoken images.

Kosslyn (2005) defined imagery as a cognitive depiction that produces perceptual events in the absence of suitable sensory input. This definition includes components that have a role in verbal and visual imagery processing. Wraga (2003) defined imagery as a mental simulation that produces the perception response without suitable sensory input. Wraga's concept supports the premise that imagers can contain natural sensory elements in creating images, even when external inputs are unnecessary.

For almost a half-century, these definitions have been extensively employed in sports psychology. On the other hand, proponents neglected to incorporate emotions and did not properly explain if imagery is unconscious or deliberate. In terms of a definition of imagery that aims to capture significant aspects of the most potent preceding explanations, Morris, Spittle and Watt (2005) referred to imagery as;

Creation or Recreation of an experience generated from memorial information, involving quasi-sensorial, quasi-perceptual, and quasi-affective characteristics, that is under the volitional control of the imager, and which may occur in the absence of the real stimulus antecedents normally associated with the actual experience (p. 19).

Morris et al. (2005) contributed critical notions to understand the nature of imagery in this definition. To begin with, creating imagery incorporates memories and prior experiences, allowing imagers to integrate a variety of scenarios and aspirations in their images. Second, imagery experience allows for the inclusion of fundamental physiological, cognitive, and emotive aspects. Third, because imagery is within the control of the individual, imagers are free to create and display their image. The above definition of imagery thoroughly describes imagery components used in sports.

Types of imagery

Imagery content and functional level have been divided into five groups (Hallsson, 2013). Hallsson explained that the first type of imagery is cognitive-specific (CS) imagery, which comprises imagery rehearsal of a specific skill. An example of a CS imagery exercise includes a soccer player rehearsing a corner kick with imagery picturing how he moves his body as he

kicks the ball. The second type is cognitive general (CG) imagery used to rehearse a team's entire game plan, strategies of play, and routines. The third group is motivational specific (MS) imagery, characterised by images and sensations of specific goals or goal-oriented behaviours. An athlete imagining herself performing well, winning a competition, standing on the podium, and achieving their goals is an example of MS imagery.

Motivational general-mastery (MG-M) imagery is the fourth type of imagery. It is more general imagery, often containing highly effective adaptation and control of difficult events. MG-M imaging aims to maintain or increase a player's confidence by imagining performing confidently. The last category is motivational general-arousal (MG-A) imagery, where the player concentrates on emotional states like arousal and competitive anxiety. This type of imagery can be used to assist the player in reaching their optimum by using imagery that either calms or psychologically prepares players.

Importance of imagery

Imagery is a vital weapon in any player's arsenal. According to Moran, Campbell, Holmes and MacIntyre (2012), Michael Phelps, the most successful Olympian in history, has effectively utilised imagery. According to Moran et al., Phelps' final in the 200m Butterfly at the 2008 Summer Olympics was perhaps the most powerful instance of mental visualisation. A post-race interview revealed that Phelps lost his eyesight during the race because his goggles were filled with water. The interviewer inquired as to how it felt for Phelps to swim blind. Phelps' comment was, "Exactly how I had hoped." In the subsequent weeks that followed, it was discovered via interviews and admissions by Phelps and his coach, Bob Bowman, that he had imagined this

occurrence in his brain countless times before. Moran et al. further revealed that since Phelps was 13 years, he had been viewing his videotapes and picturing his race down to the minor details and had been practicing them in his mind's eye and that there was no race for which he had not mentally prepared a solution.

The capacity of players to compete at their best will also be highly impacted by arousal (Vila et al., 2020). Arousal is a tense, lousy mood that makes you constantly apprehensive about your actions (Gao et al., 2023). When competing or contesting, this may be one of the reasons for losing. The bio-informational theory proposes that arousal-reducing imagery, such as the MG-A, can be practiced by envisioning oneself in a preferred relaxing setting away from the sports setting and imagining muscular tension leaking out of the body and into the atmosphere. Players can see themselves being at ease and relaxed throughout a sporting event. Therefore, any player who is easily aroused before competition would benefit substantially from using imagery.

Nassib, Cherni, Riahi, Wali and Mkaouer (2022) revealed that imagery capacity and MG-A imaging are the best at managing arousal levels. Players that employed far more MG-A imaging showed increased degrees of psychological apprehension in dealing with arousal, leading to self-confidence before a performance.

Imagery improves players' self-confidence and motivates them during training and in matches. Cumming and Williams (2013) proposed that one significant purpose of MS imagery mental training for players is to keep their momentum when other incentives are unavailable. The MS imagery entails particular targets and achievement activities like envisioning oneself having

won a tournament, receiving a piece of silverware, and receiving applause from teammates and coaches for an achievement. On the other hand, the MG-M serves as a motivating factor and a competence viewpoint function (Parkerson, 2015). MG-M imaging requires excellent coping skills and competence in difficult circumstances, including visualising oneself as confident, concentrated, and robust during challenging sporting events (Collins & Carson, 2017). Hardy, Jones and Gould (2018) proposed that visualisation may improve the execution of incentivised activities by increasing the rate, resilience and efficacy at which movement skills are practiced physically.

Players have reportedly utilised visualisation to learn and practice game models, tactics, and strategies in addition to learning and rehearsing particular motor abilities. The CG and CS visualisation help practice tactical abilities and handle unanticipated challenges that may develop during sports competitions (Cumming & Williams, 2013). Cumming and Williams further proposed that specific game models must be formed and learned first through CS and CG visuals and then mentally exercised. Throughout the performance's planning stage, imaging should include positive depictions of what should be done as well as realistic alternatives to aid in making proper selections (Stokes et al., 2020). Athletes within group sports can increase their knowledge of every player's function to learn how to place themselves chronologically and strategically among other players (Lindsay et al., 2021). Finally, players might employ imagery in dealing with timing issues, techniques, or tactical issues throughout a competition or when competing against a particular opponent.

Psychological therapies like imagery have also been shown to assist patients in dealing with uncomfortable medical problems, such as fibromyalgia (Calandre, Rico-Villademoros, & Slim, 2015), headaches (Truong et al., 2020) and severe pain (Carpenter, Hines, & Lan, 2017). Imagery is one of the commonly recommended cognitive treatment strategies for sports injury rehabilitation because it can help with recovery by lowering nervousness and tension in the muscles, boosting blood circulation, and improving strength (Gledhill & Forsdyke, 2021). Imagery is used by players who have experienced both severe and persistent injuries to regulate pain throughout recuperation and competition (Omar-Fauzee et al., 2016).

One common and devastating sports and recreation-related injury is an acute rupture of the knee's anterior cruciate ligament (ACL) (Zbrojkiewicz, Vertullo, & Grayson, 2018). Cupal and Brewer (2001) used imagery as a psychological approach on 30 players having ACL surgical procedure. The findings of the study showed that 24 weeks after the surgery, the treatment group consisting primarily of guided imagery treatment resulted in a much better strength at the knee and substantially reduced degrees of discomfort and reoccurrence of fear associated with injuries compared to the placebo and control conditions.

Factors Influencing Imagery Effectiveness

Imagery frameworks and hypotheses have been developed, contributing to understanding imagery training intervention studies in sports. Imagery models include characteristics that influence imagery effectiveness and are connected to the successful delivery of imagery treatments. According to Multhaupt and Beuth (2018), understanding mental imagery usage is critical

for developing successful imagery therapies; hence, players must be proficient at engaging imagery to benefit from imagery techniques properly. In light of this, when assessing the results of an imagery programme, a player's imagery perspective, vividness, and control over the image or picture are of vital concern (Malouin, Jackson, & Richards, 2013). Additionally, it is essential to consider the individual's unique psychological characteristics and emotional states (Simonsmeier, Andronie, Buecker, & Frank, 2021).

Imagery perspectives

When players engage in imagery, they can experience the imagined situation from two different visualisation perspectives: external and internal. External imagery perspective occurs when players picture their movements and bodies externally as if they are watching themselves on film or television. The external imagery perspective is also known as the third-person point of view (Cumming & Williams, 2013). The internal imagery viewpoint refers to viewing a picture from within one's body. According to Hall, Rodgers and Barr (2016), internal imagery is when a person imagines themselves within their body and gets the same sensations as if they are physically practicing the activity. Players imagine themselves and their performance from a first-person perspective.

The cognitive learning stage is the beginning phase of learning a new motor skill. This is because, in the cognitive learning stage, the learner utilizes oral and cognitive clues to symbolise the task at hand and the primary perceptual system associated with seeing. As a result, in the early stages of learning a motor skill, an external imagery perspective would be more advantageous since it allows learners to examine the processes involved in

performing the motor skill from a position outside their body (Christianson, Hill, Strand, & Deutsch, 2021). Hall et al. (2016) further add that the internal imagery perspective has often been championed and applied in tasks that rely on kinaesthetics. This is due to the belief that an internal point of view has a stronger connection to kinaesthetic stimulations.

Scholars have indicated that seeing outside their bodies (external imagery perspective) can assist players in acquiring motor skills, particularly limb movements and related imaging signals, within the initial stages of learning (Christianson et al., 2021). Montuori et al. (2018) investigated if players' interior and exterior viewpoints at various stages perform different functions when learning gymnastics routines. The investigators employed a cognitive sequential exploration to evaluate physical execution time using inward and outward imagery views. They came to the conclusion that viewing from the outside imaging viewpoint is suitable for constantly developing athletic abilities, but viewing from the inside imaging viewpoint is appropriate for specialists in that field. Thus, both internally and externally driven imagery impact athletic performance gains. Therefore, sports psychologists should counsel athletes on which viewpoint to use to visualise a specific skill or condition, considering their ability to complete that activity.

Imagery ability

Individual differences in the physical and cognitive skill learning and execution processes may explain why performance outcomes differ (Moteshareie, Abdoli, Vaez Mousavi, & Farsi, 2018). Hence, individuals have various amounts of imagery capability, which is critical for imagery efficacy. The ability to produce bright, controlled images and sustain them long enough

to complete the intended imagery rehearsal is referred to as imagery ability (Yu et al., 2016). Imagery ability influences the effectiveness and efficiency of imagery in athletic learning and performance. Two elements influence imagery ability: a) how explicit players see an image and how detailed it seems to the imager, and b) the player's ability to manipulate facets of the image they want to modify.

For imagery to have the desired effect on performance, imagery requires organized, repetitive practice. According to research, systematic imagery practice considerably enhances imagery ability (Baughman, 2017). Images must be controllable for players to alter them in a beneficial fashion to perform at their best. Héту et al. (2013) described controllability as the degree of comfort and precision that allows a picture in one's imagination to be modified or manoeuvred. According to Cumming and Eaves (2018), the more players can manoeuvre their imagery ability, the more effective their imagination on skill performance. For example, losing control during a sporting event is likely to result in minimal advantage during a performance. It may potentially result in a decrease in performance. In general, top performers have a better grasp of their abilities and performance, so they can visualize a specific skill clearly while retaining control of their images, resulting in performance achievement.

Clark (1960) conducted an early investigation on the controllability of imagery. Participants were to recall cognitively bouncing a ball before shooting it. However, the ball never bounced and remained attached to the ground. It was revealed that since the vision of the players was uncontrollable, they could not accurately establish the visuals of the shooting method. As a

result, Malouin et al. (2013) noted that investigators must assess the degree to which players control their visualizing abilities and the importance of this degree in developing a visualization training programme.

Vividness is crucial in using imagery effectively in a mental training intervention programme (Budnik-Przybylska, Karasiewicz, Morris, & Watt, 2014). The term "vividness" refers to how clear the image appears, the number of senses engaged, as well as what physiological or affective responses are felt when partaking in visualization (Williams, Guillot, Di Rienzo, & Cumming 2015). According to Anuar, Cumming and Williams (2016), vividness indicates the rate of activity of the neurological mechanism that underpins visual perception.

According to Vogt, Di Rienzo, Collet, Collins and Guillot (2013), high levels of vividness and controllability are expected in successful imagery. On the other hand, imaging with great clarity but limited controllability would be troublesome since the individual engaged in the imagery process produces a bright image but simultaneously imaging failed, inaccurate, or ineffectual movement. The capacity of players to picture in various imaging sensory mechanisms, like kinetic, audio, or visual imagery, might also vary, which may have a substantial influence on imagery training sessions. For example, kinetic imagery is akin to actual performance. As a result, players with poor kinetic awareness cannot imagine how they would think throughout a performance. As a result, multiple studies have investigated the consequences of various visual aptitude characteristics.

Some studies are of the view that improving other psychological variables like imagery can improve players' imagery abilities. For example,

Johnson, Thomas and Gill (2015) and Chen and Lee (2018) showed that athletes with a narrow focus concentration outperformed those with a broad emphasis on imagery abilities. This indicates that allocating concentration resources to certain performance areas can improve imagery efficiency and effectiveness. Also, players can use and maintain mental imagery processes more effectively if they develop the ability to sustain their focus on task-relevant information and block out distractions. Research has found that combining imagery and concentration produces positive results. Combining imagery and concentration techniques in training has been proven to increase athletic performance and cognitive processes connected with imagery. These findings imply that incorporating these two constructs into training programmes can mutually benefit a player's ability to visualize and concentrate in situations. Hence, it is not surprising that players did not differ in imagery abilities after their independent exposure to imagery, concentration, and a combination of imagery and concentration.

However, few studies argue this assertion. Dohme, Bloom, Piggott and Backhouse (2020) examined a 15-month psychological skills development programme among elite young tennis players. It was discovered that players in the self-talk, imagery, and performance routines groups vary in mental skill abilities and imagery characteristics. A similar study by Rizal, Asmawi and Lubis (2020) showed that mental imagery training is the only way players can develop and improve their imagery ability. They added that after exposure to different psychological variables, players exposed to imagery could mimic the perceptual motion and feelings and produce an action that is thought to be real. Jordet (2005) and Seif-Barghi, Kordi and Memari (2013) revealed no

association between imagery intervention and predicted performance among top-level soccer players.

Individual Characteristics of the Player

The advantages of imagery training differ based on individual factors such as the player's level of competence and the player's roles. All of these characteristics must be considered when constructing an imagery training programme.

Experience level of the player

Individual characteristics such as experience level can have an impact on imagery ability. Callow, Roberts, Hardy, Jiang and Edwards (2013) asserted that novice players gain more from imagery than top-level players since their development is far more intellectual because they are in the earlier stages of technique learning. However, imagery studies have revealed that highly experienced athletes have better imagery efficacy (Fazel, Morris, Watt, & Maher, 2018; Feltz & Riessinger, 2016) and better degrees of imagery ability (Simonsmeier et al., 2021). Bolles and Chatfield (2009) investigated the relationship between imaging ability and imagery usage in dance instruction, effectiveness, and mastering styles. The findings revealed a significant difference in imagery ability between experienced and inexperienced dancers. Experienced dancers have high imagery ability, whereas inexperienced athletes have low imagery ability. The researchers concluded that because experienced dancers were exposed to imagery at a young age and had been using it for a long time, they had high levels of imagery ability.

Lindsay et al. (2021) revealed more significant effect sizes for experienced participants than beginners in a thematic investigation of visualisation in physical activity. According to Lindsay et al., athletic experience is likely to lead to more robust mental representations of specific techniques, leading to a more effective visualisation of that technique. Duarte-Mendes, Marinho, Monteiro, Cid and Petrica (2019) investigated visualization capability in experienced, semi-experienced, and non-experienced athletes who swim. With regards to sensory and exterior visual representations, the results showed no noticeable difference across the experienced and semi-experienced groupings; however, experienced swimmers scored substantially higher compared to non-professional swimmers in inward visual representations.

Furthermore, Olsson, Jonsson, Larsson and Nyberg (2008) compared experienced and beginner jumpers during motor imagination to see if separate brain mechanisms are triggered in high jumpers. According to the findings, the experienced high jumpers recruited more motor areas, while beginners recruited more retinal and temporal regions. As a result, Olsson et al. concluded that emerging players would fail to visualise the mental picture, instead relying on visual representations of their ability. On the other hand, experienced performers with enough competence to generate an acceptable depiction of a motion ability in imagery may be more effective than those with lesser skill or even less expertise in imagery.

Rostami and Rezaie (2013) analysed various imagery functions based on the level of experience and playing positions of basketball players. An ANOVA result revealed a significant difference in imagery ability based on

the experience levels among the experimental and control groups. A post hoc test revealed that university students with little experience had lower imagery ability than players who compete in the top division or league one. The results showed that as players' experience levels increased, their imagery ability increased as they transitioned from non-automated to automated performance levels.

Imagery is known to be helpful in sports and exercise psychology circumstances to novice and expert players, given that the participants have the requisite level of competence for the imagery components (Hétu et al., 2013). Structured practise with imagery has proved to improve the performance of novice as well as elite athletes. Researchers have discovered favourable impacts for novice and experienced players (Rhodes, May, Andrade, & Kavanagh, 2018; Spindler, Allen, Vella, & Swann, 2018). As a result, while imagery impacts athletes throughout all grades, athletes should implement a structured imagery training programme to guarantee their desired athletic performance.

Task characteristics (playing position)

According to researchers, task characteristics are also significant to mental visual impacts. And that mental practice is more beneficial for mental activities than physical-based ones. Regarding the image acquisition process, task characteristics and task kinds influence imagery success. Pocock, Dicks, Thelwell, Champman and Barker (2019) investigated if physical, task, timing, learning, emotion, and perspective (PETTLEP) imagery improves decision-making and imagery ability when combined with video training. An ANOVA analysis revealed a significant difference in decision-making and imagery

ability for players of all positions. However, a post hoc analysis showed that central midfielders had enhanced decision-making and imagery abilities compared to other players in the game. The researcher concluded that the significant increase in imagery ability and decision-making by midfielders was because central midfielders use high levels of awareness during games.

Eloff, Monyeki and Grobbelaar (2011) investigated whether there was a positional difference in mental skill levels among 91 tertiary hockey players. The findings revealed that goalkeepers had the lowest ratings for imagery abilities, while midfielders outclassed the other positional groups. This suggested that positional demands and differences must be considered when creating and implementing imagery programmes for hockey players.

Hallman and Munroe-Chandler (2009) investigated the impact of playing roles on visualisation ability and use among ice stick game players. The participants of the study comprised 258 competitive male ice stick game players between the ages of 16 and 29. Two independent MANOVA analyses revealed significant effects on imagery intensity and imagery capability throughout the positions players play. Thus, goaltenders employ far more MG-M and CS imagery than attackers and defenders. Also, goaltenders provide more explicit and brighter pictures from an inner and an outer point of view than attackers. Hence, a keeper who chooses to use an outside imagery viewpoint responds faster to an internal imagery viewpoint to execute a technique with less error. This increased spatial awareness about the role of the goaltender helps develop a solid mental map of the game and visualise movements and actions, which can lead to improved imagery ability.

Evidence has shown the efficacy of playing position on imagery abilities; other studies believe that playing position has no association with imagery ability. Rostami and Rezaie (2013) discovered no substantial association between a player's position and their imagery capability. They reiterated that the absence of unique psychological and physical imagery training sessions for each playing position and role is why playing positions do not influence sports imagery ability. A similar study by Johnson, Williams, Gucciardi, & Schorer (2019) who investigated imagery ability in basketball players of various positions (point guards, forwards, and centres) showed no significant differences in imagery ability scores for all playing positions, implying that imagery ability was identical within the positions. According to Ramsey, Ali, McNeill and Scott (2016), while position-specific requirements can affect specific cognitive skills in football, imagery ability may not be one of them. They argue that different variables, such as training, level of experience, and personality traits, may significantly affect imagery ability more than playing positions.

Effect of Imagery on Sports Performance

It has been hypothesised by Williamon and Jónasson (2017) that mental rehearsal improves efficiency by increasing essential psychological elements significantly, which impacts athletic performance success. Chalghaf (2013) proposed that players may improve their performance by practicing comprehensive plans and strategies, specialised talents, positive self-talk success, and overall performance through visual images.

Research has been done on imagery and performance worldwide. Robin et al. (2007) evaluated the impact of imagery training sessions on

improving motor performance in skilled tennis players. Throughout the intervention phase, participants completed 15 imaging training sessions, with every engagement comprising two rounds of 15 imagery trials and 15 physical attempts. Finally, 48 hours after the last treatment programme, the participants of the study underwent a post-test data collection akin to what took place during the pre-test. The findings revealed that the imagery treatment programme greatly improved the performance of service returns in skilled tennis players. Furthermore, after fifteen imaging sessions, persons considered to have sound imaging systems substantially upped their direction correctness and became far less inconsistent than those with less visualization capability. Milley and Ouellette (2021) discovered substantial variations in performance results following intervention across treatment groups. According to the results, participants from the imagery condition exhibited higher shooting accuracy from the pre-test to the post-test than those in the concentration condition.

Furthermore, Guillot, Nadrowska and Collet (2009) evaluated the effect of imagery on acquiring and executing strategic attacking moves among 10 elite female basketball players. A competent basketball coach assessed the effectiveness of the players' manoeuvres. The assessor examined the effectiveness of the execution of three attacking approach actions and the players' efficiency in executing their game plan. For six weeks, the strategy for the very first match was physiologically and cognitively practiced two times per week. The second attacking charge movement was practically rehearsed. The final attacking move was not practically rehearsed but assessed at the start and end of the programme. According to the ratings from the

assessor, the combination of imagery rehearsal and regular exercise greatly enhanced motor function during the post-test evaluation of the strategic model. The study contributes to the expanding amount of knowledge supporting the use of imagery as part of physical practices.

Several studies have also been done on different continents to determine the influence of imagery on soccer performance. Norouzi et al. (2019) investigated if four weeks of external and internal PETLEP imagery impacted passing performance among Iranian soccer players. Forty-five (45) soccer players with no football experience or registration with any Iranian team were recruited for the study. These players were split into three classifications: inward imagery (15), outward imagery (15), and a control group (15). During the intervention phase, participants in the external and internal imagery groups were exposed to their respective imagery training for 40 minutes per session, three days per week. On the other hand, the passing training practice involved all three groups. The results suggested that the soccer passing performance of the outward and inward PETTLEP imagery groups improved as opposed to the control group. The study concluded that imagery was a worthwhile approach to bettering soccer passing performance.

Similarly, Seif-Barghi, Kordi, Memari, Mansournia and Jalali-Ghomi (2012) studied the effect of an external imagery intervention on elite soccer players from Iran. 69 Iranian championship players from the U16, U19, and U21 age groups and players over 21 were sampled for the study. These players were randomly grouped into treatment (imagery) and control groups. The treatment group undertook an eight-week imagery training on how to execute a successful pass in soccer. The research on successful passes revealed

substantial variations among the groups receiving treatment and those receiving no treatment. The findings suggested that refinement in passing was due to the imagery treatment that the players underwent. Second, using various imagery types allowed the participants to make decisions based on their ability and the scenarios they were confronted with. Additionally, juvenile footballers used imagery more than older players, implying that imagery training should begin at the player's developmental stage.

Clipston (2010) investigated the use of imagery by top-level and novice football players and the effects of imagery on performance among female footballers from Cardiff, United Kingdom. The research used a qualitative approach to compare the usage and usefulness of images among top and novice soccer players. The interview process employed a set of semi-structured open-ended questions to help the respondents provide comprehensive information on their imagery use and how well it influences their overall performance. The findings showed that while imaging, there was a rise in self-confidence, motivation, and attention due to experiencing the movement, hearing the noises, seeing the colours, and experiencing the emotions, resulting in improved performance.

Veraksa and Gorovaya (2012) investigated the uniqueness of young players' imagery use and the efficiency of imagery training applications in soccer training sessions. The study included 120 male teenage soccer players from two soccer academies who regularly competed in the regional and national championships in Moscow, Russia. The study showed that players of various ages use imagery during training and competitions. On the mobility test in soccer, there was a substantial change in the performance of the

imagery group between pre-intervention and post-intervention data. The findings discovered that imagery causes an increase in soccer players' performance.

Research worldwide has shown the effectiveness of imagery on penalty kick performances. Chang (2018) studied the effect of six weeks of imagery treatment intervention on penalty kick efficiency and the speed of the ball during penalty kicks in amateur footballers. This research utilised the services of 30 amateur footballers who partook in the 2018 Chen Yuan Tournament. The experimental group participated in a six-week imagery intervention programme concurrently with their team training programme. Only a team training programme was administered to participants in the control group. The experimental and control groups underwent post-test data collection at the end of the six-week intervention. The study discovered that after six weeks of imagery intervention, the accuracy of penalty kicks improved by 10.57 %. On the other hand, ball velocity increased by 0.83%. The researcher concluded that imagery training improved the accuracy of penalty kicks for football players.

