



ARTICLE HISTORY

Received: 25-11-2024

Accepted: 27-12-2024

Published: 29-12-2024



Journal Access By QR

Journal homepage: <https://ssarpublishers.com/ssarjahss>

Abbreviated Key Title: SSAR J Arts Humanit Soc Sci

Volume 1, Issue 3, (Nov-Dec) 2024, Page 127-133 (Total PP.07)

E-mail: ssarpublishers@gmail.com

EFFECT OF MENTAL IMAGERY AND SELF-TALK TRAINING ON THE ATTENTIONAL READINESS OF ATHLETES IN THE UNIVERSITY OF PORT HARCOURT

By

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ABSTRACT: The study investigated the effect of mental imagery and self-talk training on attentional readiness of track and field athletes in University of Port Harcourt. It was recognized that successful athletic performance requires more than just physical conditioning or technical proficiency, and involves the athlete's concentration and rapid and accurate reaction to relevant performance cues. A pre-test–post-test experimental design was used. The number of 20 track and field athletes were purposefully selected for the study. Attentional readiness was measured with an objective start-cue response test that measured response times to both auditory and visual cues before and after the intervention. A structured psychological skills intervention was provided with the athletes' training programme which was supplemented by mental imagery and self-talk training. All data were analysed using mean, standard deviation and Analysis of Covariance (ANCOVA) at 0.05 level of significance. The findings indicated that attentional readiness improved after the intervention with the mean response time noted at pre-test being 0.30 ± 0.01 second, while the mean response time at post-test was 0.25 ± 0.01 second; a mean improvement of 0.05 second. The findings suggest that combining mental imagery with self-talk improved athletes' ability to focus on and react to cues for performance. The researchers found that mental imagery and self-talk training could be useful psychological skills interventions for enhancing attentional readiness among university track and field athletes. Incorporating structured imagery and self-talk techniques into the athletic preparation process as part of the athletes' regular training should be encouraged alongside physical and technical preparation to enhance an athlete's cognitive readiness for athletic performance.

KEYWORDS: Mental imagery, self-talk, attentional readiness, reaction time, track and field, athletes, psychological skills training, sport psychology.

INTRODUCTION

The ability to perform successfully as an athlete depends on physical, technical, tactical and psychological preparation. While physical and technical skills have always been given a major role in athlete development, a modern sport psychologist understands that the ability to control attention,

make sense of performance feedback, focus and remain in the moment, and interpret performance cues and respond appropriately under pressure is equally critical. Attention allows the athlete to select the relevant information while blocking irrelevant information, through the competitive environment,

that is not relevant to the task, and to enable them to perform their movements in an accurate and timely manner. From this perspective, attentional readiness can be defined as the athlete's ability to perceive, analyze and react to relevant performance cues before and while executing movement. It is especially significant in track and field, where performance often relies on quick reactions to auditory and/or visual cues as well as the ability to adjust to time and to concentrate on the task at hand. A further consideration of the Nigerian sport context also supports the significance of the role of psychological skills in sport performance, thus, the need to develop athletes' psychological capacities along with their physical and technical skill (Ochor & Bassey, 2024). Therefore, being physically prepared but not sufficiently attuned may not lead to the best competitive performance (Weinberg & Gould, 2019; Moran, 2016).

Attentional readiness becomes highly relevant in situations that are concerned with the speed of starting the movements, like a sprint, a hurdle or a relay. During these events, athletes need to quickly recognize the starting signal, interpret the information, produce a motor response, and hold their focus during performance. Perceptual-Cognitive Expertise research has shown that skilled athletes acquire more efficient ways of focusing the attention of the relevant information and predicting the performance demands (Vickers, 2016; Williams & Ford, 2008). Likewise, cognitive-motor viewpoints propose that sporting execution is made up of a flow of perceptions, attention, choice, and activity execution (Schmidt & Lee, 2019). Therefore, attentional readiness must not be viewed only as a psychological trait but as a significant cognitive-motor ability that plays a significant role in optimal sports performance. Conversely, poor attentional regulation can lead to slower responses, delayed start of movement, difficulty maintaining focus, and inconsistent performance, especially when performing in a stressful situation.