Rhodes, May and Booth (2020) randomly compared different imagery approaches to investigate penalty success in professional soccer. Thirty male professional soccer players, all of whom were first-team players from their various teams in the English Football League (EFL) aged 19 to 34, were employed for the study. These participants were randomly allocated to one of three conditions: PETTLEP visualisation group, functional imagery training (FIT) visualisation intervention group, or control group. The players were then orally briefed on the study to discover the "optimal strategies to prepare

individuals for taking a penalty." After determining the baseline penalty kick success, interventions were implemented for a week, after which penalties were executed again. The intervention programme continued until after 17 weeks. Between 15 and 17 weeks following the preliminary penalty kick data collection, a penalty shootout assessment was done for the second and third time. At the baseline assessment, the control group had 67.5 % penalty shootout successes, 69.5 % after week one, and 69 % after 15 weeks. The PETTLEP group had 67 % penalty shootout successes during the preliminary assessment, 77.5 % after week one, and 71 % after 15 weeks. The baseline penalty success rate for FIT was 68.5 %, 80.5 % after week one, and 81 % after 15 weeks of the treatment programme. The findings confirmed the efficacy of imagery as a tool for improving penalty kick performance.

Björkstrand and Jern (2013) assessed how mental imagery rehearsal intervention enhances penalty shootout ability among soccer players. The research aimed to see if 1-week PETTLEP-based imagery exercises help soccer players improve their penalty-taking abilities. In all, 29 outfield players partook in the pre-intervention and post-intervention penalty-taking exercises (n=14 for the experimental group and n = 15 for the control group). During the pre-test assessment, participants attempted 10 kicks from the penalty spot to determine their baseline penalty-taking abilities. The treatment group participants were taught imaging tasks identical to the physical penalty shootout conditions they would be going through during the post-intervention. During the post-intervention data collection stage, all participants took 10 kicks from the penalty spot in the same manner as they did during the pre-intervention stage. Afterwards, the participants were requested to fill out a

post-intervention evaluation questionnaire. The findings demonstrated significant associations between penalty-taking abilities and the assessed markers of psychological skills in any of the three situations. The results reveal that participants who perceive themselves as peaking under pressure benefit more readily from imagery training.

On the African terrain, Adeleye and Fadoju (2019) investigated the influence of imagery on 50m sprint performance in selected high sprinters from Ijebu Igbo of the Ogun State in Nigeria. 30 sprinters from four secondary schools were chosen for the study. The study revealed that imagery significantly affects the performance of the sprinters from the selected high schools. The study concluded that school management should offer appropriate training equipment for sprinters. It was further recommended that since imagery improved the performance of the sprinters, school management must provide a conducive environment for teaching imagery techniques to all athletes.

In soccer, Adegbesan (2010) investigated if imagery predicts competitive sports confidence and performance levels. The study sought the help of 43 footballers from Ibadan, Nigeria. The researcher used the sports imagery questionnaire (SIQ) to obtain data on imagery ability and sports performance. The findings of the study showed that imagery impacts the performance of soccer players. Similarly, Slimani et al. (2016) examined the impact of mental preparation methodologies on developing physical and psychological abilities among footballers. The study revealed that psychological variables, particularly imagery, boost football players' performance over time. However, when it comes to improving physical

abilities in professional and amateur players, participants who were exposed to integrated psychological training tactics improved tremendously. In a study by Azemi et al. (2021), football players learned how to employ a combination of imagery and concentration strategies during penalty kicks. Participants participated in imagery exercises in which they visualised accurate kicks while keeping a high degree of concentration on pertinent events. The findings showed that combining imagery and concentration enhanced penalty kick efficiency and success rate.

Concept of Concentration

It is widely acknowledged that the brain cannot process all the information it is bombarded with (Malinowski, 2013). To avoid this problem, the brain uses a discriminatory process to select the most relevant information, known as concentration. Concentration refers to the capacity to focus on information acquired from the external environment or internal sources, such as memory and imagination (Lopes Dos Santos et al., 2020). Concentration is defined in sports psychology as the capacity to focus mental efforts on the task at hand while rejecting distractions (Buccioli & Castagnetti, 2020). Weinberg and Gould (2023) stressed that a highly concentrated player strives to execute his skill as well as possible, accelerates the process of acquiring new abilities, boosts his self-confidence, manages stress and anxiety through experience, and concentrates on the things he can control.

Cona, Scarpazza, Sartori, Moscovitch and Bisiacchi (2015) suggested that concentration processes information either internally or externally. Concentration from an external focus is where the player focuses on the result of his action (the product) done during learning, as opposed to an internally

driven focus of concentration, where the focus targets the processes of the activity being performed (Verschooren, Schindler, De Raedt, & Pourtois, 2019). For example, if a golfer is tasked to concentrate his gaze on the head of the golf club during the swinging motion, the golfer employs an externally driven focus of concentration. On the other hand, an internally driven concentration is utilized when the golfer concentrates his gaze on his limbs throughout the swinging process. Negative thoughts, anxieties, grief, and worry are all internal elements that impair concentration. External elements include umpire decisions, spectators, competing athletes, weather, and media coverage.

Types of concentration

According to Santos et al. (2016), concentration is said to be divided when players can do more than one activity simultaneously. When concentration is divided, the nature of the task (its complexity) and whether the two activities need the same or distinct cognitive processes determine task accomplishment (Cona et al., 2015). A selected concentration may also focus on one activity while remaining aware of changes in a separate task (Vaughan & Laborde, 2021). Research has proposed that selective concentration is similar to the beam of a spotlight, which may change in size (Middlemas, Croft, & Watson, 2018). Middlemas et al. view information outside the concentration spotlight as un-processed; therefore, we can only focus on one job at a time.

Concentration may be controlled in top-down or bottom-up processing (Park & Thayer, 2014). According to Park and Thayer, top-down processing is optional and known as thorough and user-directed processing. On the other

hand, bottom-up processing is automatic and includes concentrating on being drawn to salient environmental stimuli. Top-down and bottom-up processes are not mutually incompatible but reflect overlapping organisational principles that collaborate to improve performance (Stevenson, Schilhab, & Bentsen, 2018). Furthermore, top-down concentration allocation is critical in a task like batting, where time limitations are tight and the margin for mistakes is small. Significantly, once a player becomes an expert in a specific task, the effort and the resources necessary to do the task are lowered (Draheim, Tsukahara, Martin, Mashburn, & Engle, 2021).

Concentration abilities in sports

Adjustments in concentration, including decreased awareness, lead to mental fatigue or poor selective concentration, resulting in the accumulation of stress in players' bodies (Reardon et al., 2019). In soccer, players must pass and receive the ball, shoot to score, dribble to outwit opponents, arrive at split-second decisions, concentrate, shift concentration gaze quickly, and retain an excellent level of contextual concentration (Eysenck, Derakshan, Santos, & Calvo, 2007; Hegazy, 2012; Memmert, 2015; Moore et al., 2012; Weinberg, Burton, Yukelson, & Weigand, 2013). Performing these techniques and strategies necessitates high concentration to focus on the essentials of the activity at hand (Mitchell, Mitchell, Oslin, & Griffin, 2020). Concentration abilities involve cognitive processes connected with the way individuals learn, focus, observe, envision, forecast, evaluate, and perceive the environment to improve mental power, as well as process information that calls for a player to have the capacity to remember things, solve problems, and think about future events or all of the psychological processes (Moran & Toner, 2017).

As players gain proficiency in their chosen field of play, they tend to improve their concentration abilities (Moran, 2016). Moran asserts that with repetitive involvement in competitive circumstances, players get more acquainted with the demands associated with the sport and are taught to focus on the appropriate signals while disregarding unnecessary information. A variety of training tactics can be employed to improve concentration abilities. For example, concentration exercises could improve players' ability to concentrate on suitable stimuli. Standard workouts in concentration training include responses to training routines and concentration drills. Furthermore, sports psychology treatments such as concentration training skills can boost concentration abilities, allowing players to maintain focus and control their mental resources during a performance.

Several studies have been conducted to prove or disprove the efficacy of several concentration techniques on concentration abilities. Greenlees, Thelwell and Holder (2006) investigated the effectiveness of the concentration grid exercises as a concentration ability enhancement exercise. The findings revealed no significant interaction effects between the concentration training and control groups after exposure to the concentration grid exercises. However, when comparing the concentration training group to the control group in terms of the mean score, the mean scores demonstrated a slight improvement in concentration abilities. A pertinent problem disclosed by the study about the usage of concentration grid training is the amount of practice required before noticeable increases in concentration may be noticed. First, because no guidelines were offered in explaining the concentration grid exercise, an arbitrary training time of 9 weeks was set, with a minimum of six

trials completed each week. However, because this is just a minimum of 54 completed grids, the study suggests that this is insufficient to observe increased concentration abilities. This study indicated that concentration grid scores are either not receptive to practice enhancement or that such gains take a long time. Alternatively, the study attributes the lack of improvements in concentration abilities to the participants' lack of effort when completing the grid.

Mulya, Lengkana and Agustriyani (2021) investigated whether cognitive training might help beginner tennis players enhance their concentration. The novice players, ages 11-16, were subjected to an experimental procedure. The results showed a significant difference in concentration ability between the pre-test and post-test scores. As a result, it was concluded that exposing players to the intervention programme effectively boosted beginner tennis players' concentration abilities.

DiDomenico (2013) conducted a similar study by exposing players to practice concentration grid exercises. The study employed the services of wrestlers from the Red Mountain Wrestling Team of Larned Middle School. The study revealed that the concentration grid score on concentration ability for the performers improved tremendously.

Hegazy, Sherif and Houta (2015) revealed a significant difference in concentration ability after the working groups were exposed to the three distinct psychological variables. This study focused on whether mental motor performance training can benefit tennis and hockey strokes. The participants of the study were exposed to different psychological skill training tasks (relaxation, imagery, and concentration) related to their forehand, backhand,

and push pass in tennis. The results indicated a substantial change across the initial and final measurements of concentration ability in the group exposed to concentration regulation.

Another study by Haryanto et al. (2021) also found substantial differences in concentration abilities among the experimental and control groups. The study added that external variables such as limited time and challenging thought processes (task difficulty) and internal variables such as motivation and trait abilities for attentive engagement" influenced participants' concentration levels. Furthermore, Dereceli (2019) researched professional basketball players' concentration abilities and mental toughness. The study included 290 basketball professionals aged 16-26. The "letter cancellation task" concentration grid training was employed for the study. Overall, mental toughness, confidence, and concentration abilities improved. Also, Uludağ, Dorak, Vurgun, Yüzbaşıolu and Ateş (2021) examined how 10 weeks of concentration training affected basketball players' concentration and free-throw performance. The participants of the study comprised 29 basketball players (11 females and 18 males) from various Izmir youth clubs. The findings demonstrate that concentration training improves concentration abilities. The results showed that concentration exercises improve concentration abilities.

Uludağ, Dorak and Vurgun (2016) investigated if 10 weeks of imagery and concentration treatment have an impact on dart-throwing concentration ability. The study revealed statistical differences in concentration abilities within the working groups. However, the study revealed no statistically significant differences in concentration abilities between the working groups.

Influence of Demographic Characteristics on Concentration Abilities

Concentration theories and models have been developed, contributing to our understanding of concentration training intervention studies in sports. These concentration theories and models have included demographic characteristics that influence concentration effectiveness and are connected to the successful delivery of concentration treatments. According to Baillie, Davis and Ogilvie (2013), understanding concentration techniques is critical for developing successful concentration therapies; hence, players must be proficient at concentrating to benefit from concentration techniques. In light of this, when assessing the results of a concentration programme, the number of years the player has played the specific sport (experience level) and the player's position in sports are of vital concern (McCormick, Meijen, Anstiss, & Jones, 2019).

Level of experience

Some studies argue that experienced players might have high imagery ability but only for an activity where experienced players are skilled (Duarte-Mendes et al., 2019; Munzert & Lorey, 2013). However, long-term engagement in sports is an effective way of achieving optimal athletic concentration abilities. Research has revealed that experienced players feel calm and have serene mind-body unity, suggesting that practicing concentration techniques has rendered them more flow experience and peak performance (Bühlmayer, Birrer, Röthlin, Faude, & Donath, 2017). Kabat-Zinn, Beall and Rippe (1985) did one of the early works on concentration abilities. They taught experienced and inexperienced rowers concentration meditation and observed that several rowers with considerable experience

indicated that the concentration training enabled them to execute to their maximum capacity.

Contrarily, Tache, Lubis and Saputa (2017) argue that concentration level is not different across athletes of different experience levels. Memmert, Simons and Grimme (2009) also discovered a negative relationship between athletes' experience level and concentration capacity. The study found that experienced athletes do not have different concentrations and that when athletes are concentrated, no performance outcomes are assured. Munzert and Lorey (2013) also found no significant difference in imagery ability based on players' experience levels. Munzert and Lorey added that experienced players might have high imagery ability but only for an activity where experienced players are skilled.

However, a study by Hüttermann, Memmert and Simons (2014) compared the differences in performance in concentration between players of different expertise levels and revealed a positive relationship between experience and concentration abilities. Hüttermann et al. found that experienced players show maximum concentration levels across all axes (horizontal, vertical, and diagonal) compared with novices. Furthermore, experienced players in team sports demonstrated the most excellent horizontal distribution of concentration in soccer compared to novice players. Additionally, the experienced players showed more vertical concentration abilities in volleyball than novice players. It was further revealed that the ability of experienced players to direct their concentration to geographically distant objects was improved because of their awareness of errors made by

people in situations where the need for concentration exceeded their capacities.

A similar study by Russel (2007) examined concentration, its effects, and how it changed during competitions. Eight umpires from North Carolina served as participants in this study. Four umpires were identified as novices, and four were experienced. An interview guide with follow-up probes was used to gather data. Results of this study showed that concentration is perceived as higher by expert umpires than by novice umpires.

Heppe, Kohler, Fleddermann and Zentgraf (2016) reported a positive relationship between experience level and sustained concentration. Singh and Wulf (2020) investigated whether externally driven concentration differed between experienced and inexperienced athletes. The study found that athletes' experience influenced externally driven concentration, particularly when the method necessitates precise movement patterns. According to the study, externally directed concentration benefits less experienced athletes.

Perkins-Ceccato, Passmore and Lee (2003) examined the influence of concentration on the performance of shots by experienced and inexperienced golfers. Ten golfers from each ability level employed a nine-iron to launch the golf ball as near a tower as possible, 10, 15, 20, or 25 metres away. Under the internally driven concentration conditions, the participants were told to keep their gaze on the form of the golf swing and to adjust the force of their swing depending on the shot's distance. For the external focus of concentration conditions, the participants were instructed to focus on hitting the ball as close to the intended target as possible. When compared to internally driven concentration instructions, highly skilled golfers performed better with

externally driven concentration instructions. Low-competent golfers, on the other hand, performed well with internally driven concentration instructions rather than outward concentration instructions.

Playing position

Research has shown that positional differences influence concentration techniques and attributes among athletes from various sporting codes. Cox and Yoo (1995) indicated that defenders could concentrate better than midfielders and attackers in soccer. The researchers contend that defenders can concentrate well because, unlike their counterparts, they can easily control their anxiety levels and focus on the task at hand.

Wimshurst, Sowden and Cardinale (2012) evaluated the concentration abilities of Olympic hockey players and examined differences by playing positions. To examine the growth of concentration skills after training, 21 players underwent pre- and post-tests on various tasks. All players showed improvement after 10 weeks of focus training. The researchers concluded that players in different playing positions improve after exposure to concentration training.

Similarly, Fernandez-Echeverria, Castañer and Maneiro (2017) evaluated basketball players' concentration abilities in various playing positions. The researcher concluded that concentration demands in basketball were equivalent across playing positions, implying that playing position did not bring about a difference in concentration ability. Smith and Johnson (2018) revealed that players from various positions in team sports, such as forwards, midfielders, defenders, and goalkeepers, were not different in concentration ability. The authors discovered that players from all positions

had equivalent levels of selective concentration and contextual awareness during game scenarios. This means that concentration abilities improve across all playing positions and that there is no difference in concentration abilities for athletes of different playing positions.

Kiss and Balogh (2019) studied critical cognitive skills in handball. The study sampled 92 male and female competitive handball players. The findings of the study revealed that concentration could be maintained the least by playmakers and those in the pivot position. The researcher revealed that playmakers need to divide their concentration continuously, filtering disturbing stimuli and recognizing the critical factors associated with completing the task; hence, their low concentration abilities since their duties make it easy for them to lose concentration. It was also revealed that goalkeepers provide a balanced performance in concentration abilities.

A similar study by Andrew, Grobbelaar and Potgieter (2007) investigated whether playing position correlates with the concentration abilities of rugby players since the demands placed on the players differ per their functions in their various playing positions. One hundred and eighty players were divided into seven positional groups based on their playing positions (half-backs, hookers, inside backs, locks, loose forwards, outside backs and Props). The results indicated a significant difference in concentration abilities between the seven positional groups. The results revealed that the half-backs and hookers consistently used the measured high-concentration attributes more than the other positional groups. Notwithstanding the fact that studies suggest that rugby players may be distinguished based on their concentration levels, caution should be applied

when using concentration abilities as a determinant of an individual's ideal playing position.

Blecharz, Wrześniewski, Siekańska, Ambroży and Spieszny (2022) determined the level of selective concentration in handball players depending on their positions. Fifty handball players participated in the study. Participants comprised 35 national team players, six first-division players, and nine second-division players. The results identified significant differences in concentration abilities between handball players assigned to different positions. A post hoc analysis revealed that goalkeepers had lower concentration levels compared to players in other positions. With this in mind, individual differences should be considered when planning psychological interventions.

Najah and Rejeb (2015) investigated if the psychological skills of male soccer players differ among players of the various playing positions. This study employed the services of 180 Tunisian soccer players between the ages of 15 and 19. The participants were grouped into three playing positions, namely, forward ($n = 60$), midfield ($n = 60$), and defense ($n = 60$). Results yielded significant differences in concentration abilities between players of different playing positions, with forward players outperforming the players from the other playing positions. In terms of relaxation, defensive players outperformed the other positional categories, whereas midfielders had the lowest psychological ability levels. The investigation validated the premise that there were positional variations in psychological abilities. More precisely, statistical evidence revealed that football players might be distinguished based on psychological ability and team position.

Dereceli (2019) investigated professional basketball players' attention talents and mental toughness. The experiment comprised 290 basketball players aged 16 to 26 from the Turkish Basketball First and Second Leagues. The "Letter Cancellation Task" concentration grid exercise developed by Kumar and Telles (2009) was used to test players' concentration abilities. The working groups' overall mental toughness, confidence, and concentration abilities differed statistically significantly. The concentration abilities of the players were shown to differ significantly depending on their positions in the game. The concentration ability of players in the point guard position was more significant than that of players at different positions.

In soccer, a study by Klatt and Nerb (2021) investigated technical and psychological abilities, including how they are connected to position-specific competence needs. To investigate the influence of playing position in football, the researchers used changeable activities that delivered an unexpected product. Klatt and Nerb revealed that offensive players, particularly strikers, lost their concentration quickly compared to defenders and midfielders. Additionally, attacking players spotted the unnoticed player more often. This suggests that players differ not exclusively in actual conscious perception of unanticipated objects unrelated to the sport as a consequence of their playing positions. However, it also detects an unanticipated pertinent object that aids in discovering tactical solutions in a specific game circumstance.

Effect of Concentration on Sports Performance

The importance of concentration on sports performance is well demonstrated in sports psychology. According to Abramovitz (2013), a laser-like focus on game-plan implementation is needed to succeed at the highest

level of sports. Concentration is the most widely used and effective form of self-regulation (Robson, Allen, & Howard, 2020). They argued that regulating thoughts, sentiments, emotions, desires, and assignment-performance processes requires efficient concentration management. Maher, Marchant, Morris and Fazel (2020) placed concentration at the core of their cycle of excellence framework based on thorough performance consultancy and in-depth interview analysis of numerous top-level performers across several high-performance disciplines. Based on their interview with top-level performers, Maher et al. concluded that concentration is the primary psychological component leading to better performance and individual outstanding quality across all great performance domains. By concentrating on the task at hand, the player tries to avoid introspection (pondering over past failures) and tension (panicking about the outcome or what the instructor says), often distracting the player's spotlight from task-relevant cues.

In a research on professional runners' concentrating tactics, Benz (2009) revealed that being in the present is the most significant contributing element towards the athletes' highest concentration and sports achievement. Benz discovered that professional runners had good concentration throughout their best performances, which participants adjusted to meet changing demands at different stages of the race. Amongst the concentration techniques used by these top-level athletes, Benz observed that seeing oneself performing enabled the athletes to concentrate on task-relevant stimuli while retaining an optimistic and self-assured mentality. It was revealed further that the capacity to transition from a relaxing state to a high-concentration state to respond to emerging race needs was also recognized as necessary to the athletes. When

athletes became distracted by task-irrelevant and negative thoughts, refocusing strategies included concentrating only on what the athlete could control, transforming negativity into positives, and substituting distractors with task-relevant cues. The runners said they used psyching words to concentrate or cope with interruptions, control impulses, and manage fatigue.

Lu, Li, Wu, Liu and Wu (2021) identified the critical concentration networks for top-level archers and investigated if concentration exercises increase top-level archers' concentration. A total of 111 archers were sampled for the study. After eight weeks of intervention, the pre-intervention and post-intervention data showed a substantial effect of concentration training on archers' alertness. The study also discovered that concentration training aided archers in preventing concentration distraction. The findings revealed that elite archers have a faster overall response time to their set goals. The archers stated that this enabled them to perform at the highest level with convenience, increasing their efficiency. This suggests that being capable of reaching an alertness state quickly, making more significant usage of environmental cues, and effectively inhibiting the proliferation of interruption from interjections are critical for peak performance among performers. Furthermore, concentration training helps with realigning and diversion control. An efficient orientation concentration system guarantees that players may pick and prioritize cues from sensory stimuli more efficiently to sustain concentration. This results in a significant improvement in sports performance.

Candra (2020) investigated whether concentration training affects basketball shooting. This research showed that players frequently fail to make shots due to incorrect technique, poor environmental conditions, and poor

concentration caused by crowd pressure or teammates and high stakes during shooting moments. However, the study revealed that concentration improves the effectiveness and efficiency of basketball shooting motion. Thus, concentration training improves basketball shooting.

In soccer, a study by Sin and Aprinanda (2020) investigated the effect of concentration on soccer players' shooting ability in a soccer academy in Batuang Taba Palang city in West Sumatra, Indonesia. In total, 17 under-15 players were drawn randomly from a population of 19 to undertake the research. The shooting ability test and the grid concentration exercise assessed players' shooting and concentration abilities. The study discovered that concentration significantly impacts the shooting ability of soccer players. According to the findings, when players possess a high concentration level, they are not affected by internally or externally driven disturbances. This means the player shooting the ball will execute the necessary technique as demanded.

De Andrade, González-Vllora, Casanova, and Teoldo (2020) conducted a similar study in South America to evaluate the association between concentration and tactical behavioural productivity in footballers with comparable practice time as well as competition ability. The findings demonstrated that football players' attention levels positively connect with the effectiveness of their tactical conduct. Footballers with comparable practice time and levels of competition, according to the study, respond better to tactical actions in games if they maintain high attention levels and perform better in games.

Fetean et al. (2021) investigated the role of concentration in football for players aged 9 to 10. The study used an intervention programme to help the players develop their concentration. In total, 30 male players were chosen, with 15 designated for the treatment group and 15 designated for the control group. Players of the experimental group improved their concentration level after the intervention and outperformed the control group significantly. The findings indicated that the performance improvement was due to players of the experimental groups' exposure to concentration training. The study also revealed that the rise in concentration level helped the players better understand the exercises in technical terms and the tactical requirements communicated by the coach.

Jooste, Steyn and Van den Berg (2014) investigated the cognitive capabilities of young African football players in various positions. The census sampling technique was used to incorporate 152 soccer players ages between 14 and 18 from ten different African nations who competed in the 2010 Copa Coca-Cola football championship in the study. The study revealed that concentration is the only psychological construct linked to performance. The findings also revealed that players who can concentrate on task-relevant signals while avoiding distractions excel. It was deduced that concentration is one of the essential cognitive capabilities in sports, and it is a deciding factor in determining global soccer success, so much emphasis should be placed on concentration when coaches and sports psychologists employ psychological skills on soccer players.

Makaruk et al. (2020) investigated whether providing specific concentration conditions would improve penalty kick shooting performance in

football. The goalkeeper-independent strategy in penalty taking was used in the study under four different conditions. Specifically, external focus (target in the goal), autonomy support (target order selection), a combination of external concentration and autonomy supports, and a control group. The experimenter directed participants in the external focus group to focus and kick the ball to a specific target in a particular order. On the other hand, participants in the autonomy support group were instructed to choose their target with no further information on concentration cues. Each participant had to complete four penalty kicks with their dominant foot and was only allowed two run-up steps during the performance. Participants took 384 penalty kicks, with 199 successful goals, 44 blocked or saved by the goalkeeper, and 153 shots going wide. The findings of this study revealed significantly higher results when compared to the control group. It was discovered that in the presence of a distractor, assuming an external control concentration prohibited participants from paying close attention to distraction, leading to more successful performance executions. Furthermore, it was discovered that concentration improves neuromuscular automaticity, increases task goal orientation, decreases cognitive load, and reduces performance anxiety. A lack of concentration resulted in lower kicking accuracy observed in the autonomy support and control groups.

In conclusion, while several psychological skill training have been suggested to improve sports performance, research on concentration in various sports contexts has found a constant substantial association between concentration and sports performance (Birrer, Röthlin, & Morgan, 2012). According to studies investigating the causal relationship between

concentration and sports performance, sports performance factors and concentration are required to improve performance (Hardy et al., 2018).

The Concept of Penalty Kicks in Soccer

Penalty kicks are tough yet unique and frequently repeated motor movements (Patel, Shah, & Shah, 2020). Despite its status as an “unfair” event, the penalty shootout in soccer provides an excellent platform for exploring and analyzing real-world successive performances and choices amid uncertainties (Tuyls et al., 2021). The penalty kick, also known as kicks from the penalty spot, is a series of several penalty kicks that rely on a series of multiple penalty kicks until one team has a higher number of goals after each team has taken five kicks or one team has a goal advantage over the other team after both teams have taken the same number of kicks during the sudden-death period (IFAB, 2023). The success of penalty shootouts is often attributed to elements such as psychology (stress management), skill (shooting technique), physiology (overcoming fatigue from 120 minutes of play), and probability (the direction in which the goalkeeper moves) (Abdelkader et al., 2021). Penalty kicks are significant since their results decide whether a team progresses or is eliminated from competitions. Alternatively, penalty kicks determine a club's ultimate ranking (such as winning the championship or coming in second or third position) (Arrondel et al., 2019).

Before the 1970s, football matches that remained deadlocked after extra time were settled by a coin toss or a replay in two days if it was a final match (Anbarcı et al., 2021). In 1968, when Italy's game versus the Soviet Union was tied at 0-0 after 120 minutes, a coin toss sent Italy to the European Championship final. The stakeholders deemed this unacceptable and unfair

(Csató, 2021). This led to the proposition of penalty kicks in the game of soccer in the late 1960s to provide a player in the 18-yard box another chance to score (Csató, 2023). In the 1976 European Championship, penalty shootouts were first used in a major competition (Lambers & Spieksma, 2021). Czechoslovakia led West Germany 2-0 until the Germans equalized in the final minutes. In overtime, there were no goals scored. According to Haigh (2009), the finals committee of the competition agreed to stage the first penalty kick tiebreaker, which West Germany later lost. Since then, penalty shootouts have been the regular tie-breaking process in high-profile knockout competitions (FIFA World Cup, UEFA European Football Championship, CAF Championship of African Nations, CONMEBOL Copa America for national teams, and UEFA Champions League and CAF African Club Champions League, CONMEBOL Copa Libertadores de América and the CAF Confederations Cup for clubs).

Format of Penalty Kicks in Soccer

Section 14 of the 2023/ 2024 soccer laws of the game state that when tournament regulations necessitate a winning team following a drawn match or home-and-away game, the only permissible processes to select the champion are: a) away goal rule; b) two halves of extra time of not more than 15 minutes apiece; and c) penalty kicks (IFAB, 2023). During the case of the penalty kicks, the sides alternate five kicks. The team whose captain wins the coin toss chooses whether to execute the first or the second kick. If the results are tied when both teams have completed five penalties, shooting shall continue until a team scores a goal more than the other team out of the same number of kicks

(sudden death). This is the Standard (ABAB) Rule (Brams & Ismail, 2018; Csató, 2021).

Arrondel et al. (2019) researched soccer penalty shoot-out strategies. Their study offered a probability analysis of the penalty shoot-out and suggested the best structured and straightforward method of taking penalty kicks in soccer. According to their recommendations, the first five shooters on the field should be identified as the top five penalty kick takers. They should be administered in the reverse order of efficacy. That is, the best shooter kicks last, the second-best kicks forth, the third-best kicks third, the fourth-best kicks second, and the fifth-best kicks first. If the scores are tied, the sixth-ranked kicker is allocated to the sixth slot, the seventh-best kicker to the seventh slot, and so on.

Strategies in Penalty Kick Performance

During penalty shootouts, penalty kickers use a variety of aiming tactics. Kuhn (1988) did one of the initial research on penalty-kicking strategies. Kuhn stated that kickers could employ the open-loop (keeper-independent) and closed-loop (keeper-dependent) strategies during penalty kicks. The open-loop or keeper-independent strategy involves pre-programming the entire kicking operation. The strategy requires the kicker to disregard the goalkeeper and instead focus on the shooting action. Players who use this strategy are primarily concerned with power.

On the other hand, the closed-loop, also known as the keeper-dependent strategy, occurs when the kicker plays a reactive role and bases his choice on the keeper's actions. This approach involves a delayed kicking phase in which the kicker purposely slows their body cues in order to evaluate the

goalkeeper's body cues and position. This strategy is dependent on the goalkeeper acting anticipatorily quickly to provide the kicker with the opportunity to obtain useful features needed to generate an appropriate reaction to change their striking technique appropriately.

In a research investigating the temporal restrictions of this approach, Van der Kamp (2006) explored the period during which penalty shooters could change their shot direction in response to goalkeeper moves. According to the findings, a decrease in the period allowed to alter kick trajectory resulted in a higher risk of inaccurate shots. It has been discovered that anticipating the goalkeeper's movements may negatively impact penalty kick performance owing to a lack of chance to change the kicking action. In addition, this method may be helpful only when the goalkeeper dives quickly; nevertheless, if the goalkeeper remains motionless, the penalty shooter must attempt to produce a precise shot with semi-optimal gazing information.

According to Dohmen (2008), a perfectly struck penalty with an average speed would give the goalkeeper an inadequate opportunity to react and make a save. If a penalty taker is talented enough to reach this degree of precision, it was suggested that a keeper-dependent method may be advantageous. Furthermore, because research indicates goalkeepers do not predict shot direction based on the kicker's line of sight (Van der Kamp, Dicks, Navia, & Noël, 2018), using a target-focused technique cannot equip the goalkeeper for the forthcoming kick's direction (Navia, Van der Kamp, & Ruiz, 2013). To promote concentration and an ideal scoring target area, a perception-action study indicates that penalty kickers must gaze on the target

location before shooting to help concentrate their gaze and execute the penalty kick (Paterson, Van der Kamp, Bressan, & Savelsbergh, 2013).

The closed-loop technique is based on task factors outside the penalty taker's control and may be influenced by the keeper to gain an advantage (Tomeo, Cesari, Aglioti, & Urgesi, 2013). Therefore, a closed-loop strategy may be detrimental regarding psychological preparedness where emphasis on "managing the controllable" is advised rather than waiting to watch what the goalkeeper does (Memmert et al., 2013). The open-loop technique maintains control by concentrating on where the ball should be placed to defeat the goalkeeper (Navarro et al., 2013).

Success and Failure of Penalty Kicks

Penalty kicks are essentially a targeting task. The kicker must shoot the ball past the defending goalkeeper, positioned at the centre of the goal, to make an effort to prohibit the kicker from scoring. It seems to sense that a shot placed far away from the goalkeeper has a higher chance of outwitting the goalkeeper, leading to a successful attempt. Coaches are aware that the best spot to kick a penalty is on the ground, as near the goalpost as possible. This instinctual assumption is valid because the goalkeeper's reaction time is relatively short, making it more challenging to save every well-placed ball struck to that location (Ferraresi & Gucciardi, 2021).

Bar-Eli and Azar (2009) studied 286 penalties to establish the optimal goal location with the highest possibility of scoring. According to the study, no kicks were stopped in the upper corner of the goal, whereas the goalkeeper saved 12.6 % of kicks in the middle part and 19.8% in the bottom corner. According to the findings, the most common penalty kicking strategy is

aiming the penalty kicks at the lower section of the goal (56.6 % of shots hit the zone). In addition, going for the top corner of the goal was the least employed strategy yet resulted in more successful penalty attempts. They concluded that penalty kickers should shoot to the two upper corners of the goalpost.

Despite the apparent ease of this relatively simple shooting practice and the significant target region for penalty kicks, a substantial percentage of shots taken from the penalty mark are missed. A study on penalty shootouts in the 1986 FIFA World Cup found that over 70% of the 42 penalties landed two metres on the goalkeeper's left or right side (Wood, Jordet, & Wilson, 2015). In simple terms, the majority of shots taken from the penalty spot failed to land in their ostensibly ideal location.

Numerous research have been undertaken to determine the percentage of successful penalty shootouts in international tournaments around the world (FIFA World Cup, UEFA European Championship, among others), and there is a broad consensus that the percentage of successful penalty kicks ranges between 75% and 86% for top-level male football players (Arrondel et al., 2019). Arrondel et al. add a few famous cases of low productivity rates of penalty kicks in soccer. For instance, three previous final matches of the UEFA Champions League (FC Bayern München versus Valencia CF in 2001, AC Milan versus Juventus FC in 2003, and Liverpool FC versus AC Milan in 2005) were decided by penalty shootouts, with a considerably large percentage of shots being missed: four out of eleven (36.36 %) in 2001, five out of ten (50 %) in 2003, and five out of ten (50 %) in 2005, for a total of 14 out of 31 shots (45.16%) were unsuccessful. Such poor performance has piqued the interest of

coaches and sports psychologists who have investigated a variety of variables that influence success in this all-important exercise. Penalty shootouts have also been used to decide other major soccer competitions, notably the 2006 and the 2022 World Cup finals.

In the African terrain, the Confederation of African Football (CAF) has been using penalty kicks in the federation's soccer competitions, including men's competitions (African Cup of Nations and the African Nations Championship), women's competitions (African Women's Cup of Nations), club competitions (CAF champions league, CAF confederations cup, CAF super cup, and CAF women's champions league) and youth competitions (U17 African cup of nations, U20 African cup of nations and the U23 African cup of nations) (Njororai, 2014). Most recently, the 2012, 2015, and 2021 African Cup of Nations finals and the 2004 CAF Champions League finals have all been decided by penalty shootouts. In Ghana, the 2021 MTN FA Cup finals saw Accra Hearts of Oak Sporting Club beating Obuasi Ashantigold Sporting Club in the penalty shootouts to win the tournament (GFA Communications, 2021).

Several instances of penalty misses have occurred in the world. Banerjee (2022) gave instances of famous penalty misses in the World Cup. Brazil was eliminated from the quarterfinals of the 1986 World Cup after failing to reach the semi-finals in 1982. Brazil's match versus France ended in a 1-1 stalemate, with France finally winning in a penalty shootout. Zico, who came on as a substitute in the second half, missed a penalty that would have effectively ended the contest in favour of Brazil. England's 2006 World Cup squad, often regarded as "the golden generation," failed to advance beyond the

quarterfinals, losing in a penalty shootout to Portugal. England missed three of their four penalties, with superstars like Frank Lampard, Steven Gerrard, and Jamie Carragher failing to score from the spot. Banerjee added that David Trezeguet, France's Euro 2000 hero, became the villain of Les Bleus during the 2006 World Cup final. Trezeguet missed his penalty in the shootout, which proved costly for France as Italy avenged and won the World Cup.

In the African terrain, Zambia won the Africa Cup of Nations for the first time in 2012, defeating Ivory Coast 8-7 in a penalty shootout in the final. The match ended goalless after extra time when Ivory Coast captain Didier Drogba missed a penalty in the second half of regular play. With the tension at an all-time high, Arsenal striker Gervais Lombe Yao Kouassi, popularly known as Gervinho, sent his shot wide, and Stoppila Sunzu sealed the win to give his team an unforgettable triumph (Chipande et al., 2019).

According to Chipande et al. (2019), the 1992 African Cup of Nations Final was held on January 26, 1992, in Senegal, to determine the winner of the tournament that saw Ivory Coast play against Ghana. Abedi Pele, Ghana's star player and the competition's best player, was suspended and did not take part in the game. The significance of the penalty shootout comes from the fact that every player on the pitch played a penalty kick for the first time in a major international final. After a scoreless draw, Ivory Coast defeated Ghana 11-10 on penalties to win the African Cup for the first time. Another instance of penalty misses in the Ghanaian contest occurred at the 2010 FIFA World Cup. In what has to be among the worst injustices in football history, Ghana was inches away from reaching the World Cup semi-finals in 2010 when Luis Suarez deliberately handled the ball on the line and was sent off. Ghana was

given a penalty in the last minutes of extra time. Asamoah Gyan, Ghana's all-time top-scorer, had a chance to be a superhero, but his shot smacked off the crossbar. After Ghana's morale was crushed, Uruguay won the penalty shootout 4-2 (Njororai-Simiyu, 2019). Furthermore, in what was regarded as a repeat of the 1979 CAF cup winners' cup, R. C. Kadiogo of Burkina Faso beat Kumasi Asante Kotoko 3-1 on penalties to eliminate Asante Kotoko from the 2022/2023 CAF Champions League at the Baba Yara Sports Stadium after the game had ended 1-1 on aggregate (Ayamga, 2022).

Factors Affecting Penalty Kick Performance

In modern soccer contests, one thing is clear: the overall face of soccer has changed. Set pieces, like penalty kicks, are becoming more important since they could be the only opportunity a team may get in a match; hence, most major soccer events, including the World Cup, Olympic Games, and various national and club championships for various federations, have used penalty kicks to choose a winner or to advance a team to the next stage in the competition (Arrondel et al., 2019). Irrespective of the precise nature of the penalty kick situation, the players experience anxiety (cognitive, somatic, or both) (Navarro et al., 2013). The game stops whenever penalty kicks are given and becomes extremely focused, allowing the player to perform the skill solo. The potential to distribute performance responsibilities among teammates is reduced (Navia, Van der Kamp, Avilés, & Aceituno, 2019). The risk of experiencing anxiety increases when a scenario gets less impacted by ambient forces because the players must bear nearly all responsibility for the situation (Singh & Prakash, 2019). The penalty kicker has an advantage in that they

have a high chance of success. However, some factors account for the success of the penalty kick. These include;

The Environment

Lopes, Araújo, Peres, Davids, & Barreiros (2008) and Noël, Van der Kamp and Klatt (2021), from an ecological-dynamic point of view, discovered that decision-making actions in the penalty kick emerge from the changing interactions of the environment toward desired outcomes (to score or not to score a goal), determined by the constraints of the task periodically (players' kicking strategies, task-related anxiety, experience levels). During performances, some players feel anxious (state anxiety) (Fletcher & Arnold, 2016; Panza et al., 2020).

Research has shown that highly anxious players set unnecessarily high-performance standards for themselves or focus on the environment (supporters, teammates, opponents, playing surface) and are more responsive to sensing threat-related stimulation (or prospective factors causing arousal) and disparities in expectations and perceived performance, making them more vulnerable to devoting more commitment to these observations (Eysenck and Calvo, 1992). Because players are unconscious of their opponents' anticipated actions, opposing supporters' hostile attitude, or the pressure to win from teammates, supporters, and club management sets in, their actions immensely affect their psyche and physiology, and they perform poorly (Mesagno & Beckmann, 2017).

Research has suggested that a strong environmental pressure increases the risk of not scoring a penalty kick by around 6%, regardless of the player's skill level (Brinkschulte, Wunderlich, Furley, & Memmert, 2023). However,

specific routines in performance occur if players regularly interact with an established setting (opponents, spectators, teammates' movements, weather conditions, and the surface of the playing field). Because players are conscious of the established setting, their actions are not immensely affected. This keeps individuals calm and comfortable during performances, reducing or eliminating the psychological imbalance that frequently overrides performance.

Newell (1986) indicated that the individual-environment relationship is based on contextual information that affords what is possible to do at a particular moment. According to Newell (1986), the individual, the task, and the environment do not work in isolation. Instead, they come into contact and change throughout different performance timelines. He believes helpful information from the environment is the foundation of the penalty kick interpersonal dynamics since it indicates players' intentions. The individual-environment relationships under task constraints, in particular, generate variations in perceptual-motor behaviours that serve as the basis of decision-making.

Motivation

Higgins (1998) investigated how situational variations influence people's judgments for understanding and improving sports performance depending on their self-regulatory perspective. In his opinion, two self-regulatory and motivational principles control human behaviours and goal-achieving procedures: (a) a promotion focus and (b) a preventative emphasis. Higgins established that when a person is in a state of loss or about losing a match when the person is in a regulatory state focused on prevention, and

when the risky alternative alone gives the chance of avoiding loss, a promotional orientation of behaviour becomes a motivational necessity. The relationship between one's regulatory focus and the environment's spatial reward structure, that is, the gains or losses coming from one's activities, determines the effect of the regulatory focus on how we observe and cope with the world. Higgins discovered that when compared to a mismatch, an alignment between the situational regulatory focus and the task's reward structure leads to greater cognitive flexibility, defined as the ability to spontaneously restructure one's knowledge in various ways in response to the radically changing situational demands. Higgins added that regulatory fit adds value by enhancing the capacity of involvement to accomplish a task by improving intrinsic motivation and motivational intensity or perseverance in the face of adversity.

Debanne, Laffaye and Trouilloud (2018) explored the relationships between the participants' motivational orientations for promotion or prevention and their performance in handball penalty throws. The study examined 327 high-stakes penalties taken from 68 closed games. Penalty performance increased when a regulatory match existed between the situational emphasis (penalty task) and the reward structure. According to the study, the more influential the connection between match focus and incentive, the better the 7-meter throw performance. Björkstrand and Jern (2013) introduced competition among participants and performance-contingent rewards to induce match-like conditions. The results showed that players significantly improved their penalty-taking ability. The athletes revealed that

the introduction of competition and performance-contingent rewards motivated them to perform well.

Training on penalty kicks

The socio-cultural aspect of the “task system of management” by Rothwell, Stone and Davids (2022) is synonymous with the traditional daily practices of industrial workhouses and were based on established standards of how players should adhere to performance responses. Rothwell et al. emphasized aggression, toughness, and the execution of specified movement behaviours. Coaches and learners must embrace such well-known structural models of human learning, believing that enrichment of components (technical components) can improve players’ performance by constantly repeating single tasks and monitoring for and detecting errors, thereby limiting performance fluctuations.

Hidayat (2018) evaluated the effect of training with a target on penalty kick accuracy. Penalty kick practice entailed kicking the ball from the penalty spot to a variety of targets. The goalposts were divided into seven target zones. Participants were told to kick the ball in seven different directions, with the option of guiding the ball to the target area if the target direction changed. After six weeks of intervention, there was a significant improvement in penalty kick accuracy, with a percentage increase of 21.5%.

Experience level of players

Experience has been shown to improve penalty kick performance success. Brinkschulte et al. (2023) investigated the effect of talent and pressure on penalty kick success in soccer. The study discovered that if an exceptionally competent player takes the penalty kick, the likelihood of

scoring a penalty is high, indicating that high skill level might be a shield against the crippling consequences of pressure to perform.

A study by Krumer (2020) also revealed that experience level is critical to penalty kick performance success. Krumer conducted a study on the effectiveness of 586 penalty shootouts among players of varied skill levels. The study suggested that the probability of success in penalty shootouts improves by 8% for the player with the most experience. Krumer concluded that in high-pressure situations such as a football penalty kick, the skill level of the players is crucial.

Brimmell, Edwards, Smith and Vaughan (2021) undertook a similar study to find out the influence of skill level on penalty kick success and found that performance significantly improved with a higher experience level, supporting the premise that a player's skill level influences their capability of scoring a penalty kick. According to Arrondel et al. (2019), there is a strong agreement between experience level and penalty kick performance. According to their research, the rate of successful penalty kicks for top-level male football players is between 75% and 86%. Brimmell et al. investigated if high levels of expertise have a beneficial influence on the result of penalty shootouts. According to their studies, high levels of expertise may operate as a buffer towards the damaging consequences of performance pressure resulting in performance augmentation. Vaughan and Edwards (2020) also revealed that a player's level of competency increases the likelihood of converting a kick from the penalty spot.

However, Schorer, Baker, Fath and Jaitner (2007) revealed that handball players' experience level contributed to their performance. According

to the study, performance enhancement results from experienced players' constant adaptability to performance constraints. Also, when firing at the same target, experts use a variety of movement patterns. Jordet (2009) investigated the relationship between experience level and performance in a real-world, high-pressure athletic job. Jordet discovered that experienced players scored, on average, 65% of penalty shots, whereas novice players scored 89%. Jordet indicated that seasoned players are believed to have gained much experience through playing for many years. As a result, they become more concerned about what failure might entail to their team, as opposed to younger players who regard penalties as a platform for making a name for themselves and performing better. Thus, expertise and high public standing gained over a long time might harm performance through extra performance pressure, causing experienced players to perform worse than their less experienced rivals. Interestingly, Jordet, Hartman, Visscher and Lemmink (2007) explored the influence of different ability levels on penalty kick success. There was no significant difference in penalty kick performance success in players of varying ability levels.

Playing position

The playing position and the roles assigned to players of various playing positions are vital in every game plan, game strategy, and during kicks from the penalty spot. Brinkschulte et al. (2023) believe that playing position ought not to be utilized when evaluating the fundamentals of penalty kick improvement since the situational and technical criteria of scoring a goal in-match differ significantly from those of converting a penalty kick. Brinkschulte et al. argue that in-match goals are dynamically scored, whereas

penalty kicks are executed in a more static environment. Technically, goals may be scored in various methods in-match, although penalty kicks are attempted in a rather conventional manner.

However, Memmert, Lemmink and Sampaio (2017) discovered that tactical match performances are determined by the calibre of specific individual players' actions and their roles. Jordet et al. (2007) examined the success rate of penalty kicks among footballers of different positions. They discovered disparities in the penalty kick success based on playing position. According to the findings, strikers score 83.1% of their penalties, midfielders score 79.6%, and defenders score 73.6%. The study revealed that offensive players are better goal scorers than other players since their primary duty is to score goals, hence, their performance in penalty kicks. Jordet et al. researched the effect of playing position on penalty kick success. The authors discovered that a player's position on the field of play predicts the outcome of a penalty kick. The authors hypothesised that players whose primary purpose is to score goals on the pitch would also be better at scoring from the penalty spot since they can manage high-pressure circumstances. A study by Gelade (2014) proved that a player's position on the pitch predicted penalty kick success. In the study, defenders were shown to be more successful than forwards or midfielders. The study concluded that defenders have a more robust capacity to concentrate and are less sensitive to mental fatigue; hence, they perform better in penalty kicks.

Theoretical Framework

The study utilised the Bio-informational theory and the Spotlight Metaphor. These theories describe how psychological variables (Imagery and

Concentration) affect arousal in players while also improving concentration and performance. Hence, these theories formed the basis for this research.

The Bio-Informational Theory

The bio-informational theory by Lang (1977) stipulates that "an image is a functionally organised finite set of propositions" (p. 864). According to the theory, positive images are incorporated into brain blueprints that guide real competing scenarios. The Bio-informational theory posits that any mental image comprises a collection of organised propositions stored in the brain's long-term memory (Post, Wrisberg, & Mullins, 2010). According to Post et al., these assertions are classified as stimulus, response, and meaning propositions.

Stimulus propositions include statements regarding external stimulation and the environment in which they happen, including how an individual feels, the heat of the sun on his face, or the loudness of the crowd (Lang, 2016; Tadeson, 1991). For instance, taking a penalty stroke in the final minute of a hockey game involves stimulus propositions such as the sight of the goal and crowd noise.

Response propositions include knowledge about a player's intellectual, emotional, and behavioural changes to the stimulus in the scene and indicate how a person might behave in real-life scenarios (Wilson, Dave, Burden, & Holmes, 2010). A clear example is taking a free throw in basketball, which would include the stimulation concepts of the feeling of the basketball in hand, the vision of the hoop, and the sounds of the audience. In addition, muscular tension in the shooting arm, heightened sweat, a sense of anxiousness, and the ecstatic sight of the ball swishing into the hoop might be reaction possibilities

for this image. Hence, physiological and emotional reactions such as anxiety, joy, tiredness, sweat, and stress are prevalent among response proposals. It is thought that by shifting reactions to given events through imagery, the athlete has greater control, resulting in enhanced performance.