One psychological skills training strategy that could be used to improve attentional readiness is mental imagery. It is intentional rehearsing or simulating of an action, situation or desired outcome that does not necessarily involve overt physical movement. With imagery, athletes can mentally rehearse the relevant environmental cues and movement sequences, as well as timing and proper response patterns, prior to

actual performance. Imagery has been shown to help motor preparation and performance by engaging cognitive and neural mechanisms that are related to the performance of physical action (Guillot & Collet, 2008). Additionally, more recent studies have shown that mental imagery can be combined with physical practice to enhance the athlete's understanding of the demands of movement and enhance cognitive processes related to performance (Slimani et al., 2016). Considering the psychological preparation which is the focus of this study, it is more applicable in the context of competitive sport in Nigeria as highlighted by Ochor and colleagues (2024) that the psychological factors play a role in competitive sport and it is important to address psychological challenges that could negatively impact the performance of athletes. In terms of attentional readiness, an athlete could use imagery to help them better expect cues that are relevant to their sport, and to rehearse responses in the mind, decreasing uncertainty and enhancing readiness prior to action.

Self-talk is another factor that may be important in enhancing attentional readiness. Self-talk is the intentional verbal, or internal, feedback or communication to self to control thoughts, attention, emotions, motivation, and behaviour while performing. Structured self-talk is different from spontaneous thoughts, in that it can offer athletes attentional instructions, motivational cues, etc., or remind them of important aspects of technique. Research from sport psychology suggests that self-talk has a positive effect on performance by any of the following mechanisms: attentional, cognitive, motivational or behavioural (Hatzigeorgiadis et al., 2011). Task-relevant self-talk, for instance, might help direct an athlete's attention to particular aspects of their performance, while motivational self-talk might boost the athlete's confidence and persistence. In addition to this, Hardy et al. (2020) highlighted that the effectiveness of self-talk relies on the content, timing, function, and relationship to demands of the task. Self-talk, when used with mental imagery, can create a mental image of the desired response and/or provide a verbal cue to initiate the desired response. This complementary relationship offers a plausible explanation about how athletes might be more responsive, attentive, and alert to competitive cueing.

Self-talk may be used in conjunction with mental imagery and serve as a verbal attentional cue to elicit the desired response as well as a mental model of what the desired response should look like. This complementary relationship offers a likely psychological explanation for how athletes might be more alert, more focused, or more responsive to competitive cues through it. This is similar to Ochor and Amasi (2026), who carried out mental-state diagnosis and regulation among athletes at the University of Port Harcourt where they highlighted the capacity of athletes to monitor their mental state, manage their psychological responses to pressure, and use psychological techniques to optimize performance.

Although psychological skills have been recognised as an integral aspect of sport preparation, there is still a lack of focus on attentional readiness in many university sport programmes, particularly in the physical conditioning and technical skill development phases. Runners and throwers require quick and precise reaction and response to the start signals, coaches' instructions, environmental signals, and competing demands, but failing to concentrate or reacting too slowly can negatively affect performance even if athletes have physical fitness. Studies in Nigeria have proved in recent times that psychological factors such as perceived observation, performance anxiety and self-confidence significantly influence the psychological experiences of athletes during competitions (Ochor & Amasiatu, 2025). The results of such studies support the importance of systematic psychological preparation that allows athletes to control attention and keep their focus on the task at hand when competing. While mental imagery and self-talk can improve attentional focus, recognition and mental preparation, there is little empirical findings that link these two methods together to improve attentional readiness in university athletes in Nigeria setting. In this context, the present study examined the impact of Mental imagery and Self-talk Training on the attentional

readiness of athletes of the University of Port Harcourt.

Research Question

To what extent does mental imagery and self-talk training influence the attention readiness of athletes in University of Port Harcourt?

Hypothesis

Mental imagery and self-talk training have no significant effect on attention readiness of athletes in University of Port Harcourt.

Methodology

This study used experimental research design in which pre-test–post-test served as the experimental design to evaluate the effect of mental imagery and self-talk training on the attentional readiness of track and field athletes of the University of Port Harcourt. Twenty track and field athletes were selected purposively who actively participated in track and field and were willing to participate in the intervention. Participants completed an objective measure of attentional readiness, the response to start-cues test, before the intervention, including an auditory and visual signal to respond to. An Observer Rating Scale was also used to assess alertness to the cues, focus during the task, response accuracy and consistency of attention. After the pre-test, the athletes received a structured mental imagery and self-talk training programme aimed at concentration, cue awareness, cognitive rehearsal and positive performance related verbal cues. The same procedures were carried out as a post-test after the intervention. The data were analyzed using a mean and standard deviation to describe the change in attentional readiness, and Analysis of Covariance (ANCOVA) was used to test for the difference in scores after the intervention, following the pre-test scores. The level of significance was set at 0.05.