The goal of meaning propositions is to understand the importance of input and output stimulus occurrences and the consequences of the movements so that imagers can derive alternative meanings of a scene and determine which action to do during visualization (Gapin & Herzog, 2014; MacInnis & Price, 1987; Schack et al., 2014). For example, meaning proposition during the taking of a penalty in the final minute of a hockey game includes knowledge that the results are even, there is only one minute remaining in the game within regulation time, and that the match is a championship final, with the final result being essential for the individual's task accomplishment.

The interpretation of the response proposition begins the muscular programme for the anticipated action and, therefore, can result in physiological reactions in related muscles and organs known as "efferent leakage" (Hecker & Kaczor, 1988). Furthermore, employing response and meaning propositions in imagery interventions helps access and reinforce the related motor programme more efficiently than the stimulus proposition alone (Woodcock, Cumming, Duda, & Sharp, 2012). Thus, from the bio-information standpoint, decoding all types of propositional information is critical because accessing, eventually refining, and strengthening the motor programming is anticipated to improve performance.

Lang's (1977) premise is that the imagery process increases the connections among the three proposition types (MacInnis & Price, 1987;

Schack et al., 2014). Every imagined behaviour increases the potency of stimulus propositions and subsequent reaction by response propositions. Vivid visuals produce greater precision in processing stimulus, response, and meaning proposals (Calmes et al., 2004). According to the bio-informational theory, response propositions should be triggered to change, refine, and reinforce images to assist sports performance (Carson, Collins, & Jones, 2014; Pain, Harwood, & Anderson, 2011; Suinn, 1997). Therefore, imagery improves performance by frequently accessing response ideas for a specific stimulus setting and changing these answers to depict flawless control and execution of the skill (Annett, 1995; Post, Muncie, & Simpson, 2012).

The bio-informational theory stipulates that experienced athletes gain more from mental imagery rehearsal than inexperienced athletes (Haruna et al., 2018; Shackell & Standing, 2007). Also, experienced athletes master the motor sequencing required for top and optimal performances (Hecker & Kaczor, 1988). According to this theory, this knowledge would be retained as a network of propositions in the long-term memory. Imagery rehearsal would need memory network processing (Lang, 2016). According to the bio-informational theory, the beginner has no model for skilled recognition memory performance (Carson et al., 2014). As a result, images would activate relevant information, most likely linked to needless and interfering response proposals that would also be practiced (Gapin & Herzog, 2014; MacInnis & Price, 1987).

The bio-informational theory has been challenged on the grounds that, while response proposition processing is associated with quantifiable psychophysiological changes, it is uncertain whether athletes experience psycho-

physiological changes during imagery rehearsal (Lang, Kozak, Miller, Levin, & McLean, 1980; Smith, Wright, & Cantwell, 2008). This criticism holds that the bio-information theory fails to talk about the determinants of whether or not players exhibit psycho-physiological changes during imagery rehearsal. Researchers have suggested that the scenario being imagined throughout the session must be descriptive to elicit some physiological response if met in real life. Second, instructions that lead the player to perceive the picture physically, such as allusions to muscular and visceral reactions, enhance the activation of physiological responses (Lang, Levin, Miller, & Kozak, 1983). Third, physiological reactions are more likely to be elicited when the visuals provided are more relevant because the person has already experienced the imagined situation (MacInnis & Price, 1987).

Despite the theory's weakness, the bio-informational theory posits that sports psychologists and trainers who use imagery must incorporate a variety of response propositions (Isaac & Marks, 1994; Post et al., 2012). The mental imagery training setting should be as close to the real world as feasible (Hallsson, 2013). Images should include not only the situation's conditions (swimming in a pool, water conditions, crowd behaviour) but also the individual's behavioural (swimming strongly, on pace), psychological (feeling confident, focusing on the race), and physiological (feeling energised) reactions to the situation (Jeannerod, 1995; Koehn, Morris, & Watt, 2014). By integrating these positive reactions, the image becomes more vivid, which leads to better performance (Williams, Cooley, & Cumming, 2013).

The bio-information theory has demonstrated that imagery improves performance. According to the theory, it is critical to incorporate these

concepts into the picture to promote functional equivalence (Ram, Riggs, Skaling, Landers, & McCullagh, 2007). The theory has demonstrated that imagery scripts that include stimulus, meaning, and response concepts boost performance (Smith & Collins, 2004). Lang (1979, 2016) states that imagery scripts containing stimulus, meaning, and response propositions are more successful in producing behavioural change than those containing only stimulus propositions. Smith, Holmes and Whitemore (2001) discovered that imagery scripts containing these propositions significantly improved hockey penalty flick performance more than scripts containing only one proposition. Smith and Collins in their quest to examine the application of the bio-informational theory on imagery propositions, investigated movement-related brain activity utilising the late contingent negative variation wave before imaging a strength exercise and a computer task. In the stimulus proposition only and stimulus and response conditions, identical late contingent negative variation waves appeared before imagery and completion of the strength task. However, the stimulus plus response proposition condition resulted in more significant performance improvements. The results support the assertions of the bio-informational theory that imagery propositions should be utilised together.

The bio-information theory offers athletes the chance to make better decisions. The memory stores most useful to players are context-specific and procedural information-based (McRobert, Ward, Eccles, & Williams, 2011). Players have a massive stock of context-specific information, defined as memory, that allows an understanding of their specific sport and game structure (Lang, 1979; Levi & Jackson, 2018). Levi and Jackson added that

athletes have a wealth of procedural knowledge, which helps them know when and how to conduct specific manoeuvres. These players' memory is also better connected, allowing them to rapidly access and recall knowledge (Lang, 1977, 2016; Lang et al., 1983). Thus, great players make better judgments by swiftly and accurately retrieving relevant experience to promote faster and more accurate interpretation of stimuli present during in-game conditions. This knowledge base is built by purposeful practice and previous exposure to similar circumstances (Shaffer, Tenenbaum, & Eklund, 2015). Therefore, Shaffer et al. concluded that proper mental imagery skills training could give athletes the tools to build polysensory (using all senses) pictures of desirable events, which can hypothetically increase their knowledge base.

According to the bio-information theory, mental imagery effectively reduces stress and anxiety before and during competitive sports performance. According to the theory, athletes with higher performance and fulfilment, involving increased confidence and self-efficacy, may image circumstances and skills before competitive sports performance (Foa & Kozak, 1998; Lang, 1979, 2016). These players are trained to imagine the stress and anxiety of competing in sports and visualise themselves dealing with all these challenging circumstances efficiently (Lang et al., 1980; Schack et al., 2014). According to the theory, motivational general-arousal imagery is related to dealing with stress and anxiety. Hecker and Kaczor (1988) studied the effect of imagery on anxiety. They had players imagine four scenes: a neutral scene (sitting outside on a summer afternoon), an unfamiliar fear scene (being in and out of control of a jet plane), a familiar action scene (bench press), and a familiar athletic anxiety scene (walking to the batter's box at a critical point in

a baseball game). The findings demonstrated a significant trend in heart rate during the sports scenario compared to the neutral scene. Except for the neutral scenario, all scenes featured bio-informational theory propositions (stimulus and response), which aided players in dealing with heightened heart rates.

The Spotlight Metaphor

According to the spotlight metaphor by Posner (1980), selective concentration resembles a mental beam that lights a limited visual field area. The presumption is that data outside the lighted region is disregarded. According to Goodhew, Shen and Edwards, (2016), the spotlight metaphor posits that a player's concentration may be raised or lowered as desired. One way to think about cognitive processes is to imagine them as a mental spotlight that shines on subjects that spark attention (Theeuwes, 1989; Tong, 2004). According to Posner, Snyder and Davidson (1980), the spotlight metaphor resembles a head-mounted torch worn by miners and divers in low-light situations. Their focus is enlightened, and they become conscious of wherever they aim their concentration. Players are considered to be really "concentrated" when their focus on a target reaches the point of no distinction between what they are thinking and what they are doing (Prinzmetal, Presti, & Posner, 1986). Remarkably, this sort of fulfilment is possible unless the performer concentrates on behaviours that are precise, pertinent to the work at hand, and, most importantly, within their control (Gaillard & Ben Hamed, 2022).

The spotlight metaphor model proposes that players' concentration can alter concurrently along two independent parameters, "width" and "direction"

(Cave & Bichot, 1999). Cave and Bichot explained that the width is considered a concentration parameter ranging from a broad focus (in which players are often aware of several diverse stimulus aspects simultaneously) to a narrow focus (where players can exclude irrelevant information). On the other hand, the "direction" of a player's concentration can be external or internal. Thus, according to Mellalieu and Hanton (2008), these width and direction parameters can be developed to give theoretical selective concentration patterns useful in various sporting circumstances. For example, a restricted exterior concentration focus is necessary when a golfer stares at the hole prior to putting. Again, a gymnast who mentally rehearses a technique, such as a backflip, in her mind's eye must maintain a narrow internal concentration before doing it. Another aspect of an individual's mental spotlight is adjusting the ray. When athletes' ray are expanded, they can quickly take a great deal of information, and when they are narrowed, they can concentrate on just one notion (Hüttermann et al., 2014).

The spotlight metaphor of concentration has various practical consequences for players, coaches, and professional sports psychologists. First, it emphasises that contrary to popular belief that concentration is lost, concentration is never truly "lost" but instead directed towards the "wrong" target or something irrelevant to the task at hand (crowd behaviour). This phenomenon is distracting for players because it causes them to think too far ahead (when pondering over the outcome of a match until everything is over) or something beyond their control (Gobell, Tseng, & Sperling, 2004).

Furthermore, the spotlight metaphor can assist in persuading players that no matter what transpires in every scenario, individuals have every

substantial power on what they concentrate on. According to Posner et al. (1980), players can adjust the direction and width of their mental rays. They may turn their spotlight outside at any time towards individuals or items in their surroundings, displaying an external point of concentration. For example, this occurs when players attentively listen to the sound of the gun before the start of a race. Additionally, players can pick an inner point of concentration by consciously focusing on their ideas, emotions, or physical processes (Arvidso, 1996). Many top marathon runners make conscious efforts to listen to their breathing or concentrate on the rhythm of their stride to overcome sensations of discomfort or exhaustion that occur during endurance races.

Increasing evidence in sports psychology reveals that the accuracy of a sports skill is heavily influenced by what the performer concentrates on while performing (Fernandez-Duque & Johnson, 2002). When learning or performing sports techniques, it appears that an externally driven concentration (one in which performers concentrate on the effects of their movements on the environment) is usually superior to an internally driven concentration (in which performers focus on their own body or the mechanics of the action) (Galin, 2000; Klein & Hansen, 1987). This principle appears to apply across a wide range of abilities and degrees of sports competence.

Conceptual Base of the Study

It can be conceptualized that demographic characteristics (experience and position), imagery, and concentration provide a comprehensive foundation for investigating the successes and failures of penalty kicks and propose a potential link among these variables. The detailed are presented in Figure 1.

The conceptual framework demonstrates how position and experience affect the outcome of penalty kicks. Again, position and experience influence the players' ability to utilise psychological variables like imagery and concentration, affecting the outcome of penalty kicks. Imagery and concentration have independent effects on the success or failure of penalty kicks. Additionally, imagery and concentration interdependently impact the result of penalty kicks. All of these may be attributable to a player's cognitive interpretations of the penalty kick execution, which can positively or negatively influence the outcome of the penalty kick (success or failure) (Pettersen, Adolfsen, & Martinussen, 2022).

Considering the increasing importance of scoring each penalty kick for the overall outcome of a match, the stress on the players to execute well is undoubtedly enormous (Plass & Kalyuga, 2019). Penalty takers who use imagery before the performance are likely to generate exact mental pictures and deal with the stress associated with taking penalty kicks, resulting in success in the performance (Simonsmeier et al., 2021).

Increased pressure from distraction affects the players, resulting in a loss in performance. However, a player who concentrates on task-relevant cues and movements is more likely to deal with distractions leading to successful penalty kick performance (Wood et al., 2021). More importantly, effectively utilising both imagery and concentration results in appropriate concentration control, appropriate mental state, self-confidence, increased self-efficacy, ability to image performance, and decreased anxiety, resulting in a more consistent performance success in penalty kicks (Hazell et al., 2014).

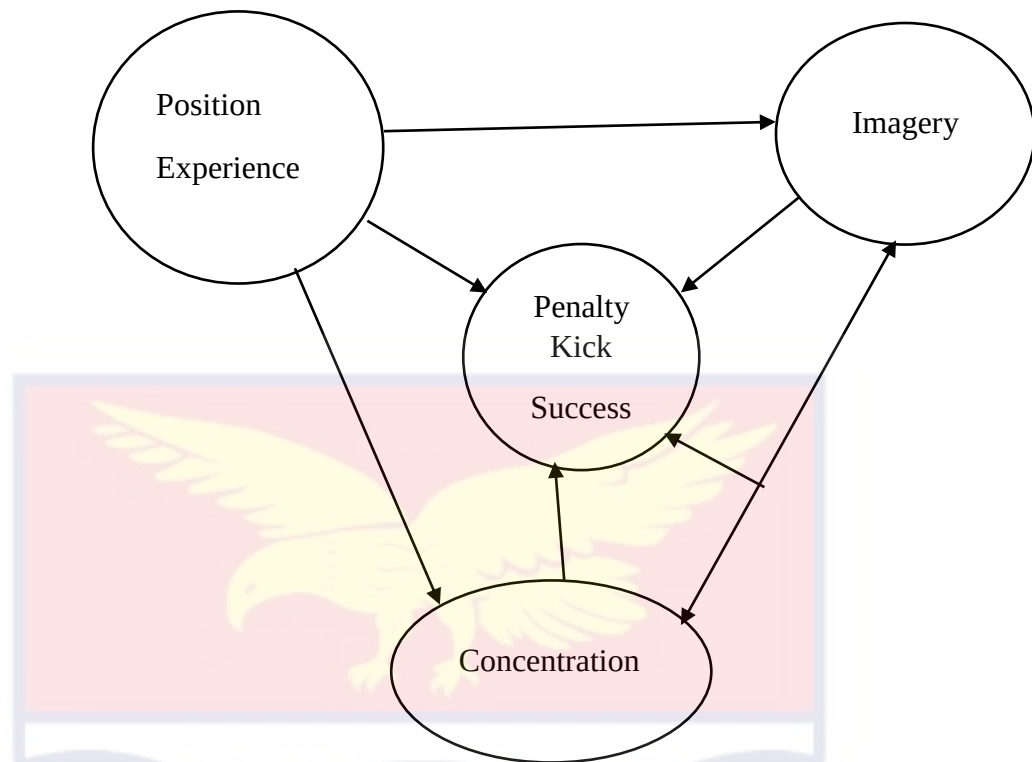


Figure 1: Conceptual framework on the effect of imagery and concentration on penalty kick performance

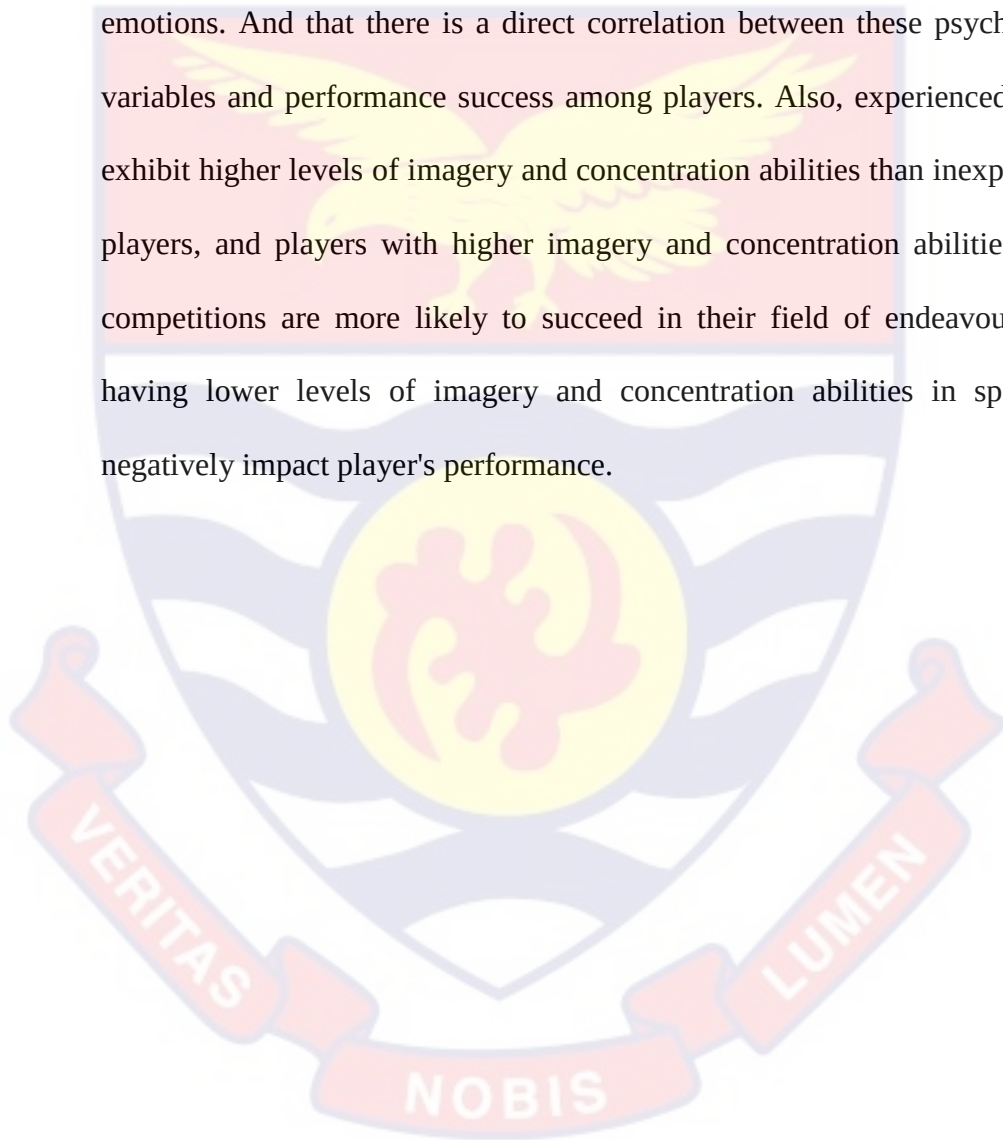
Summary

When the outcome of any game is crucial, psychological pressure builds and might impair performance. Research in the past has shown that imagery, concentration, experience, and player position may all improve performance in competitive situations. The psychological pressures placed on top-level players during shootout scenarios reveal their anxiousness during penalty kicks. According to research, the increased kick relevance has a detrimental impact on the result via processes associated with undesirable mental processes, such as anxiety generated by extra stress.

Attempting a penalty kick raises a player's anxiousness since the outcome resulting from the penalty kick affects the match's final score. According to theories of sports performance under pressure, an increase in anxiousness due to pressure produces an increase in emphasis on skill

processes and the goalkeeper, resulting in shots being executed closer to the goalkeeper, making it simpler to save.

Psychological variables (imagery and concentration) have been consistently associated with positive affect. Elite players have revealed that these variables influence how they perform via their ideas, behaviour, and emotions. And that there is a direct correlation between these psychological variables and performance success among players. Also, experienced players exhibit higher levels of imagery and concentration abilities than inexperienced players, and players with higher imagery and concentration abilities during competitions are more likely to succeed in their field of endeavour. Thus, having lower levels of imagery and concentration abilities in sports can negatively impact player's performance.



CHAPTER THREE

RESEARCH METHODS

This study sought to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football Club. This chapter discussed the research design, study area, population, sampling procedure, data collection instrument, data collection procedures, and data processing and analysis plan.

Research Design

A pre-test post-test experimental research design was employed in this study. The pre-test post-test experimental design measures changes resulting from treatment conditions. Also, it provided evidence of the influence of the independent variable (imagery, concentration, and a combination of imagery and concentration) on the dependent variable (penalty kick) (Babbie, 2021; Edmonds & Kennedy, 2017).

Study Area

This research was conducted using players of UCC Youngsters football club a team, owned and managed by the University of Cape Coast (UCC). UCC is one of the 16 public universities in the republic of Ghana. It is located in Cape Coast in the central region of Ghana. UCC was established in October 1962 as a university college to train graduate teachers for second cycle institutions, teacher training colleges and technical institutions. UCC is the topmost ranked University in Ghana and West Africa and seventh in Africa (Times Higher Education, 2023). From an initial student population of 155 in 1963, UCC currently has a total student population of 74,785 who fall under the five colleges and the school of graduate studies (UCC Students

Statistics, 2023). The university also has 12 directorates and over 20 sections which include the sports section.

The sports section of the University of Cape Coast is one of the sections under the Office of the Registrar of the University of Cape Coast. The sports section has a staff strength of six coaches and eight field workers. The sports section is in charge of organizing and coordinating all sports activities on the university for both students and staff. The sports section is the bank-rollers of UCC Youngsters FC. UCC Youngsters FC started in the 2012/2013 season and has then be playing in the central regional division two zonal and middle league as well as the MTN FA Cup. During the 2022/2023 football season, the team has a total of 30 registered players who are all students of the University of Cape Coast (mostly regular and distance students). The players of UCC Youngsters FC are within the ages of 20 and 25 which is an ideal age for playing football.

Population

Data from the information technology (IT) department of the GFA indicates that UCC Youngsters Football Club registered 30 players through the domestic transfer management system (DTMS) onto the FIFA Connect registration portal during the 2022/ 2023 league season (GFA IT Department, 2023). All the thirty (30) registered players of UCC Youngsters football club for the 2022/ 2023 league season make up the population for this study. The players include Goalkeepers (3), Defenders (12), Midfielders (9), and Attackers (6). These players possess the techniques and fitness required for the study.

This group of players provides the researcher with similar characteristics (physical and physiological). The players through the same training sessions during the preparatory and competitive periods of the season under the guidance of three licensed coaches, not less than seven months every calendar year. Additionally, all the players are students (either through regular, distance, or sandwich mode) of UCC. The players of UCC Youngsters FC play matches in the Central Region Second Division Zonal League, the regional promotional Middle League, and the MTN FA Cup. These participants were chosen for the research since they are in charge of taking penalty kicks for the team.

Sampling Procedure

The sample for this study was all the 30 registered players of UCC Youngsters Football Club who played in the 2022/2023 Central Region Second Division Zonal League. The census sampling technique was used to include all the members of the population in the study. Because the population is small, it was feasible to gather data from each member of the population (Babbie, 2021; Singh, Ajay, & Masuku, 2014). According to Babbie (2021), the census sampling technique helps eliminate sampling errors and assures more accuracy because no member of the population would be excluded.

To ensure that each player has an equal chance of being selected, independent of any other occurrence in the selection process, the number of penalty kicks scored during the baseline penalty kick performance by the participants was used to classify players into six strata; that is stratum one (players who scored no goal), stratum two (players who scored one goal), stratum three (players who scored two goals), stratum four (players who

scored three goals), stratum five (players who scored four goals) and stratum six (players who scored all five kicks from the penalty spot).

Simple random sampling with replacement was used to randomly assign the players in the various stratum based on the performance from the baseline data collection into experimental group I (Imagery only), experimental group II (concentration only), and experimental group III (imagery plus concentration group). Simple random sampling with replacement was used to ensure that the group a player belongs to was left to chance (Blair & Blair, 2015).

This sampling technique was used to assign participants into groups according to their performance levels from the baseline data collection to ensure an even distribution of performance abilities across the three working groups. This was done by assigning participants from each stratum into the three working groups one after the other (from stratum one through to stratum six).

Data Collection Instrument

The data collection instrument for this study consisted of a questionnaire and measurement of performance. The questionnaire required data on demographic characteristics, questions on imagery and concentration abilities before penalty kick performance. The questionnaire contained closed-ended items.

Section A of the questionnaire was used to collect demographic information on participants' experience (how long the players have played soccer) and playing position (role of the players on the field of play). Section B consisted of 15 test items adopted from Sports Imagery Ability

Questionnaire (SIAQ) by Williams and Cumming (2011). The SIAQ is a 7-point likert scale with responses ranging from 1 (very hard to image) to 7 (very easy to image). The SIAQ has five subscales all with three items each, namely, skill imagery ability, strategy imagery ability, goal imagery ability, affect imagery ability, and mastery imagery ability. The SIAQ assessed players' capacity to picture various materials used in their chosen sports and to track how imagery ability evolves over time. The SIAQ has a reliability coefficient of .70 to .89, and it differentiates players' skill levels. The reliability coefficient of this instrument for this study was .72 to .85 (see Appendix A).

Section C consisted of 18 test items adapted from the Attention control scale (ATTC) by Derryberry and Reed (2002). The ATTC assesses concentration focus and concentration shifting among players. It measured players' concentration ability before performances. The ATTC consisted of 18 items rated on a 4-point scale measured on 1 (never), 2 (sometimes), 3 (often), and 4 (always). Items 1 to 9 emphasised concentration focus, whereas items 10 to 18 measured concentration shifting. The ATTC has a reliability coefficient ranging from .72 to .90. The reliability coefficient of this instrument for this study was .73 to .88 (see Appendix A).

Data on performance was collected by subjecting performers to take penalty kicks. The test required a soccer field with a standard soccer goal that conforms to FIFA guidelines. Penalty kicks were considered goal (success) or no-goal (failure). A kick was considered a goal if the entire circumference of the ball crosses the goal line, between the uprights, and underneath the crossbar (IFAB, 2023). On the other hand, kicks were considered no-goal if

the ball passed outside the goal or the goalkeeper stops the ball from entering the goal. The goals and no-goals of each player were summed up for data analysis.

The researcher used the following items when undertaking the data collection,

- a. Football
- b. A goal with net
- c. A researcher performance recording sheet (see Appendix H)
- d. Whistle
- e. Camera

Data Collection Procedures

In line with the proposition of Ogah (2013), which states that in order not to breach the rights of the participants, an ethical board must declare that a study, research design, research questionnaire, and data collecting procedures are appropriate and protect the dignity of participants, I took an introductory letter (see Appendix D) from the Head, Department of Health, Physical Education, and Recreation (HPER) of UCC. I used the introductory letter to request ethical permission from the University of Cape Coast Institutional Review Board of the (UCC-IRB) (see Appendix E).

After acquiring the ethical clearance and the introductory letter from the UCC-IRB and HPER respectively, I proceeded to the UCC Sports section, the bankrollers, and the caretakers of UCC Youngsters FC to get authorisation (see Appendix C). This served as a means of gaining permission to enter the team and enhancing the cooperation of the players and the coaches for the study to be conducted.

Recruitment of research assistants

During the study, two research assistants (RA's) were utilised. These RA's were carefully selected to ensure they could appropriately support the researcher in collecting reliable data. These persons were level 850 Master of Philosophy in Physical Education students from HPER of UCC. A one-day training session was conducted for the RA's on what and how to assess the numerous variables required in the study. These RA's underwent education on themes such as how to develop rapport, relate to and respect participants, explain the purpose of the study to participants, scoring procedures in the penalty kick performance as well as distribution and collection of questionnaires during the baseline data collection and the post-test data collection phases.

To ensure the anonymity of participants, the RA's were trained on how to assign pseudo names to represent the participants on the data summary sheet. These RA's were trained a week before the first meeting with the players of UCC Youngsters FC.

Baseline data collection

A meeting was held with participants two weeks before the baseline data collection. At the meeting, the rationale for which the study was being conducted was explained to the players. At this briefing, participants were informed about the benefits, issues about confidentiality, and their role in this study. Each participant was made to sign an informed consent document after verbally agreeing to participate in the study (see Appendix B).

To ensure participants performed at the same or near similar level of performance during baseline data collection, two weeks of practical training

sessions on the shooting of kicks from the penalty spot was organised for all the participants. This was done after the team's training sessions each day. The date and time for the baseline data collection exercise were determined in consultation with the participants to ensure that they were suitable for every participant.

On the day of the baseline data collection, all the participants were asked to complete the questionnaire on demographic characteristics, their imagery, and concentration abilities (see Appendix A). Before filling out the questionnaire, the participants were notified that there were no correct or incorrect responses. They were asked to select the responses that best described how well they practiced imagery or concentration techniques before taking penalty kicks.

To induce a competitive setting, and simulate the pressure associated with match-like penalty kick conditions, the players were informed that three players who would successfully convert the most penalty kicks would be recognised and honoured after the shoot-out. In addition, a form of competition was introduced among participants.

The 30 registered players were divided into six teams of five. This was done using the fishbowl method. The first wore a red bib, the second wore a yellow bib, the third wore a blue bib, the fourth wore a lemon green bib, the fifth wore an orange bib, and the sixth wore a green bib. Each team competed against one another until all teams had faced each other. The penalty kicks were taken in a fashion where a player had to alternate his position in the team's order of taking penalty kicks. Each participant took five penalty kicks during the baseline data collection at different times from the penalty spot

against different opponents. At the end of all five competitions against the other teams, each player had taken the first, second, third, fourth, and fifth penalty kicks in their team's penalty kick order.

UCC Youngsters Football Club registered three goalkeepers for the 2022/2023 football season. Hence, these goalkeepers were responsible for keeping the goal for the teams they were randomly assigned, and one other group with no goalkeeper randomly assigned to. The scores from the baseline data collection helped in grouping the players into six strata, and to randomly assign them into experimental group I (imagery), experimental group II (concentration), and experimental group III (combination of imagery and concentration).

Administration of the intervention

The participants belonging to experimental group I (imagery group) were subjected to imagery training. The participants belonging to experimental group II (concentration group) were taught concentration techniques and exercises. Those belonging to experimental group III (a combination of imagery and concentration) were exposed to both imagery and concentration training and exercises.

A guided imagery intervention was administered to participants belonging to the imagery group of the study. The study utilised Holmes and Collins's (2001) PETTLEP imagery model for motor imagery. The PETTLEP is a 7-point checklist framework that aids in the effective use of imagery (Wakefield & Smith, 2012). The objective of the PETTLEP is to make an image that is perfect or near perfect to the action desired on the field. The intervention was presented in a client-centered counseling approach that

encourages people to evaluate the value and possibilities of functional behaviour modification.

The PETTLEP model gave room for the imagery training programme to include all the details required in the execution of the skill, as well as paying particular attention to the emotions that arise while performing (Wakefield, Smith, Moran, & Holmes, 2013). The participants of the imagery group were also asked to rehearse imagery exercises when they were in their halls and hostels of residence. The rehearsal was to be done to enhance the production of clear and precise imagery. The workbook on mental practice for tennis players by Hegazy (2012) was adapted to suit the purpose for which the current study was being conducted (see Appendix F). These exercises were to be rehearsed while applying the principles of the PETTLEP imagery model. This was done to aid the participants in mimicking specific movement executions associated with taking penalty kicks and aiding participants in giving feedback, as Lang (1979) suggested.

The concentration grid exercise developed by Weinberg and Gould (2023) enhanced concentration among the players and facilitated performance readiness. Harris and Harris (1984) were the initial developers of the concentration grid exercise. According to Glavaš (2020), the concentration grid exercise taught participants to block distractors while concentrating on the task at hand. The concentration grid exercise is a mobile app that requires participants to mark a series of challenging grid patterns within stipulated periods in ascending order by selecting each number in a randomly generated grid in succession. An adapted version of the concentration workbook by McCormick (2016) to suit the purpose of this current study (see Appendix G).

The level of competitive challenge in using the concentration grid exercise could be varied; hence, for this research, participants were instructed to make up a 10-by-10 block grid with numbers ranging from 1 to 100 in each block. Participants were given a benchmark time of four minutes to meet by the end of the first two weeks of the intervention period. During the third and fourth weeks of the intervention period, participants were tasked to complete an 11-by-11 block grid with numbers ranging from 1-121 in each block. A benchmark time of 6 minutes was set for participants to meet by the end of the third and fourth weeks of the intervention period. In the fifth and sixth weeks of the intervention, participants were required to complete a 12-by-12 block grid with numbers ranging from 1-144 in each block. A benchmark time of seven minutes was set for participants to meet by the end of the fifth and sixth weeks of the intervention period. In the seventh and eighth weeks of the intervention period, the researcher required participants to complete a 13-by-13 block grid task with numbers ranging from 1-169 in each block. A benchmark time of eight minutes was set for participants to meet by the end of the seventh and eighth weeks of the intervention period. In the ninth and final week of the intervention period, participants completed a 14-by-14 block grid with numbers ranging from 1-196 in each block. The benchmark time for the ninth week was 10 minutes. Participants of the group that was exposed to the combination of imagery and concentration were exposed to all the training and exercises the imagery and concentration groups were taken through.

Nine weeks were used to administer the intervention programme. Nine weeks was used because research has shown that nine weeks of imagery and concentration techniques training affects concentration and performance

among players (Rhodes et al., 2020; Uludağ et al., 2021). An added reason for the nine weeks of intervention was because of the players' academic commitment. The tenth week for the intervention was that the players of UCC Youngsters FC were to write their end of semester examination which means that the players were not available for the intervention and data collection exercises. Hence, there was a need to reduce the initial twelve (12) weeks of intervention to nine (9) weeks.

Researcher-participant individual sessions were employed to track and aid participants in the intervention. Each researcher-participant intervention review session occurred twice a week (Fridays and either Saturdays or Sundays, depending on the day the team did not play a league match over the weekend).

Intervention compliance

Participants of the imagery group were issued with a personal monitoring form to record their sessions and note the challenges they experienced while performing the imagery. On the other hand, participants of the concentration group were also given monitoring forms to record the times they made while practicing using the concentration grid exercise. For participants who were to perform the concentration grid exercises, the monitoring form and the concentration grid applications on the phones of participants were assessed to check if participants reported the exact times they made during the exercise.

The adherence to the individual intervention varied between 2-4 days per week for the imagery group and 3-4 days per week for the concentration groups. However, the compliance level for the combination of imagery and

concentration group was 3-5 days per week. An evaluation of the individual monitoring form of the players revealed that the personal intervention rehearsals were undertaken between 7:00 p.m. and 8:30 p.m. The sessions lasted between 15-30 minutes per session each day. This was due to the players' academic and team commitments.

Post-intervention data collection

All the participants were asked to complete a questionnaire on their imagery and concentration abilities before their performances during each post-test data collection. Before completing the questionnaire, participants were reminded that there were no correct or incorrect responses. They should choose the one that best represents their ability to visualize and concentrate before the forthcoming activity (penalty kicks). Post-intervention data were taken on three different occasions.

The post-intervention data were collected after the 3rd, 6th and 9th weeks. Each participant took five penalty kicks during each post-intervention data collection the same way as they played the penalty kicks during the baseline data collection period. The fishbowl method was used to group the players into teams during each of the three post-test data collection exercises. This was done to prevent players from belonging to a particular team throughout the data collection process.

Participants in the imagery group were tasked to mentally rehearse themselves, taking penalty kicks before the execution of every kick from the penalty spot. Participants in the concentration group were tasked to concentrate on the task at hand while avoiding distractions. The group of participants that were exposed to the combination of imagery and

concentration were tasked to mentally rehearse, taking penalty kicks from the penalty spot and trying as much as possible to concentrate on the task at hand while avoiding distractions.

Data Processing and Analysis

All data were processed using the Statistical Product and Service Solutions (SPSS) software version 22. Data were screened for missing values and outliers to guarantee completeness for correct frequencies and percentages and to meet the assumptions of linearity, normality, and sphericity for one-way repeated measure analysis of variance (ANOVA) and multicollinearity for multiple regression analysis. Satisfying these assumptions, data on research questions one and two were analysed using one-way repeated measure ANOVA. Multiple regression was used to analyze data on research question three.

The repeated measure ANOVA was used to find the difference in means within the groups based on the demographic characteristics (experience and playing position), imagery, concentration, and combination of imagery and concentration of the various groups. The choice of repeated measure ANOVA was influenced by the submission of Huck (2012) and Pallant (2020) that when comparing more than two group means of measurements of participants at different times, the appropriate statistical tool to use is the one-way ANOVA with repeated measures.

Multiple regression was used to determine which variable(s) (position, experience, imagery, concentration, and a combination of imagery and concentration) was more likely to predict penalty kick performance success. The choice of multiple regression was because it is a statistical tool used to

predict the value of a single dependent variable measured on a continuous scale from the value of two or more independent variables measured on either a categorical or a continuous scale (Keith, 2014).



CHAPTER FOUR

RESULTS AND DISCUSSION

This study sought to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football Club. This chapter focused on the presentation, interpretation, and discussion of the results. The results and discussion are presented with respect to the research questions.

Research Question 1: What difference exist in imagery and concentration abilities among the players of UCC Youngsters Football Club?

This question sought to determine if the players of UCC Youngsters Football Club differ in imagery and concentration abilities. A one-way repeated measure ANOVA was used to examine the difference in the imagery and concentration abilities of participants. Mauchly's test of sphericity was not statistically significant [$X^2(5) = 6.889, p = .247$]; hence the assumption of sphericity was not violated.

A one-way repeated measure ANOVA results revealed a statistical significant difference in imagery abilities in measurement over time [$F(3, 5) = 11.470, p = .011, Wilks' Lambda = .127, \eta_p^2 = .873$]. A Bonferroni follow-up test indicated a pairwise comparison of statistical difference in imagery abilities between the baseline ($M = 76.703, SD = 71.49$) and post-test 2 ($M = 84.152, SD = 56.01$) as well as baseline ($M = 76.703, SD = 71.49$) and post-test 3 ($M = 91.862, SD = 16.83$) means. Also, there was a statistical significant difference in imagery abilities between post-test 1 ($M = 76.464, SD = 85.56$) and post-test 2 ($M = 84.152, SD = 56.01$) as well as post-test 1 ($M = 76.464, SD = 85.56$) and post-test 3 ($M = 91.862, SD = 16.83$) means. However, there were no significant difference between the baseline ($M = 76.703, SD = 71.49$)

and post-test 1 ($M = 76.464$, $SD = 85.56$) means, as well as the post-test 2 ($M = 84.152$, $SD = 56.01$) and post-test 3 ($M = 91.862$, $SD = 16.83$) means.

The imagery abilities of the players of UCC Youngsters Football Club within the three psychological working groups (imagery, concentration, and a combination of imagery and concentration groups) were not statistically significant [$F(6, 10) = 2.267$, $p = .121$, $Wilks' Lambda = .180$, $\eta_p^2 = .576$]. Additionally, there was no statistical significant difference in imagery abilities among the players of UCC Youngsters Football Club based on their playing position (Goalkeeper, Defender, Midfielder, and Attacker), [$F(9, 12.319) = 1.290$, $p = .332$, $Wilks' Lambda = .199$, $\eta_p^2 = .416$]. Also, there was no statistical significant difference in the imagery abilities of the players of UCC Youngsters football club based on their experience level [$F(9, 12.319) = .936$, $p = .349$, $Wilks' Lambda = .206$, $\eta_p^2 = .410$].

The results imply that the players of UCC Youngsters differ in their imagery abilities. However, the players do not differ in their imagery abilities for their baseline, post-test 1, post-test 2 and post-test 3 data based on their experience level (6-10 years, 11-15 years, 16-20 years and 21-25 years), playing position (Goalkeepers, Defenders, Midfielders and Attackers), and psychological variable groups the participants belonged to (imagery, concentration and combination of imagery and concentration groups). See Table 1 for the data:

Table 1: ANOVA Results for Differences in Imagery Abilities among the Players of UCC Youngsters Football Club

Imagery abilities	<i>M</i>	<i>SD</i>	<i>F</i>	<i>Df</i>	Sig.	Partial eta squared (η_p^2)
			11.470	3, 5	.011	.873
Baseline	76.703 ^a	71.49				
Posttest 1	76.464 ^b	85.56				
Posttest 2	84.152 ^{ab}	56.01				
Posttest 3	91.862 ^{ab}	16.83				

Source: Field data (2023); N = 30, $p = .011 = ^{ab}$

The study revealed a statistically significant difference in imagery abilities between the baseline mean score and the mean score for post-test two and post-test three. This implies that nine weeks of PETTLEP imagery training intervention was effective in improving the imagery abilities of the players of UCC Youngsters Football Club. The findings of the present study tally the finding of other investigations (Anuar, Williams, & Cumming, 2016; Baughman, 2017; Cumming & Eaves, 2018).

For instance, Anuar et al. (2016) study improved imagery ability among participants from various sporting disciplines. According to Anuar et al., imagery ability improves after three weeks of training. However, an effective and efficient imagery ability is assured after six weeks with at least three times a week of intervention. If the intervention is performed less than three times per week, an extended period is required for effective and efficient imagery ability.

Similarly, Baughman (2017) conducted a study to investigate the effect of five weeks of PETTLEP imagery training intervention on imagery ability

among golfers. The study yielded a statistically significant improvement in the imagery ability of the participants following the PETTLEP imagery training programme.

Cumming and Eaves (2018) also examined the nature and development of imagery ability among athletes. The study revealed that imagery mental training intervention elicited a statistically significant improvement in the imagery abilities of the participants of the training group as against their counterparts in the control group. The researchers argue that the more players can manoeuvre what they image in their mind's eye, the better their imagery ability and the more effective their imagination on skill performance.

In another study, Moteshareie, Abdoli, Vaez Mousavi and Farsi (2018) investigated the impact of imagery training intervention on imagery ability and performance among 40 badminton players. Moteshareie et al.'s study discovered a statistically significant change or improvement in imagery ability of the participants in the experimental group compared to the placebo group after 12 weeks of imagery mental training.

However, the finding of the current study contradicts the finding of Wright, McCormick, Birks, Loporto and Holmes (2015). Wright et al. investigated whether athletes' ability to produce imagery is improved by action observation and imagery training. 27 female club-level golfers were split into three groups: imagery, action observation, and physical practice. An 8-week intervention was implemented for the participants. To investigate changes in imagery ability, the Revised Movement Imagery Questionnaire was used. In either of the working groups, there were no statistically significant differences in imagery abilities.

The findings of this study also contradicts the study of Williams, Guillot, Di Rienzo and Cumming (2015). The authors investigated the relationship between self-report ratings and chronometric motor imagery capacity on three different occasions for exterior visual imagery, interior visual imagery, and kinesthetic imagery. The participants (N=198) completed the Movement Imagery Questionnaire-3 (MIQ-3) to generate self-report ratings. There was no statistically significant difference in imaging ability among the three types of images. Williams et al. concluded that imagery does not improve over time.

Research question one also sought to find out whether any statistically significant difference existed between the baseline measurement of imagery ability and that of the imagery abilities of the three post-test scores based on the psychological variable participants were exposed to. It came out that the group a player belongs to with regards to the psychological variables participants were exposed to revealed no statistical significant difference in imagery ability. After comparing the baseline and the three post-test means, it was indicated that all three working groups improved in the imagery ability scores after the nine weeks of different intervention programmes.

The findings of the current study agree with the findings of a study by Johnson, Thomas and Gill (2015). Johnson et al. investigated the effect of different psychological variables on imagery ability. The researchers revealed that after six weeks of intervention, participants of the three working groups did not significantly differ in their imagery abilities when their baseline mean scores were compared to their post-test mean scores. The authors concluded that when athletes allocate attentional resources to certain performance areas,

they are able to improve imagery efficiency and effectiveness. Also, players can use and maintain mental imagery processes more effectively if they develop the ability to sustain concentration on the task at hand and block out distractions.

Similarly, Chen and Lee (2018) conducted a study to investigate the effect of imagery, self-talk and attention training exercise programmes on imagery ability among college soccer players over a period of six weeks. The study yielded no statistically significant improvement in the imagery ability of the participants following the intervention programme.

However, regardless of the findings of this study, few studies have found significant differences in imagery ability when participants are exposed to different psychological variables. Dohme, Bloom, Piggott and Backhouse (2020) examined a 15-month psychological skills development programme among elite young tennis players. It was discovered that players in the self-talk, imagery, and performance routines groups vary in mental skill abilities and imagery characteristics. A similar study by Rizal et al. (2020) showed that mental imagery training is the only way players can develop and improve their imagery ability. They added that after exposure to different psychological variables, players exposed to imagery could mimic the perceptual motion and feelings and produce an action that is thought to be real.

To find out whether any statistically significant difference existed between the baseline measurement of imagery ability and that of the imagery abilities of the three post-test scores based on the experience level of the players of UCC Youngsters Football Club, the current study revealed that the

experience level of the players did not bring about a difference in their imagery ability.

The no significant findings in the current study are similar to previous studies, which also looked into the experience level of players, bringing about a difference in their imagery ability (Duarte-Mendes et al., 2019; Munzert and Lorey, 2013). Duarte-Mendes et al. investigated imagery capability in experienced, semi-experienced, and non-experienced swimmers. There was no significant difference in imagery ability within experienced, semi-experienced, and inexperienced groups regarding sensory and exterior visual imagery. Munzert and Lorey also found no significant difference in imagery ability based on players' experience levels. The authors added that experienced players might have high imagery ability but only for an activity where experienced players are skilled.

Contrary to the findings of this study, some studies have found the experience level of players to bring about differences in imagery ability. Rostami and Rezaie (2013) analysed various imagery functions based on the experience and position of female basketball players. The results showed that as players' experience levels increased, their imagery ability increased as they transitioned from non-automated to automated performance levels. They concluded that players' experience level leads to more robust mental representations of specific techniques, leading to a more effective visualisation of that technique.

With a similar intervention, Olsson et al. (2008) compared the imagery ability among experienced and beginner high jumpers. The research revealed a significant difference in imagery ability for the two groups. According to the

findings, the experienced high jumpers recruited more motor areas, while beginners recruited more retinal and temporal regions. As a result, Olsson et al. concluded that beginner players would fail to visualise the mental picture, instead relying on visual representations of their ability. On the other hand, experienced performers with enough competence to generate an acceptable depiction of a motion ability in imagery may be more effective than those with low experience in their chosen sport or even less expertise in imagery.

Also, Lindsay et al. (2021) revealed more significant effect sizes for experienced participants than beginners in a thematic investigation of visualisation abilities during physical activity. According to Lindsay et al., athletic experience leads to more robust mental representations of specific techniques, leading to a more effective visualisation of that technique.

Further, Bolles and Chatfield (2009) investigated the relationship between imagery ability, imagery usage in dance training and performance, and learning styles. The findings revealed a significant difference in imagery ability between experienced and inexperienced dancers. Experienced dancers have high imagery ability, whereas inexperienced athletes have low imagery ability. The researchers concluded that because experienced dancers were exposed to imagery at a young age and had been using it for a long time, they had high levels of imagery ability.

To examine the efficacy of PETTLEP training intervention conducted over nine weeks in improving the imagery ability of the players of UCC Youngsters Football Club, the current study found that there was no statistically significant difference in playing position bringing about

differences in imagery ability in the baseline score of imagery abilities and that of the post-test scores of the players.

The statistically insignificant difference in imagery ability based on playing position tallies with the findings of Rostami and Rezaie (2013). Rostami and Rezaie compared imagery ability based on players' position and experience level. No significant relationship between a player's position and their imagery ability. The study reiterated that the lack of unique physical and mental imagery exercises for each playing position as the reason why playing positions do not influence sports imagery ability.

A similar study by Johnson et al. (2019) investigated imagery ability in basketball players of various positions (point guards, forwards, and centres). The results showed no significant differences in imagery ability scores for all playing positions, implying that the imagery abilities of the basketball players were identical within the players of different positions. Further, Ramsay et al. (2016) investigated imagery ability in soccer players of various positions. According to the study results, while position-specific requirements can affect specific cognitive skills in football, imagery ability may not be one of them. They argue that different variables, such as training, level of experience, and personality traits, may significantly affect imagery ability more than playing positions.

However, the findings of the current study contradict the results of several studies that suggest that playing position brings about significant differences in imagery ability among players. For instance, Hallman and Munroe-Chandler (2009) investigated the impact of playing position on imagery ability and imagery use among ice hockey players. The study showed

that goaltenders provide more precise and vivid images from an inner and an outer perspective than forwards. A keeper chooses to use an outside imagery perspective in responding faster or an internal imagery perspective to execute a technique with little error. There is increased spatial awareness about the role of the goaltender, which helps develop a solid mental map of the game and visualise movements and actions, which can lead to improved imagery ability.

Additionally, Eloff et al. (2011) investigated whether there was a positional difference in mental skill levels among 91 tertiary field hockey players. The findings revealed that goalkeepers had the lowest ratings for imagery abilities, while midfielders outclassed the other positional groups. The authors suggested that positional demands and differences must be looked at when creating and implementing imagery programmes.

Another research by Pocock et al. (2019) on how PETTLEP imagery improve decision-making and imagery ability revealed a significant difference in imagery ability for players of all positions. However, a post hoc analysis revealed that central midfielders had enhanced imagery abilities. The researchers added that midfielders significantly increased imagery ability because central midfielders use high levels of awareness during games.

An acceptable reason for the finding of this study could be attributed to the direct positive linkage between the PETTLEP imagery training model and imagery ability (Lang, 2016). The PETTLEP training model made it easier for players to mimic the real game scenarios in the imagery process. Being able to translate imagery skills from the training context to real-life situations is critical in the improvement of players' imagery ability. A well-designed imagery programme that allows players to utilise their learned imagery

techniques in practical settings relevant to their intended goals improves imagery abilities effectively and efficiently. The results of the present study build on earlier works, which suggest that imagery preparation through integrating the PETTLEP model elements is another way to make it easier for players to improve the ease and vividness of imaging distinctive types of images, improving the imagery ability they use in their chosen sport.

Another reason imagery ability improved may be due to the introduction of a workbook for rehearsal during the intervention period. Kiefer (2011) revealed that when participants are committed to their workbook for imagery, it brings about efficacy in the mental training, leading to improvement in imagery abilities.

Another reason for the findings of the present study may be that while studies into the effects of concentration training on imagery ability are limited, it is appropriate to believe that combining imagery and concentration produces positive results. Combining imagery and concentration techniques in training has been shown in studies to improve sports performance and cognitive processes connected with imagery (Hazell et al., 2014; Jose et al., 2018; Predoiu et al., 2020). These findings imply that incorporating these two psychological constructs into training programmes can mutually benefit a player's ability to visualize and concentrate in situations. Hence, it is not surprising that players did not differ in imagery abilities after their independent exposure to imagery, concentration, and a combination of imagery and concentration.

Another reason for the findings of the present study may be because there was no special imagery training for specific playing roles and experience

levels of the participants. Imagery training has been demonstrated to increase both novice and elite players' imagery abilities. Researchers have discovered favourable impacts of imagery for beginner and experienced players (Rhodes et al., 2018; Spindler et al., 2018). Earlier studies on imagery revealed that when cognitive processes are necessary, imagery is considered most beneficial in the initial phases of learning (Clark, 1960). Other studies have suggested that imagery should be more effective in elite players (Bolles & Chatfield, 2009; Dohme, Bloom, Piggott & Backhouse, 2020; Feltz & Riessinger, 2016). Also, findings from mental imagery studies back the idea that players of all experience levels improve imagery ability. Research has revealed that midfielders must frequently assess the changing circumstances of the game and make accurate passes, which necessitates strong imagery abilities (Perl, & Memmert, 2018). Defenders gain from their imagery abilities to foresee opponents' actions and execute tackles successfully. Attackers may use imagery to visualize opportunities for scoring while enhancing their scoring precision. Hence, when players are exposed to the same imagery conditions regardless of their unique characteristics in terms of their playing roles and experience level, it is unlikely to see differences in imagery abilities.

To determine if the players of UCC Youngsters Football Club differ in concentration abilities. A one-way repeated measure ANOVA results revealed a statistical significant difference in concentration abilities in measurement over time [$F(3, 5) = 48.118, p = .000, Wilks' \Lambda = .033, \eta_p^2 = .967$]. A Bonferroni follow-up test indicated a pairwise comparison of statistical difference in concentration abilities between the baseline ($M = 55.964, SD = 42.12$) and post-test 3 ($M = 69.50, SD = 19.44$) means as well as the post-test 1

($M = 53.333$, $SD = 47.34$) and post-test 3 ($M = 69.50$, $SD = 19.44$) means. However, there were no significant difference between the baseline ($M = 55.964$, $SD = 42.12$) and post-test 1 ($M = 53.333$, $SD = 47.34$) means, as well as the baseline ($M = 55.964$, $SD = 42.12$) and post-test 2 ($M = 58.656$, $SD = 51.45$) means. Also, there were no statistical significant difference between post-test 1 ($M = 53.33$, $SD = 47.34$) and post-test 2 ($M = 58.656$, $SD = 51.45$) means. See Table 2 for the data:

Table 2: ANOVA Results for Differences in Concentration Abilities among the Players of UCC Youngsters Football Club

Concentration abilities	M	SD	F	Df	Sig.	Partial eta squared (η_p^2)
			48.118	3,5	.000	.967
Baseline	55.964 ^a	42.12				
Post-test 1	53.333 ^b	47.34				
Post-test 2	58.656	51.45				
Post-test 3	69.500 ^{ab}	19.44				

Source: Field data, 2023; $N = 30$, $p = .000 = ^{ab}$

There was statistical significant difference in concentration abilities for the players of UCC Youngsters football club based on players' level of experience, [$F(9, 12.319) = 3.020$, $p = .038$, $Wilks' \Lambda = .059$, $\eta_p^2 = .611$]. A Bonferroni post hoc comparison analysis revealed that players who have played football for 11-15 years significantly improved their concentration abilities. There was significant improvement in concentration abilities between the baseline ($M = 56.981$, $SD = 29.694$) and post-test 3 ($M = 69.944$, $SD = 13.706$) means. After nine weeks of intervention, no major differences in concentration abilities were recorded among the players who have played

football for 21-25 years, 16-20 years and players who have played football for 6-10 years. See Table 3 for data:

Table 3: ANOVA Results for Differences in Concentration Abilities Based on Experience Level of the Players of UCC Youngsters Football Club

Concentration abilities		<i>M</i>	<i>SD</i>	<i>F</i>	<i>Df</i>	Sig.	Partial eta squared (η_p^2)
Experience				3.020	9,21	.038	.611
6-10 years	Baseline	53.815	25.157				
	Post-test 1	51.741	28.292				
	Post-test 2	50.852	30.734				
	Post-test 3	69.111	11.616				
11-15years	Baseline	56.981 ^a	29.694				
	Post-test 1	57.778	33.39				
	Post-test 2	64.704	36.274				
	Post-test 3	69.944 ^a	13.706				
16-20years	Baseline	56.000	12.342				
	Post-test 1	48.667	13.887				
	Post-test 2	61.000	15.09				
	Post-test 3	67.667	5.70				
21-25years	Baseline	61.000	10.082				
	Post-test 1	47.500	11.338				
	Post-test 2	62.000	12.322				
	Post-test 3	72.000	4.654				

Source: Field data, 2023; N= 30, $p = .038 = ^a$

However, the difference in concentration abilities among the players of UCC Youngsters Football Club based on their psychological variable (imagery, concentration, and a combination of imagery and concentration groups) was statistically not significant [$F(6, 10) = 2.671$, $p = .082$, *Wilks' Lambda* = .148, $\eta_p^2 = .616$]. Also, there was no statistical significant difference in concentration abilities for the players of UCC Youngsters Football Club for

playing position (Goalkeeper, Defender, Midfielder, and Attacker), [$F(9, 12.319) = 2.214, p = .098, Wilks' \Lambda = .096, \eta_p^2 = .542$]. Therefore, the players of UCC Youngsters differ in concentration abilities for intervention over time and experience level. However, the players of UCC Youngsters Football Club do not vary in concentration abilities based on their playing position and psychological working group.

The study found that there was a statistically significant difference in concentration abilities among the players of UCC Youngsters Football Club between the baseline concentration ability scores and that of the post-test scores. After comparing the baseline and post-test 3 as well as post-test one and post-test 3 scores, it was indicated that there was a statistically significant improvement in the concentration ability scores for the players of UCC Youngsters Football Club after nine weeks of the concentration grid exercises intervention programme. This implies that the nine weeks of concentration grid exercise intervention programme was effective in improving the concentration abilities of the players of UCC Youngsters Football Club of the University of Cape Coast. The findings of the present study agree with the findings of other studies (DiDomenico, 2013; Mulya et al., 2021).

For instance, Mulya et al. (2021) investigated whether cognitive training might help beginner tennis players enhance their concentration. The novice players, ages 11-16, were subjected to an experimental procedure in this research. The results showed a significant difference in concentration ability between the pre-test and post-test scores. As a result, it was concluded that exposing players to the intervention programme effectively boosted beginner tennis players' concentration abilities.

Also, Uludağ, Dorak, Vurgun, Yüzbaşıolu and Ateş (2021) examined how ten weeks of concentration training affected basketball players' concentration and free-throw performance. The findings demonstrate that concentration training improves concentration abilities. The results showed that concentration exercises improve concentration abilities. A similar study by Uludağ, Dorak and Vurgun (2016) to investigate the effects of 10-week imagery and concentration training on dart-throwing concentration ability also revealed statistical differences after the intervention.

In another study by DiDomenico (2013) on how concentration grid exercises improves concentration also revealed that the concentration grid exercise score on concentration ability for the performers improved tremendously. With a similar intention, Haryanto et al. (2021) also found statistical significant differences in concentration abilities within the experimental group after participants' exposure to the concentration grid exercises. The researchers added that external variables such as limited time and challenging thought processes (task difficulty) and internal variables such as motivation and trait abilities for concentration engagement influenced participants' ability to complete the concentration grid exercise, leading to improved concentration abilities.

Further, Dereceli (2019) researched professional basketball players' concentration abilities and mental toughness. The study included 290 basketball professionals aged 16-26 who competed in the Turkish Basketball First or Second Leagues. The concentration grid exercise training was employed for the study. Overall mental toughness, confidence, and

concentration abilities differed statistically significantly among the working groups.

However, the result of the current study does not agree with the findings of Greenlees et al. (2006), who investigated the effectiveness of the concentration grid exercises as a concentration ability enhancement exercise.

The study revealed no significant difference in the concentration training and control groups. The authors added that concentration grid exercises are either not receptive to practice enhancement or that such gains take a long time.

To examine whether any substantial difference existed in the concentration abilities of the players of UCC Youngsters Football Club in terms of their level of experience after the nine weeks of concentration grid exercise intervention programme, the current study revealed that the experience level of the players of UCC Youngsters Football Club brought about differences in concentration ability after the intervention. This present study revealed that players who have played football for 11-15 years have higher concentration abilities. This implies that the players of UCC Youngsters Football Club differ in terms of their experience level, bringing about differences in their concentration ability scores after nine weeks of the concentration grid exercise intervention programme. In other words, experience level was a predisposing factor for the high concentration ability levels after the nine weeks of concentration grid exercise intervention programme.

The findings of the current study agree with the findings of Heppe et al. (2016) evaluated the basic cognitive qualities such as processing speed, letter readout speed, memory span, and sustained concentration of elite and

novice athletes. A similar study by Singh and Wulf (2020) investigated concentration abilities between experienced and inexperienced volleyball players. The study found that volleyball players' experience levels influenced concentration abilities, mainly when the method necessitates precise movement patterns. Another study by Perkins-Ceccato et al. (2003) revealed a significant difference in concentration abilities between experienced and inexperienced golfers. The highly skilled golfers performed better in concentration abilities than the inexperienced golfers.

Also, Hüttermann et al. (2014) compared the differences in concentration abilities between players of higher expertise levels (played for more than 10 years) and novices (played for less than 10 years). The authors found that players who have played their chosen sports for over 10 years show higher concentration abilities across all axes (horizontal, vertical, and diagonal) compared with players who have played their chosen sports for less than 10 years. Furthermore, those who have played soccer for more than 10 years demonstrated high levels of concentration compared to those who played for less than 10 years.

However, the findings of the current study do not agree with the findings of Tache et al. (2017), who revealed no significant difference in concentration abilities among participants of different experience levels after exposure to concentration grid exercises. Tache et al. argued that concentration ability is not different across athletes of varying experience levels.

Memmert, Simons and Grimme (2009) investigated whether team sport experts and beginner players had different basic concentration abilities. The findings show that sports expertise has no effect on basic differences in

concentration abilities, that proficiency does not cause significant differences in concentration, and that underlying differences in concentration do not appear to be predicted by eventual expertise.

The results of the current study did not show any statistically significant difference in playing positions, bringing about a difference in concentration ability after the intervention. This implies that the players of UCC Youngsters Football Club did not differ in terms of their concentration ability scores after the nine weeks of the concentration grid exercise intervention programme based on their playing position or role in the team. In other words, playing position was not a predisposing factor for having high concentration abilities after nine weeks of the concentration grid exercise intervention programme.

The results of the present study agree with Wimshurst, Sowden and Cardinale's (2012) findings when they tested Olympic hockey players' concentration ability before and after a 10-week concentration training programme and analyzed differences by playing position. After the concentration training, all the players in the different playing positions improved tremendously, indicating that performance on these concentration abilities was independent of playing position.

Similarly, Fernandez-Echeverria et al. (2017) evaluated basketball players' concentration abilities in various playing positions. According to the results, players in different positions were not considerably different in their concentration abilities. The authors concluded that concentration demands in basketball were equivalent across playing positions, implying that playing position did not bring about a difference in concentration ability.

Further, Smith and Johnson (2018) revealed that the role of players did not affect sports concentration abilities. The concentration abilities of players from various positions in team sports, such as forwards, midfielders, defenders, and goalkeepers, were investigated. Their study found no statistically significant differences in concentration ability among the various playing positions.

Also, Smith and Johnson (2018) discovered that players from all positions had equivalent levels of selective concentration and contextual awareness during game scenarios. They added that individual factors like training and experience might substantially influence concentration ability in sports more than the position played.

However, the results of the present study do not corroborate the findings of Kiss and Balogh (2019). Kiss and Balogh studied critical cognitive skills in handball. The results of their study revealed that concentration could be maintained the least by playmakers and those in the pivot position. The researchers revealed that playmakers need to divide their concentration continuously, filtering disturbing stimuli and recognizing the essential elements related to completing the task; hence, their low concentration abilities since their duties make it easy for them to lose concentration.

Another study by Blecharz et al. (2022) found a statistically significant difference in handball players' concentration abilities depending on their playing positions. A post hoc analysis revealed that goalkeepers had lower concentration levels compared to players in other positions. With this in mind, the researchers advised that individual differences must be considered when planning psychological interventions.

A similar study by Andrew et al. (2007) investigated whether playing position may be related to the concentration abilities of rugby players since the demands placed on the players differ as a function of playing position. The results indicated a significant concentration ability difference within the seven positional groups. The results revealed that the half-backs and hookers consistently used the measured high-concentration attributes more than the other positional groups.

Najah and Rejeb (2015) investigated the selected psychological skills of soccer players who play in different playing positions. Results yielded significant differences in concentration abilities among players in different playing positions, with forward players outperforming the other positional groups. The results of the experiment back the contention that players of different playing positions have differences in psychological skills, with defenders outperforming the other positional groups in relaxation and midfield players showing the lowest psychological ability levels. More specifically, statistical evidence suggested that football players could be differentiated as a function of psychological skill as well as the position they played on the team as a whole.

A similar study by Klatt and Nerb (2021) investigated technical and cognitive skills and their relation to position-specific skill requirements. They revealed that offensive players, particularly strikers, lost their concentration quickly compared to defenders and midfielders. Additionally, offensive players perceived the unmarked player more often. This suggests that players vary not only in their conscious observation of unexpected things unrelated to the sport as a function of their playing position but also whenever their

perception of an unforeseen functional object helps discover tactical solutions in a given game circumstance.

According to the results of the current study, the group a player belongs to with regards to the psychological variables participants were exposed to brought about no statistical significant difference in concentration abilities. This implies that the players of UCC Youngsters Football Club did not differ in their concentration ability scores after the nine weeks of concentration grid exercise intervention programme based on the psychological variable players were exposed to. In other words, psychological variables players were exposed to were not a predisposing factor for having high concentration abilities after nine weeks of the concentration grid exercise intervention programme.

The findings of the present study agree with the findings of a study by Hegazy (2012), who investigated which psychological variables are most important in determining concentration abilities after exposure to several mental training interventions. The study found no significant difference in concentration abilities across imagery ability training, concentration training, and anxiety levels within all the working groups.

Another study by Uludağ et al. (2016) investigated the effects of 10-week imagery and concentration training on dart-throwing concentration ability. The study also revealed no statistically significant differences in concentration abilities in the working groups.

But irrespective of the findings of the present study, Hegazy et al. (2015) revealed a significant difference in concentration ability after the working groups were exposed to the three distinct psychological variables.

The results revealed a substantial change between the initial and final measurements of concentration ability in the group exposed to concentration regulation.

Similarly, Uludağ et al. (2021) examined how ten weeks of imagery and concentration training affected basketball players' concentration and free-throw performance. The findings demonstrate that concentration training improves concentration abilities within the group exposed to only concentration training intervention. The results showed that concentration exercises improve concentration abilities.

The findings of the current study can be as a result of the direct positive linkage between the concentration grid exercise intervention and concentration ability. Exposure to the concentration grid exercises made it easier for players to concentrate on the task at hand while avoiding distractors irrespective of the distractors that avail themselves when players are performing.

An acceptable reason for the finding of this study could be attributed to the quality of training the players of UCC Youngsters Football Club are exposed to. The players of UCC Youngsters Football Club are continuously exposed to the modern soccer coaching trends, which require players to exhibit and apply high levels of concentration and mental toughness.

Another rationale for the results of the present study is that PETTLEP imagery training has been demonstrated to improve players' concentration abilities by increasing their ability to concentrate on the job at hand and block out any distractions (Collins & Carson, 2017). Hence, it is not surprising that players did not differ in concentration abilities after their independent

exposure to imagery, concentration, and a combination of imagery and concentration.

Studies have shown that long-term engagement in sports is an effective way of achieving optimal concentration abilities (Bühlmayer et al., 2017; Kabat-Zinn et al., 1985). However, since the current study revealed that players who have played football for 11-15 years have higher concentration abilities than players who have played football for 21-25 years, 16-20 years and 6-11 years, then it could be attributed to the uneven or too small number of participants in some of the groups especially players who had played for 16-20 years and 21-25 years.

This study has demonstrated that exposure to psychological pre-performance routines such as imagery, concentration and a combination of imagery and concentration training interventions over a period of nine weeks of promoting a good psychological state prior to penalty kick performances. This result has implications for the inclusion of imagery and concentration training in the training programme of players to help manage their anxiety levels before and during penalty kick performances.

Research Question 2: What difference exist in penalty kick performance outcome among the players of UCC Youngsters Football Club?

This question sought to determine if demographic characteristics (experience and playing position) and psychological variables (imagery, concentration, and a combination of imagery and concentration) brought about differences in penalty kick performance outcomes among the players of UCC Youngsters Football Club. The one-way mixed repeated measures ANOVA was conducted to examine the difference in the success rate in penalty kick performance due to the players' demographic characteristics and psychological

variables. Mauchly's test of sphericity was statistically not significant [$X^2(5) = 3.232, p = .667$]; hence the assumption of sphericity was not violated.

A one-way mixed repeated measure ANOVA results revealed a statistical significant difference in penalty kick performance outcome in measurement over time [$F(3, 6) = 6.460, p = .026, Wilks' Lambda = .236, \eta_p^2 = .764$]. A Bonferroni follow-up test indicated a pairwise comparison of statistical difference in the penalty kick performance outcomes between the baseline ($M = 2.833, SD = 4.01$) and post-test three ($M = 3.939, SD = 4.82$) means and post-tests one ($M = 3.265, SD = 3.77$) and three ($M = 3.939, SD = 4.82$) means.

There was no statistical significant difference in penalty kick performance outcomes for psychological variables (imagery, concentration, and a combination of imagery and concentration groups), bringing about a difference in penalty kick performance outcomes for the players of UCC Youngsters Football Club, [$F(6, 12) = 2.396, p = .093, Wilks' Lambda = .207, \eta_p^2 = .545$]. However, the penalty kick performance of the players of UCC Youngsters Football Club based on psychological working groups increased over time. An examination of the mean scores for the groups on the penalty kick success over the four periods showed that, for the imagery group, baseline ($M = 3.119, SD = 2.90$), post-test 1 ($M = 3.929, SD = 2.77$), post-test 2 ($M = 3.643, SD = 2.39$) and post-test 3 ($M = 3.786, SD = 3.38$). For the concentration group, baseline ($M = 2.786, SD = 2.90$), post-test 1 ($M = 2.714, SD = 2.77$), post-test 2 ($M = 2.952, SD = 2.39$), and post-test 3 ($M = 3.595, SD = 3.38$). The mean scores for participants of the group exposed to the combination of imagery and concentration stood at baseline ($M = 2.625, SD =$

2.85), post-test 1 ($M = 3.167$, $SD = 2.72$), post-test 2 ($M = 4.167$, $SD = 2.34$), and post-test 3 ($M = 4.375$, $SD = 3.31$).

Further, there was no statistical significant difference in penalty kick performance outcome for the players of UCC Youngsters Football Club based on their playing position (Goalkeeper, Defender, Midfielder, and Attacker), [$F(9, 14.753) = .762$, $p = .652$, *Wilks' Lambda* = .395, $\eta_p^2 = .266$]. Additionally, there was no statistical significant difference in the penalty kick performance outcome for the participants based on the level of experience [$F(9, 14.753) = .799$, $p = .623$, *Wilks' Lambda* = .380, $\eta_p^2 = .275$]. Table 4 captures the details.

Table 4: ANOVA Results for Within-subject Differences in Penalty Kick Performance Among the Players of UCC Youngsters Football Club

Penalty kick performances	<i>M</i>	<i>SD</i>	<i>F</i>	<i>df</i>	Sig.	Partial eta squared (η_p^2)
			6.460	3,6	.026	.764
Baseline	2.833 ^a	4.01				
Post-test 1	3.265 ^b	3.77				
Post-test 2	3.614	3.11				
Post-test 3	3.939 ^{ab}	4.82				

Source: Field data, 2023; $N = 30$, $p = .026 = ^{ab}$

This research question sought to find out whether any statistically significant difference existed between the baseline penalty kick performance outcome and that of the post-tests. The study found a statistically significant difference between the baseline penalty kick performance score and that of the post-test 3 for the players of UCC Youngsters Football Club. Also, the study found a statistically significant difference between the post-test 1 penalty kick performance score and the post-test 3 penalty kick performance scores. After

comparing the baseline, post-test 1 and post-test 3 scores, it came out that there was a statistically significant increase in the penalty kick scores for the players of UCC Youngsters Football Club after their exposure to the various psychological intervention programmes. This implies that the nine weeks of imagery, concentration and a combination of imagery and concentration training intervention programme was effective in improving the penalty kick performance outcome of the players of UCC Youngsters Football Club. This finding corroborates the findings of other investigations that employed imagery and concentration on performances in sports.

For instance, a study by Seif-Barghi et al. (2012) studied the effect of an external imagery intervention on elite soccer players from Iran. Sixty-nine Iranian championship players from the U16, U19, and U21 age groups and players over 21 were sampled for the study. These players were randomly grouped into treatment (imagery) and control groups. The treatment group undertook eight weeks of imagery training on how to execute a successful pass in soccer. The research on successful passes revealed a substantial difference between the treatment and control groups. The findings suggested that enhancement in passing was due to the imagery treatment that the players underwent. Again, using various imagery types allowed the participants to make decisions based on their ability and the scenarios they were confronted with.

In another study, Veraksa and Gorovaya (2012) investigated the uniqueness of young players' imagery use and the efficiency of imagery training applications in soccer training sessions. The study included 120 male teenage soccer players from two soccer academies who regularly competed in

the regional and national championships in Moscow, Russia. The finding showed that players of various ages use imagery during training and competitions. On the mobility test in soccer, there was a substantial change in the performance of the imagery group between pre-intervention and post-intervention data. The findings discovered that imagery causes an increase in soccer players' performance.

Similarly, Norouzi et al. (2019) investigated if four weeks of external and internal PETLEP imagery impacted passing performance among Iranian soccer players. Forty-five novice soccer players were recruited for the study. These players were split equally into three groups: internal imagery, external imagery, and a control group. The results showed that the soccer passing performance of the external and internal PETTLEP imagery groups improved compared to the control group. The study concluded that imagery was an effective method for improving soccer passing performance.

In penalty kicks, Chang (2018) investigated the effect of six weeks of imagery training on penalty kick accuracy and the speed of the ball during penalty kicks in amateur footballers. The study found that after six weeks of imagery training, the accuracy of penalty kicks improved by 10.57%. The study concluded that imagery training improved the accuracy of penalty kicks for football players. A similar study by Rhodes et al. (2020) compared different imagery approaches to penalty kick success in professional soccer. The study yielded a statistically significant improvement in the penalty kick performance outcome.

Similarly, Björkstrand and Jern (2013) assessed how mental imagery rehearsal intervention enhances penalty shootout ability among soccer players.

The findings demonstrated significant associations between penalty-taking abilities and the assessed markers of psychological skills in any of the three situations. The results reveal that participants who perceive themselves as peaking under pressure benefit more readily from imagery training.

Studies on concentration on sports performance have revealed that when players gaze on task-relevant thoughts, they can neglect negative thoughts and distractors, which benefits sports performance. For example, Lu, Li, Wu, Liu and Wu (2021) identified the critical concentration networks for top-level archers and investigated if concentration exercises increase top-level archers' concentration. A total of 111 archers were sampled for the study. After eight weeks of intervention, the pre-intervention and post-intervention data showed a substantial effect of concentration training on archers' alertness.

A similar study in South America by De Andrade et al. (2020) investigated the relationship between concentration and tactical behaviour efficiency in young soccer players with comparable practice time and competitive level. The findings revealed that soccer players' concentration levels positively correlate with their tactical behaviour efficiency. From the study, young soccer players with comparable practice time and competitive levels respond better to their tactical actions in games if they maintain high concentration levels and perform better in games.

Fetean et al. (2021) investigated the role of concentration in football for players aged 9-10. The study used an intervention programme to help the players develop their concentration. In total, 30 male players were chosen, (treatment group = 15 and control group = 15). Players of the experimental group improved their performance level after the intervention and

outperformed the control group significantly. The findings indicated that the performance improvement was due to players of the experimental groups' exposure to concentration training. The study also revealed that the rise in concentration level helped the players better understand the exercises in technical terms and the tactical requirements communicated by the coach.

A study by Jooste et al. (2014) investigated the cognitive capabilities of young African football players in various positions. The study revealed that concentration is the only psychological construct linked to performance. It was also revealed that players who can concentrate on task-relevant signals while avoiding distractions excel and that concentration is one of the essential cognitive capabilities in sports, and a deciding factor in determining global soccer success. The authors recommended that much emphasis should be placed on concentration when coaches and sports psychologists employ psychological skills on soccer players.

A similar study by Sin and Aprinanda (2020) on the effect of concentration on soccer players' shooting ability revealed that when players possess a high concentration level, they are unaffected by internally or externally driven disturbances. This means the player shooting the ball will execute the necessary technique.

Makaruk et al. (2020) investigated whether providing specific concentration conditions would improve penalty kick shooting performance in football. It was discovered that in the presence of a distractor, assuming an internal control concentration prohibited participants from paying particular attention to distractions, leading to more successful performance executions. It was also revealed that concentration improves neuromuscular automaticity,

increases task goal orientation, decreases cognitive load, and reduces performance anxiety. A lack of concentration resulted in lower kicking accuracy observed in the autonomy support and control groups.

To examine whether any statistically significant difference existed between the baseline and post-test penalty kick performance outcomes in the three psychological variable working groups (imagery, concentration, and a combination of imagery and concentration), the current study revealed no statistically significant difference. However, the mean score for the group exposed to the combination of imagery and concentration improved in all the data collection sets.

Although there are limited studies that agree with the results of the present study, the current study agrees with the results of Uludağ et al. (2021), who showed no significant differences in free throw performance within the control, imagery, and concentration groups after subjecting basketball players to imagery and concentration training.

In contrast, Milley and Ouellette (2021) discovered substantial variations in performance results following intervention across treatment groups. In Milley and Ouellette's study, participants from the imagery condition exhibited higher shooting accuracy from the pre-test to the post-test than those in the concentration condition. A similar study by Slimani et al. (2016) revealed that psychological variables, particularly imagery, boosted football players' performance over time.

In a study by Azemi et al. (2021), football players learned how to employ a combination of imagery and concentration strategies during penalty kicks. Participants participated in imagery exercises in which they visualised

accurate kicks while keeping a high degree of concentration on pertinent events. The findings showed that combining imagery and concentration enhanced penalty kick efficiency and success rate. Hazell et al. (2014), in their quest to see differences in penalty kick performances, also revealed that effective utilisation of a combination of imagery and concentration would result in appropriate concentration control, appropriate mental state, self-confidence, increased self-efficacy, ability to image performance, and decreased anxiety, resulting in a more consistent performance success in penalty kicks.

In the current study, there was no statistical significant difference in penalty kick performance outcomes for experience level, bringing about a difference in penalty kick performance outcomes for the players of UCC Youngsters Football Club. In other words, experience level was not a predisposing factor for having high penalty kick performance success outcome after the nine weeks intervention programme.

The findings of the current study confirm the findings of Jordet, Hartman, Visscher and Lemmink (2007), who explored the influence of different ability levels on penalty kick success. Jordet et al. reported no significant difference in penalty kick performance success in players of varying ability levels.

Contrarily, Brinkschulte et al. (2023) observed that if an exceptionally competent player takes the penalty kick, the likelihood of scoring a penalty is high. This indicates that a high skill level might be a shield against the crippling consequences of pressure to perform. A study by Krumer (2020) also

revealed that experience and skill level is critical to penalty kick performance success.

Brimmell et al. (2021) conducted a similar study to examine the influence of skill level on penalty kick success and found that performance significantly increased with a higher expertise level, supporting the assumption that players skill level influence their ability to score a penalty kick.

However, when Jordet (2009) investigated the relationship between experience level and performance in a real-world high-pressure athletic job, he discovered that experienced players scored, on average, 65% of penalty shots, whereas novice players scored 89%. Jordet indicated that seasoned players are believed to have gained much experience through playing for many years. As a result, they become more concerned about what failure might entail to their team, as opposed to younger players who regard penalties as a platform for making a name for themselves and performing better. Thus, expertise and high public standing gained over a long time might harm performance through extra performance pressure, causing experienced players to perform worse than their less experienced rivals.

A player's position in football can also bring about a difference in penalty kick performance improvement. But in the current study, there was no statistically significant difference in penalty kick performance outcomes for playing positions (goalkeeper, defender, midfielder, and attacker). This means that playing position was not a predisposing factor for high penalty kick performance success after the nine weeks intervention programme among the players of UCC Youngsters Football Club.

The findings of the current study confirm the findings of Brinkschulte et al. (2023). Brinkschulte et al. believe that playing position ought not to be utilized when evaluating the fundamentals of penalty kick improvement since the situational and technical criteria of scoring a goal in-match differ significantly from those of converting a penalty kick. The authors argue that in-match goals are scored extremely dynamically, whereas penalty kicks are taken in a more static environment. Technically, goals may be scored in various methods in-match, although penalty kicks are attempted in a rather conventional manner.

However, the finding of the current study does not agree with the findings of Jordet et al. (2007). Jordet et al. examined the percentage success rate of players of different positions. They discovered disparities in the penalty kick success based on playing position. According to the findings, strikers score 83.1% of their penalties, midfielders score 79.6%, and defenders score 73.6%. The study revealed that offensive players are better goal scorers than other players since their primary duty is to score goals, hence their performance in penalty kicks.

A possible explanation for the findings of the present study is that the two (2) weeks of penalty kick training before the intervention might have helped players understand the technical aspects of taking penalty kicks (foot placement, approach speed, body posture, ball placement, swinging of the leg, making contact at the middle part of the ball, and follow through). Although two weeks of specific penalty kick training is insufficient to make it a habit, understanding the technical steps of kicking penalties can help players execute the methods properly, leading to performance success.

Another reason for the findings of the present study may be because the penalty kicks data collection exercises were held at the team's training grounds, which means that the players were familiar with their environment (spectators, opponents, teammates, weather conditions and the playing surface). Since these players know one another, they can forecast the movement patterns and intended goals of their teammates. Also, there were not enough spectators and fans to make the scene appear threatening enough to create the mental and emotional imbalance related to a penalty kick, unlike when thousands of people witnessed it at the match venue. Research has suggested that strong environmental pressures increase the risk of not scoring a penalty kick by around 6%, regardless of the player's skill level (Brinkschulte et al., 2023). As a result, the audience effect failed to have a significant impact on the players as it might have had the kicks taken place in an actual match circumstance when victory would either keep the team in pole position or likely win the trophy or put them out of competition or potentially lose the ultimate.

Although there was no audience effect bringing about an imbalance in the psychological state leading to good performances, another reason for the findings of the present study might be because the presence of competition among the participants and performance-contingent reward as factors to simulate game-like situations motivated the participants to perform at an optimal level. Competition among the participants and performance-contingent reward enhanced their capacity of involvement to accomplish a task by improving intrinsic motivation and motivational intensity or perseverance in the face of adversity.

Another reason for the findings of the present study might be that since all the participants were exposed to psychological variables, the psychological variables might have prepared them to perform better in the penalty kicks. Adjustments in concentration, which include decreased awareness, lead to mental fatigue or poor selective concentration, resulting in the accumulation of stress in players' bodies (Reardon et al., 2019). This represents the increased pressure on penalty kicks on the global scene. As a result, researchers advise that psychological factors become significant in penalty kick outcomes. Coaches and sports psychology practitioners must work with players to cope with anxiety to lower the perceived significance of every shot. According to research, players who undergo psychological preparation, such as imagery, concentration training, the combination of imagery and concentration and pressure-coping tactics, do well in high-pressure scenarios (Björkstrand & Jern, 2013; Chang, 2018; Makaruk et al., 2020; Rhodes et al., 2020; Sin & Aprinanda, 2020; Jooste et al., 2014).

This study has demonstrated that exposure to psychological pre-performance routines such as imagery, concentration and a combination of imagery and concentration training interventions over a period of nine weeks could act as an efficacious means of promoting a good psychological state likely to bring about improved penalty kick performance. This result has implications for the inclusion of imagery and concentration training in players' training programme to help manage their anxiety levels before and during penalty kick performances to improve performances.

Research Question 3: Which variable(s) (experience, playing position, imagery and concentration) predict penalty kick performance among the players of UCC Youngsters Football Club?

This question sought to determine which variable(s) (experience, playing position, imagery, and concentration) predicts penalty kick performance success among the players of UCC Youngsters Football Club. A multiple regression analysis was conducted to determine the variable that predicts penalty kick performance success among the participants. Initial correlation analysis revealed very low and low correlations among the variables. The multiple regression analysis indicated a VIF value of more than one, indicating no multicollinearity. The dependent variable (penalty kick performance) underwent regression analysis on predictor variables of demographic characteristics (experience and playing position) and psychological variables (imagery and concentration). The independent variables did not significantly predict penalty kick performance success among the participants $F(4,25) = .885$, $p = .487$, which signifies that the independent variables had no significant impact on the dependent variable. The sample multiple correlation coefficient was .352, indicating that approximately 12.4% of the variance of penalty kick success can be accounted for by the linear combination of these independent variables. An assessment of the coefficients on the influence of the separate independent variables revealed that none of the predictor variables predicted penalty kick performance success outcomes among the participants. However, the analysis also revealed that concentration ($\beta = .232$) and Imagery ($\beta = .032$) had a positive contribution relationship in predicting the success rate of penalty kick performance among the participants. But experience ($\beta = -.086$) and playing

position ($\beta = -.269$) had a negative contribution relationship in predicting the success rate of penalty kick performances among players of UCC Youngsters Football Club. The results are presented in Table 5.

Table 5: Multiple Regression Analysis for Predicting Penalty Kick Performance Success from Experience, Playing Position, Imagery, and Concentration.

Variable	B	BETA (β)	T	Sig.	T	CS VIF
Constant	7.701		1.938	.064		
Experience	-.197	-.086	-.436	.667	.906	1.104
Position	-.571	-.269	-1.398	.175	.948	1.055
Imagery	.002	.032	.122	.904	.503	1.987
Concentration	.019	.232	.865	.395	.487	2.053
R	.352					
R ²	.124					
R ² Change	.124					

N = 30; F = .635; df = (3,26); p > .05

Source: Field data, 2023

Research question three was purposed to examine the variable (experience, playing position, imagery, and concentration) that predicted penalty kick performance success among the players of UCC Youngsters Football Club. The study found that the independent variables did not significantly predict penalty kick performance success among the players, which signified that the independent variables had no significant impact on the dependent variable (penalty kick performance) after nine weeks of imagery, concentration and a combination of imagery and concentration intervention programmes.

The present study revealed that approximately 12.4% of the variance of penalty kick success can be accounted for by the linear combination of all

the independent variables. This implies that after nine weeks of imagery, concentration and a combination of imagery and concentration intervention programme, none of the independent variables had a significant impact on the penalty kick performance success outcome of the participants.

This findings tally with the findings of other studies that have shown that imagery does not predict improvement in sports performance (Jordet, 2005; Seif-Barghi et al., 2013). Jordet investigated if an imagery intervention programme would impact elite soccer players aged between 21 and 24. It was observed that only one of the participants slightly improved in performance. Jordet concluded that imagery did not predict performance. Further, the findings tally with the findings of Seif-Barghi et al. who revealed that imagery intervention could not predict passing performance among top-level soccer players.

On the contrary, Adeleye and Fadoju (2019) investigated the influence of four weeks imagery training on 50m sprint performance among selected high sprinters from Ijebu Igbo of the Ogun State in Nigeria. The study revealed that imagery significantly affects the performance of the sprinters. The study recommended that school management should offer appropriate training equipment and a favourable environment for teaching imagery techniques to all athletes.

The findings of this study also contradicts Veraksa and Gorovaya (2012) who investigated if 12 weeks of imagery training had an impact on the uniqueness of young players' imagery use and the efficiency of imagery in soccer training sessions. The authors found that imagery causes an increase in

soccer players' performance and concluded that performance improvement was attributed to imagery intervention.

A study by Rhodes et al. (2020) compared different imagery approaches to investigate penalty success in professional soccer. Thirty male professional soccer players from their various English Football League (EFL) teams aged 19 to 34 were randomly assigned into one of three conditions: individual PETTLEP visualization group, FIT visualization intervention for groups, and the control group. The intervention programme continued until after 17 weeks. Between 15 and 17 weeks following the preliminary assessment, a penalty shootout assessment was done for the second and third time. At the baseline assessment, the control group had 67.5 % penalty shootout successes, 69.5 % after week one, and 69 % after 15 weeks. The PETTLEP group had 67 % penalty shootout successes during the preliminary assessment, 77.5 % after week one, and 71 % after 15 weeks. The baseline penalty success rate for FIT was 68.5 %, 80.5 % after week one, and 81 % after 15 weeks of the treatment programme. The findings confirmed that effective imagery is a tool for improving penalty kick performance.

Additionally, Björkstrand and Jern (2013) assessed how one week PETTLEP mental imagery rehearsal intervention enhances penalty shootout ability among soccer players. The findings demonstrated significant associations between penalty-taking abilities and the set markers of psychological skills in any of the three situations. The results reveal that participants who perceive themselves as peaking under pressure benefit more readily from imagery training.

The findings of the present study revealed that concentration is an unreliable determinant of penalty kick success in football players of UCC Youngsters Football Club. The findings of the present study agree with the findings of Fetean et al. (2021), that has shown that concentration does not predict improvement in performance. Fetean et al. investigated the role of concentration in football for players aged 9-10. The study used a six month intervention programme to help the players develop their concentration. In total, 30 male players were chosen, with 15 designated for the treatment group and 15 designated for the control group. The study also revealed that the rise in concentration level helped the players better understand the exercises in technical terms and the tactical requirements communicated by the coach. It was revealed that performance improvement was not necessarily because of concentration improvement, although it might have played a factor in performance improvement.

Irrespective of the findings of the present study, studies have reported concentration to predict performance success among players. De Andrade et al. (2020) investigated the relationship between concentration and tactical behaviour efficiency in soccer players. The findings revealed that soccer players' concentration levels positively correlate with their tactical behaviour efficiency. According to the study, soccer players with comparable practice time and competitive levels respond better to their tactical actions in games if they maintain high concentration levels. The findings also revealed that highly concentrated players perform better in games.

Similarly, Jooste et al. (2014) investigated the cognitive capabilities of football players. The study revealed that concentration is the only

psychological construct linked to performance. The findings also revealed that players who can concentrate on task-relevant signals while avoiding distractions excel. It was deduced that concentration is one of the essential cognitive capabilities in sports and a deciding factor in determining global soccer success, so much emphasis should be placed on concentration when coaches and sports psychologists employ psychological skills on soccer players.

Sin and Aprinanda (2020) investigated the effect of concentration on soccer players' shooting ability in a soccer academy in Batuang Taba Palang city in West Sumatra, Indonesia. The shooting ability test and the grid concentration exercise assessed players' shooting and concentration abilities. A pathway analysis was employed for the study. The study discovered that concentration significantly impacts the shooting ability of soccer players by 12.25% with the remaining 87.75% influenced by other factors.

According to the findings of the present study, players' experience level is not an essential indicator of penalty kick success. The findings of the present study agree with the findings of studies that have shown that the experience level of players does not predict improvement in performance. Jordet et al. (2007) explored the influence of different ability levels on penalty kick success. There was no significant difference in penalty kick performance success in players of varying ability levels. The authors concluded that the outcome of penalty kick performance success or failure is always attributed to psychology and nothing else.

However, some studies disagree with the findings of the present study. Schorer et al. (2007) revealed that handball players' experience level

contributed to their performance. According to the study, performance enhancement results from experienced players' constant adaptability to performance constraints. Also, when firing at the same target, experts use a variety of movement patterns.

Similarly, Arrondel et al. (2019) investigated whether experience level substantially impacts penalty kicks. According to their research, the rate of successful penalty kicks for top-level male football players is between 75% and 86%. According to Arrondel et al., there is a strong agreement between experience level and penalty kick performance.

According to Krumer (2020) and Brimmell et al. (2021), high levels of expertise have a beneficial influence on the result of penalty shootouts. According to their studies, high levels of expertise may operate as a buffer towards the damaging consequences of performance pressure resulting in performance augmentation. Vaughan and Edwards (2020) investigated whether experience level predicts participants' performance efficacy. They revealed that a player's level of competency increases their likelihood of converting a kick from the penalty spot.

Jordet (2009) investigated the relationship between experience level and performances in real-world high-pressure circumstances. Jordet discovered that experienced players scored, on average, 65% of penalty shots, whereas novice players scored 89%. Jordet indicated that seasoned players are believed to have gained much experience through playing for many years. As a result, they become more concerned about what failure might entail to their team, as opposed to younger players who regard penalties as a platform for making a name for themselves and performing better. Thus, expertise and high

public standing gained over a long time might harm performance through extra performance pressure, causing experienced players to perform worse than their less experienced rivals.

The findings of the present study once again established that a player's playing position is not a significant determinant of penalty kick success. The findings of the present study agree with the findings of studies that have shown that the playing position of players does not predict performance improvement. Brinkschulte et al. (2023) believe that playing position ought not to be utilized when evaluating the fundamentals of penalty kick improvement since the situational and technical criteria of scoring a goal in-match differ significantly from those of converting a penalty kick. Brinkschulte et al. argue that in-match goals are scored extremely dynamically, whereas penalty kicks are taken in a more static environment. Technically, goals may be scored in various methods in-match, although penalty kicks are attempted in a rather conventional manner.

However, some researchers have found that playing position predicts performance. Memmert et al. (2017) examined if playing position in soccer predicted performance improvement. They discovered that tactical match performance in soccer is determined by the calibre of specific individual players' actions and their roles.

Jordet et al. (2007) researched the effect of playing position on penalty kick success. The authors discovered that a player's position on the field of play predicts the outcome of a penalty kick. The authors hypothesized that players whose primary purpose is to score goals on the pitch would also be

better at scoring from the penalty spot since they can manage high-pressure circumstances.

A study by Gelade (2014) proved that a player's position on the pitch predicted penalty kick success. In the study, defenders were more successful than forwards or midfielders. The study concluded that defenders have a more robust capacity to concentrate and are less sensitive to mental fatigue; hence, they perform better in penalty kicks.

The results could be explained by the fact that during low-anxious pressure performances, players are not faced with adversities, and for that matter, can cope with the pressure associated with taking penalty kicks. Another possible reason for the present findings is that the players of UCC Youngsters Football Club are familiar with one another and can predict their teammates and opponents' actions and kicking stances. Another possible explanation for this outcome is that experience is not enough to guarantee expertise in penalty kicks. All other things being equal, a less experienced player with superior technique and execution can outperform a more experienced player with worse technique.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATION

This study sought to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football Club. This chapter presents the summary, key findings, conclusions, and recommendations. Suggestions for further studies will also be covered.

Summary

Whenever the outcome of a performance is of great importance, psychological strain negatively impacts the performance. This occurs if players are to score the game-winning penalty kick in a significant championship final game. The considerable benefits in this setting are meant to evoke maximal effort, resulting in nervousness and an overall absence of concentration, leading to poor performance. However, players must achieve a psychological state that allows them to execute their well-learned skills in these adversities. Hence, it is essential to incorporate pre-shot psychological routines with physical, technical, and tactical training to impact players' performance and athletic development positively.

Imagery is an essential psychological construct that promotes competitive performance because it helps to replicate and rehearse events and deal with an individual's negative emotional state, such as anxiety. It is a psychological construct that has been extensively researched in sports and exercise psychology, and it has developed to be one of the most intensely researched psychological variables that impact sports performance. Similarly, among the most crucial characteristics of sports performance is concentration.

Concentration is the ability to direct mental efforts toward the goal at hand while rejecting distractions. Concentration improves players' perceived emotional capacity and helps them to deal with unpleasant emotions more successfully.

Penalty shootout is one of the most stressful situations in football, prompting anxiousness, lack of self-confidence and low concentration levels. Since its inception in 1970, the penalty kick has shown to have an increasing effect on the outcome of noteworthy matches or matches of eminence, especially in tie-breaking playoff circumstances. Considering the importance of scoring every penalty kick for the overall outcome of the match, the pressure on each player to execute effectively becomes undeniably high. Studies have shown that psychological preparation curtails the anxiety associated with penalty kicks during pressure-filled circumstances. Effectively utilising psychological constructs like imagery and concentration during penalty kicks results in appropriate concentration control, mental state, self-confidence, increased self-efficacy, ability to image performance, and decreased anxiety. This results in a more consistent performance success in penalty kicks. For this reason, this study was carried out to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters Football Club.

To achieve the purpose for which this study was conducted, three research questions were formulated to guide the study. To find answers to these research questions, a pre-test post-test experimental design was employed to conduct the study. A census sampling technique was used to include all the 30 registered players of UCC Youngsters Football Club.

Results from the baseline penalty kick performance were used to randomly assign participants into three treatment groups: imagery group, concentration group, and a combination of imagery and concentration group. The participants of the imagery group were exposed to the PETTLEP imagery training, those of the concentration group were exposed to concentration grid exercises, and the participants belonging to the combination of imagery and concentration group were exposed to both the PETTLEP imagery training and the concentration grid exercises.

These participants underwent the intervention programme for nine weeks while participating in the Central Regional Second Division League. The 30 participants underwent one pre-test and three post-test data collection exercises on different occasions. During the data collection days, participants completed questionnaires on imagery and concentration abilities and took penalty kicks. These data collection exercises were measured at baseline, on the intervention programme's 3rd, 6th and 9th weeks. Each participant took five penalty kicks during the baseline and each post-test data collection at different times from the penalty spot against different opponents such that at the end of all five competitions against the other teams, each player had taken the first, second, third, fourth, and fifth penalty kicks in their team's penalty kick order.

A researcher-generated data summary sheet was used to record participants' penalty kick performances. Data on research questions one and two were analyzed using one-way ANOVA with repeated measures, while data on research question three was analyzed using multiple regression.

Key Findings

1. There was statistical significant differences in imagery [$F(3, 5) = 11.470, p = .011, Wilks' \Lambda = .127, \eta_p^2 = .873$] and concentration [$F(3, 5) = 48.118, p = .000, Wilks' \Lambda = .033, \eta_p^2 = .967$] abilities among the players of UCC Youngsters Football Club. However, there was no statistical significant difference in imagery abilities for the players within the groups players belonged based on players' psychological variables [$F(6, 10) = 2.267, p = .121, Wilks' \Lambda = .180, \eta_p^2 = .576$], playing position [$F(9, 12.319) = 1.290, p = .332, Wilks' \Lambda = .199, \eta_p^2 = .416$] and experience level [$F(9, 12.319) = .936, p = .349, Wilks' \Lambda = .206, \eta_p^2 = .410$].

There was statistical significant difference in concentration abilities for the players of UCC Youngsters football club based on players' level of experience, [$F(9, 12.319) = 3.020, p = .038, Wilks' \Lambda = .059, \eta_p^2 = .611$]. However, there was no statistical significant the difference in concentration abilities among the players based on their psychological variable [$F(6, 10) = 2.671, p = .082, Wilks' \Lambda = .148, \eta_p^2 = .616$] and playing position [$F(9, 12.319) = 2.214, p = .098, Wilks' \Lambda = .096, \eta_p^2 = .542$].

2. There was statistical significant differences in penalty kick performance outcomes in measurement over time for the players of UCC Youngsters Football Club [$F(3, 6) = 6.460, p = .026, Wilks' \Lambda = .236, \eta_p^2 = .764$]. However, there was no statistical significant difference in penalty kick performance outcomes for the players based on psychological variables [$F(6, 12) = 2.396, p = .093$,

Wilks' Lambda = .207, η_p^2 = .545], playing position [$F(9, 14.753) = .762$, $p = .652$, *Wilks' Lambda* = .395, η_p^2 = .266] and level of experience [$F(9, 14.753) = .799$, $p = .623$, *Wilks' Lambda* = .380, η_p^2 = .275].

3. Imagery, concentration, playing position, and experience did not significantly predict penalty kick performance success among the players of UCC Youngsters Football Club after the nine weeks training interventions ($F(4,25) = .885$, $p = .487$).

Conclusions

1. After nine weeks of PETTLEP imagery and concentration grid intervention, the players of UCC Youngsters Football Club experienced differences in imagery and concentration abilities. However, there were no differences in imagery abilities among the players based on playing position, experience level, and psychological variables. The players differed in concentration abilities based on experience level. However, there was no differences in concentration abilities among the players based on playing position, and psychological variables.
2. The players of UCC Youngsters Football Club differ in penalty kick success outcomes in measurement over time after nine weeks of intervention. However, no difference exists in penalty kick performance success among the players based on the playing positions, experience level, and psychological variables.
3. Imagery, concentration, playing position, and level of experience are not predictors of penalty kick performance success among the players

of UCC Youngsters Football Club.

Recommendations

This study recommends that:

1. Interventions aimed at improving players' imagery and concentration abilities should target participants' experience level, position-specific requirements, and individual needs and should be tailored to each player's qualities if feasible.
2. Coaches and sports psychologists should incorporate imagery and concentration training into penalty kick training sessions to enhance players in maintaining or enhancing their penalty kick performance success in players.
3. Coaches should continuously teach players the technical characteristics involved in the taking of penalty kicks since it has been shown that all other things being equal, and regardless of playing position, a less experienced player with superior technique and execution can outperform a more experienced player with worse technique.

Suggestions for Further Studies

Because little is known on imagery and concentration training treatments in Ghana, additional research is needed before conclusive findings and recommendations on the usage of imagery and concentration training interventions on penalty kick performance among Ghanaian players can be formed. Therefore, further studies investigating the effects of imagery and concentration training intervention should:

1. Focus on using a bigger sample size to validate or oppose what was found because the limited sample size was a limitation to the purpose

of this study.

2. Consider employing behavioural tests and brain imaging instead of self-reported questionnaires to evaluate imagery and concentration abilities to rule out any influencing effects.
3. Investigate if imagery and concentration training interventions have the potential to enhance the psychological well-being of top Ghanaian football players in the Ghana Premier League before penalty kicks in order to improve their penalty kick performances.



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APPENDICES

**APPENDIX A
QUESTIONNAIRE
UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF SCIENCE AND TECHNOLOGY EDUCATION
DEPARTMENT OF HEALTH, PHYSICAL EDUCATION, AND
RECREATION**

Dear Player,

My name is Dennis Osei Agyin, a Master of Philosophy in Physical Education student at the Department of Health, Physical Education and Recreation of the University of Cape Coast. I am investigating **“Effects of Imagery and Concentration on Penalty Kick Performance Among Players of UCC Youngsters Football Club”**.

This questionnaire will assess your imagery and concentration ability when taking penalty kick.

I shall be grateful if you could spare some time to complete this questionnaire for me. Completing the questionnaire will take you just about 10 minutes.

If you agree to participate in this study, please sign and indicate the date in the column provided below. Be assured that any information you provide will be used solely for academic purposes. Your confidentiality is also very important; hence you are not required to indicate your name on the questionnaire. You may contact me or my supervisor on the numbers below if you have questions regarding your participation.

Researcher: Mr. Dennis Osei Agyin: 0248973697/ 0509309300

Supervisor: Prof. Joseph Kwame Mintah: 0540499131

Signature:

Date:

SECTION A

INSTRUCTION: Write your answer against the words in the spaces provided.

1. How many years have you played football:.....
2. Position played:.....

SECTION B

INSTRUCTION: This is a number of statements that players have used to describe themselves on how best they can image themselves before and during competition. Read each statement and tick the appropriate column that best describes how you feel at this moment. There are no right or wrong answers.

In relation to my sport, how easy is it for me to image...	Very hard to image	Hard to image	Somewhat hard to image	Neutral (not easy or hard)	Somewhat easy to image	Easy to image	Very easy to image
1. making up new plans/strategies in my head							
2. giving 100% effort even when things are not going well							
3. refining a particular skill							
4. the positive emotions I feel while doing my sport							
5. myself winning a medal							
6. alternative plans/strateg							

ies							
7.the anticipation and excitement associated with my sport							
8. improving a particular skill							
9.being interviewed as a champion							
10. staying positive after a setback.							
11. the excitement associated with performing							
12.making corrections to physical skills							
13. creating a new event/game plan							
14. myself winning							
15. remaining confident in a difficult situation							

SECTION C

INSTRUCTION: These are statements that players have used to describe themselves on how they concentrate while performing a task. Read each statement and tick the appropriate column that best describes how you feel at this moment. There are no right or wrong answers.

Statement	Never	Sometimes	Often	Always
1. It's very hard for me to concentrate on a difficult task when there are noises around.				
2. When I need to concentrate and solve a problem, I have trouble focusing my attention.				
3. When working hard on something, I still get distracted by events around me.				
4. My concentration is good even if there is music or noise around me.				
5. When concentrating, I can focus so that I become unaware of what is going on in my immediate surrounding.				
6. I am easily distracted if people are talking in my immediate surrounding.				
7. When trying to concentrate on something, I have difficulty blocking out distracting thoughts.				
8. I struggle to concentrate when I am excited about something.				
9. When concentrating I ignore feelings of hunger, thirst or tiredness.				
10. I can quickly switch from one task to another.				

11. It takes me a while to get involved in a new task.				
12. It is difficult to coordinate my concentration between watching and performing a required skill.				
13. I can quickly become interested in a new topic when I need to.				
14. I have a hard time coming up with new ideas quickly.				
15. After being interrupted or distracted, I can easily shift my concentration back to what I was doing.				
16. When a distracting thought comes to mind, I easily shift my concentration away from it.				
17. It is easy for me to alternate between two different tasks.				
18. It is hard for me to break from one way of thinking about something and look at it from another point of view.				

THANK YOU FOR TAKING PART IN THIS RESEARCH

APPENDIX B

INFORMED CONSENT FORM

PART I: INFORMATION SHEET

Title: Effect of Imagery and Concentration on Penalty Kick Performance Among Players of UCC Youngsters Football Club.

Principal Investigator: Dennis Osei Agyin

Address: St. Augustine's College

P. O. Box 98

Cape Coast, Central Region

General Information about Research

This research forms part of the two-year Master of Philosophy degree in Physical Education programme. This study aims to investigate the effect of imagery and concentration on penalty kick performance among the players of UCC Youngsters football club. Because the primary responsibility of taking penalty kicks in UCC Youngsters football club rests on the shoulders of the team's players, you have been selected to take part in this study since your experience will contribute much to the study. Also, your participation in the study will help me to learn more about the effectiveness of pre-shot psychological training intervention (imagery training, concentration training, and a combination of imagery and concentration training) on the improvement of penalty kick performance among soccer players. As a participant in the study, you will be required to complete some exercise protocols (executing penalty kicks) on four different occasions. Once during the pre-test, twice between the intervention programme, and once after the intervention programme. You will also be required to fill questionnaire during each data collection. Additionally, you will undergo nine weeks of either imagery training, concentration training, or a combination of imagery and concentration training during the intervention programme. The daily intervention training sessions and individualized sessions will last for 30 minutes.

Procedures

If you accept to be part of this study, you will be asked to complete either imagery, concentration, or a combination of imagery and concentration

training intervention programme. This will continue for nine weeks. The intervention programme and individualized training sessions will be conducted from Mondays to Fridays after the team's training session and will last for a period of 30 minutes. Data on imagery and concentration abilities as well as penalty kick performance will be recorded during the pre-test data collection stage and weeks 3, 6, and 9 of the intervention programme.

As a participant, you will also be required to respond to a 35-item questionnaire that will take up to 10 minutes. This questionnaire will solicit data on your imagery and concentration abilities. The principal investigator and his field assistants will be present to explain any item that needs further clarification. The questionnaire will be distributed to you face-to-face. The questionnaire will be administered during each data collection day and must be completed prior to taking the first penalty kick. The information recorded is confidential, and no one else except the investigator, my supervisor, and the University of Cape Coast Institutional Review Board (UCC-IRB) will have access to your data.

Possible Risks and Discomforts

There could be cases of tiredness and also some sports injuries. However, you will be taken through 20 minutes of warm-up to prepare the muscles for the activity as well as prevent the onset of sports injuries. Again, a physiotherapist or a professional first aider with a first aid kit will be present during each data collection to cater for any possible injuries that may arise.

Possible Benefits

The study will add to the strategies sports psychologists, coaches, and players use to reduce arousal and improve concentration before the execution of a penalty kick performance. The findings of the study would help coaches to identify which psychological variable (imagery, concentration) affects the performance of penalty kicks.

Confidentiality

Your research records will be kept very confidential. You will be assured that the data will be used purposely for the research. To conceal your identity, you will be given numbers (001-030) as your pseudo name. Under no circumstance will your name or anything that identifies you be indicated on the data summary sheets. All information provided by participants will be

treated as confidential to the principal investigator and principal supervisor and will not be released by the researcher to any third party unless required by law or to the Institutional Review Board of the University of Cape Coast (UCC-IRB) monitoring team.

Compensation

Participating in the research is free; therefore, there is no material benefit(s) attached. However, refreshments will be provided at all data collection meetings. This is to help replenish the energy you have used.

Voluntary Participation and Right to Leave the Research

You have the right to withdraw from the study at any time without it adversely affecting me in any way.

Contacts for Additional Information

For further information you may contact me (Dennis Osei Agyin) (principal investigator) on 0248973697 or 0509309300. You may also contact Professor Joseph Kwame Mintah (supervisor) (0540499131)

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of the University of Cape Coast (UCCIRB). If you have any questions about your rights as a research participant, you can contact the Administrator at the IRB Office between the hours of 8:00 am and 4:30 p.m. through the phone lines 0558093143/0508878309 or email address: irb@ucc.edu.gh.

PART II: VOLUNTEER'S AGREEMENT

The above document describing the benefits, risks, and procedures for the research title *(Effect of Imagery and Concentration on Penalty Kick Performance Among Players of UCC Youngsters Football Club)* has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

Volunteer's Name:.....

Volunteer's Mark/Thumbprint:.....

Date:







APPENDIX F

IMAGERY WORKBOOK

IMAGERY EXERCISES

Exercise 1: Remote Control Exercise

Step 1: Close your eyes and breathe calmly and evenly. Watch your abdominal wall rise as you inhale and slowly as you exhale lowers again. Take three deep breaths in and out. Count slowly to three when inhaling and exhaling slowly to six.

Step 2: Imagine holding a remote control in your hand. On the remote control, you will find buttons with which you can make different settings:

- a) Loud / Quiet
- b) Light / Dark
- c) Slow motion / fast forward
- d) Zoom from small to large

Step 3: Now imagine a place of your choice (competition venue or training location).

Try to imagine sounds, environment, objects, and colours very closely.

Step 4: Use your remote control and change your location as you wish. Practice this exercise in different places, at different times, choose different tasks, and practice in either the first or second perspective.

Exercise 2: Photo Exercise

Step 1: Close your eyes and breathe calmly and evenly. Watch your abdominal wall rise as you inhale and slowly as you exhale lowers again. Take three deep breaths in and out. Count slowly to three when inhaling and exhaling slowly to six.

Step 2: Imagine if your eyes were the lenses of a camera. Choose an excerpt of your environment from, for example, your training location or your competition venue.

Step 4: Look at this place for 1-2 seconds and then immediately close your eyes.

You "shoot" a photo of your chosen place with your eyes.

Step 5: Now try (still with your eyes closed) to clear the photo you just took and clearly in front of your inner eye. Take the picture with all the details as clear as possible with all your senses true. What do you see? What do you smell? What do you feel? What do you hear? What do you taste?

Step 6: If the inner picture is unclear, open your eyes again and repeat steps 3 to 5

Exercise 3: Personal winning formula

Step 1: Assume a relaxed body position. Close your eyes and breathe deeply, calmly and consistently. Notice how your stomach rises when breathing in and

how it falls when breathing out. Breathe deeply and slowly several times. Slowly count to six when inhaling and count to six when exhaling.

Step 2: Imagine pictures of moments of good penalty kick performances in your past.

Step 3: Imagine pictures, symbols or phrases that come to your mind during good penalty kick performances. For example, imagine the following situation: After a long hard match you win the game with a perfect final shot. You hear the applause from the audience. Imagine accompanying phrases. How did you feel? What did you say to yourself? How did you motivate yourself?

For example:

1. "Today is my day"
2. "I did my best from the beginning to the end"
3. "Today, I was able to show what I am capable of"
4. "That is my big day"
5. "There is a winner hidden inside me"

Step 4: Choose your personal phrase/your personal symbol that motivates you. This will put you on the right energy level in training or in a competition.

Further tips on this exercise:

1. Keep your phrase in the present tense
2. Form easy sentences
3. Repeat the phrase multiple times and constant
4. Only use positive phrases
5. The phrase has to feel good and has to inspire confidence.
6. Try out your phrase during penalty kicks at training.

Exercise 4: Problem Box Exercise

Step 1: Get yourself something to write on and an envelope. Take on a comfortable position. Close your eyes and breathe calmly and constantly. Notice how your stomach rises when breathing in and lowers when breathing out. Breathe in and out three times. Count slowly to three when breathing in and count to six when breathing out.

Step 2: Let your thoughts flow like clouds on the horizon. Take as much time for this as you need.

Step 3: Register all occurring unpleasant thoughts that could distract you from the next match and write them down.

Step 4: Put what you just wrote down in the envelope ("problem box") and keep it safe.

Step 5: After the match, open the envelope and read your notes. Try to find strategies to solve the written-down problems.

Exercise 6: Creating your own picture from your perfect performance

Step 2: Watch a video of your perfect penalty kick a couple of times. Try to understand the motion sequence. The part of the foot you make contact with the ball. Where and when you make eye contact with the ball as well as the target. Where the ball is kicked to. Placement of the non-kicking foot. The

follow-through after making contact with the ball. Relax again, breath in and out three times, move yourself back to the field, and repeat your moves perfectly. Imagine yourself at the training ground. Pay attention to how you move when kicking a penalty.

Step 2: Now concentrate on your run-up and kicking. Pay attention to the ease, the strength, and the sense of delight during the movement. When you do the proper movement a couple of times, you can evoke these feelings while in your solitude.

Exercise 7: The ideal role model

Step 1: Imagine a soccer player that embodies all the skills you can think of. Watch videos of his penalty taking moves.

Step 2: Find a comfortable body position. Close your eyes and breathe calmly and constantly. Notice how your stomach rises when breathing in and lowers when breathing out. Breathe in and out three times.

Step 3: Imagine your training ground. Instead of yourself, imagine your role model at the training grounds. Pay attention to how he moves when kicking a penalty. Watch him a couple of times. Try to understand the motion sequence. Which part of the foot he makes contact with the ball. Where and when he makes eye contact with the ball as well as the target. Where the ball is kicked to. Placement of the non-kicking foot. The follow-through after making contact with the ball. Relax again, breath in and out three times, move yourself back to the field, and repeat your role model moves perfectly.

Step 4:

Now concentrate on his run-up and kicking until you have the impression that they are your legs. You can now put yourself into this body and feel how it is to do the perfect penalty kick. Pay attention to the ease, the strength, and the sense of delight during the movement. When you do the proper movement a couple of times, you can evoke these feelings while in your solitude.

Exercise 8: Your perfect image

Step 1: Assume a relaxed body position. Close your eyes and breathe deeply, calmly, and consistently. Notice how your stomach rises when breathing in and how it falls when breathing out. Breathe deeply and slowly several times. Slowly count to six when inhaling and count to six when exhaling.

Step 2: Remember your perfect penalty kick. Everything worked out perfectly, and you felt great!

Step 3: Watch this scene multiple times from different points of view. Find out the aspect that was responsible for making this kick perfect.

Step 4: Put yourself in your own person, concentrate on this certain aspect, and be aware of how it feels to do it right.

Step 5: Watch yourself during the movement. End the exercise with joy over your own perfectness. Take this feeling out of your imagination and bring it into the actual room you are in.

Step 6: Practice at a quiet location and apply this exercise not until you can handle it perfectly.

Exercise 9: Replay exercise

The replay is the instantaneous mental repetition of your penalty kick performance during training. You should practice the replay immediately after ending a penalty kick performance if you have the time to replay it in your mind.

Step 1: Assume a relaxed body position. Close your eyes and breathe deeply, calmly, and consistently. Notice how your stomach rises when breathing in and how it falls when breathing out. Breathe deeply and slowly several times. Slowly count to six when inhaling and count to six when exhaling.

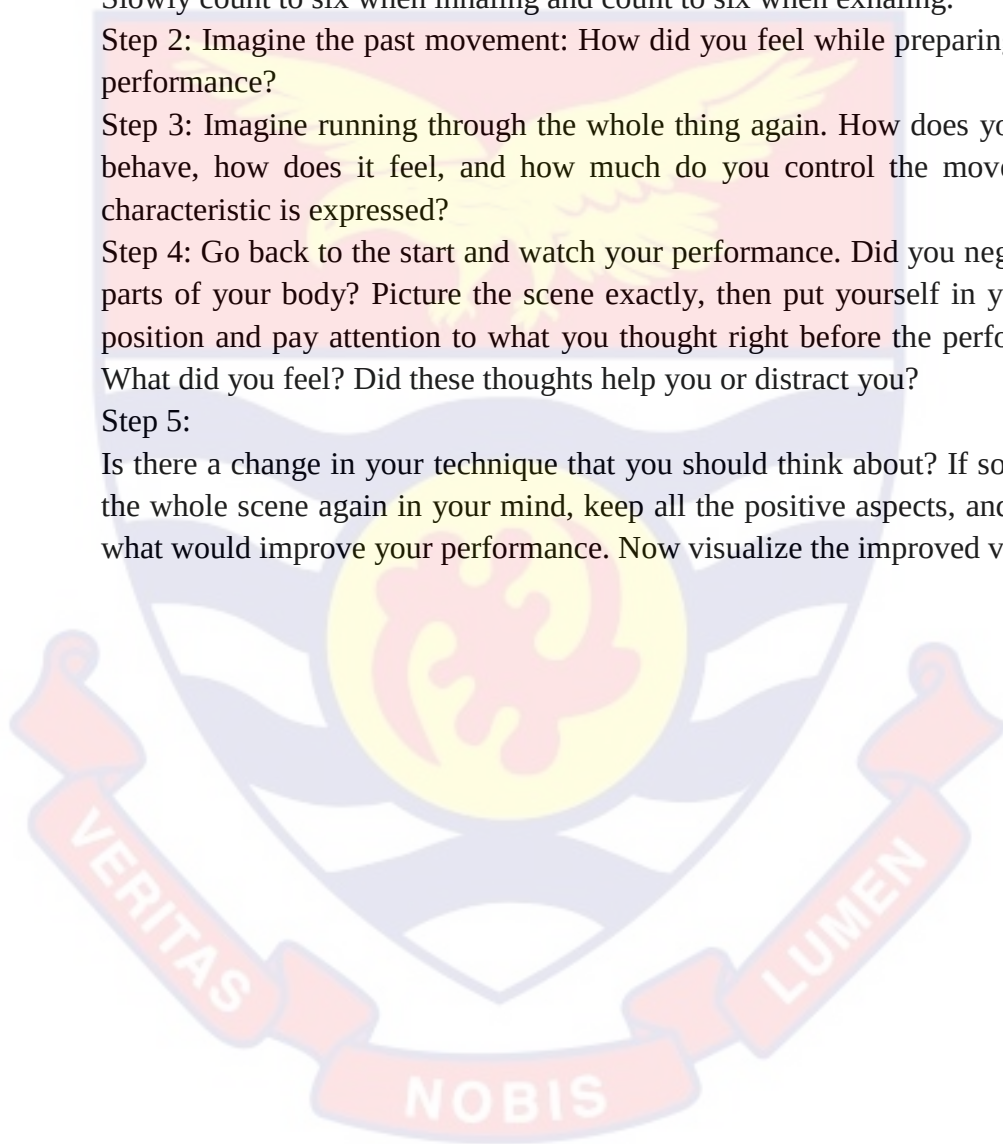
Step 2: Imagine the past movement: How did you feel while preparing for the performance?

Step 3: Imagine running through the whole thing again. How does your body behave, how does it feel, and how much do you control the move? What characteristic is expressed?

Step 4: Go back to the start and watch your performance. Did you neglect any parts of your body? Picture the scene exactly, then put yourself in your own position and pay attention to what you thought right before the performance. What did you feel? Did these thoughts help you or distract you?

Step 5:

Is there a change in your technique that you should think about? If so, picture the whole scene again in your mind, keep all the positive aspects, and change what would improve your performance. Now visualize the improved version.



APPENDIX G

CONCENTRATION WORKBOOK

INTRODUCTION

Concentration is important in sports, including taking penalty kicks in soccer. Players must concentrate on factors relevant to the task and neglect irrelevant distractions. Players are advised to develop their concentration by practicing a concentration grid, like the one in this workbook. This workbook introduces the concentration grid exercises and includes exercises to practice.

What is a concentration grid?

A concentration grid is a box that contains randomly generated numbers.

How do I get the application?

The concentration grid will be downloaded unto your phone. You are supposed to contact the researcher for the application. You are not required to pay for the application since the researcher will pay the cost involved in purchasing the application for you.

How do I use the concentration grid?

After opening the application on your phone, you have to select the number of rows and the number of columns. Generate the grid to get access to the concentration grid. For the purpose of this study, you will be required to rehearse the 10-by-10 concentration grid with numbers ranging from 1 to 100 for the first two weeks. You are to improve your time elapsed during the concentration grid exercise to the point where at the end of the two weeks, you should be completing the exercise in 4 minutes. The third and fourth weeks of intervention will require you to rehearse an 11-by-11 concentration grid with numbers ranging from 1 to 121. You are to improve your time elapsed during the concentration grid exercise to the point where at the end of the two weeks, you should be completing the exercise in 6 minutes. You will be required to rehearse the 12-by-12 concentration grid with numbers ranging from 1 to 144 for the fifth and sixth weeks of the intervention. You are to improve your time elapsed during the concentration grid exercise to the point where at the end of the two weeks, you should be completing the exercise in 7 minutes. The sixth and seventh weeks of intervention will require you to rehearse a 13-by-13 concentration grid with numbers ranging from 1 to 169. You are to improve your time elapsed during the concentration grid exercise to the point where at the end of the two weeks, you should be completing the exercise in 8 minutes. The task for the ninth week of intervention will require you to rehearse a 14-by-14 concentration grid with numbers ranging from 1 to 196. You are to improve your time elapsed during the concentration grid exercise to the point where at the end of the two weeks, you should be completing the exercise in 10 minutes.

Note: It is important to practice using the concentration grid in noisy and quiet locations so that you can practice concentration with or without distractors.

Further Instructions: between now and the day of the fourth and final data collection, you must complete the concentration grid at least three times a day, on as many days as possible. You must report the time you took to complete each trial in your monitoring form. There is an example of the grid in this workbook.

CONCENTRATION GRID

24	39	45	36	66	3	49	76	61	78
60	5	57	31	95	85	21	68	52	7
12	22	23	25	44	87	29	77	67	35
96	55	82	100	58	14	80	9	10	53
71	81	4	69	40	19	99	92	20	13
84	50	2	42	62	73	64	34	27	8
28	17	46	93	65	37	33	98	26	94
1	70	43	16	32	30	59	86	97	56
88	72	79	90	91	47	75	74	63	48
11	51	6	83	89	41	54	38	18	15



www.concentrationgrid.com



APPENDIX H

DATA SUMMARY SHEET

[illegible]