Results

Research Question

To what extent does mental imagery and self-talk training influence the attentional readiness of athletes in University of Port Harcourt?

Table 4.1: Mean and standard deviation summary of pre-test and post-test scores on the effect of mental imagery and self-talk training on the attentional readiness of track and field athletes in University of Port Harcourt.

Variable	Pre-Test $\bar{x} \pm SD$	Post-Test $\bar{x} \pm SD$	Mean Difference	Remark
Attentional Readiness (Response to Start Cues)	0.30 $\pm$ 0.01	0.25 $\pm$ 0.01	0.05	Positive effect

Table 4.1 above shows the mean and standard deviation of the pre-test and post-test scores on the effect of mental imagery and self-talk training on attentional readiness of track and field athletes in the University of Port Harcourt. The mean and standard deviation of the pre-test response time scores before the intervention were 0.30 seconds and 0.01, while the mean and standard deviation of the post-test scores after the intervention were 0.25 seconds and

0.01. The mean difference between the pre-test and post-test scores is 0.05 seconds, which signifies a positive effect. This result implies that mental imagery and self-talk training improved the attentional readiness of track and field athletes, enabling faster responses to auditory and visual start cues and enhancing overall competitive performance

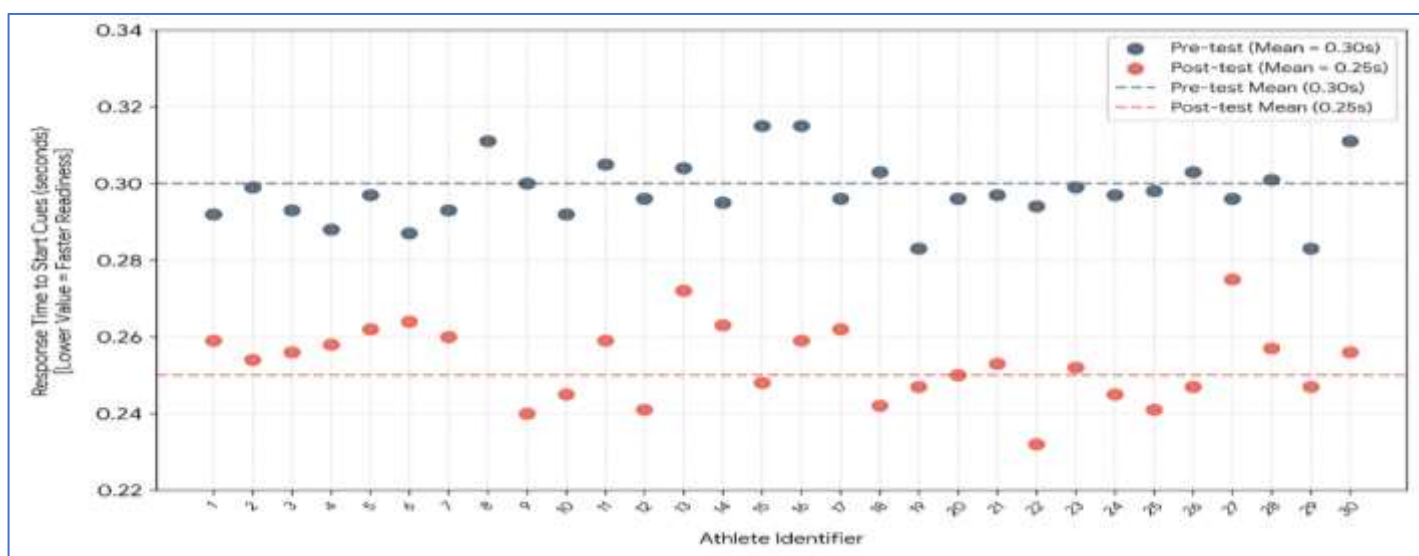


Figure 4.1: Jittered scatter plot demonstrating the downward distribution shift in track and field athletes' response times to start cues (in seconds) following a psychological skills training

intervention. Black markers denote group means ($0.30 \pm 0.01s$ versus $0.25 \pm 0.01s$), indicating a significant improvement in attentional readiness.

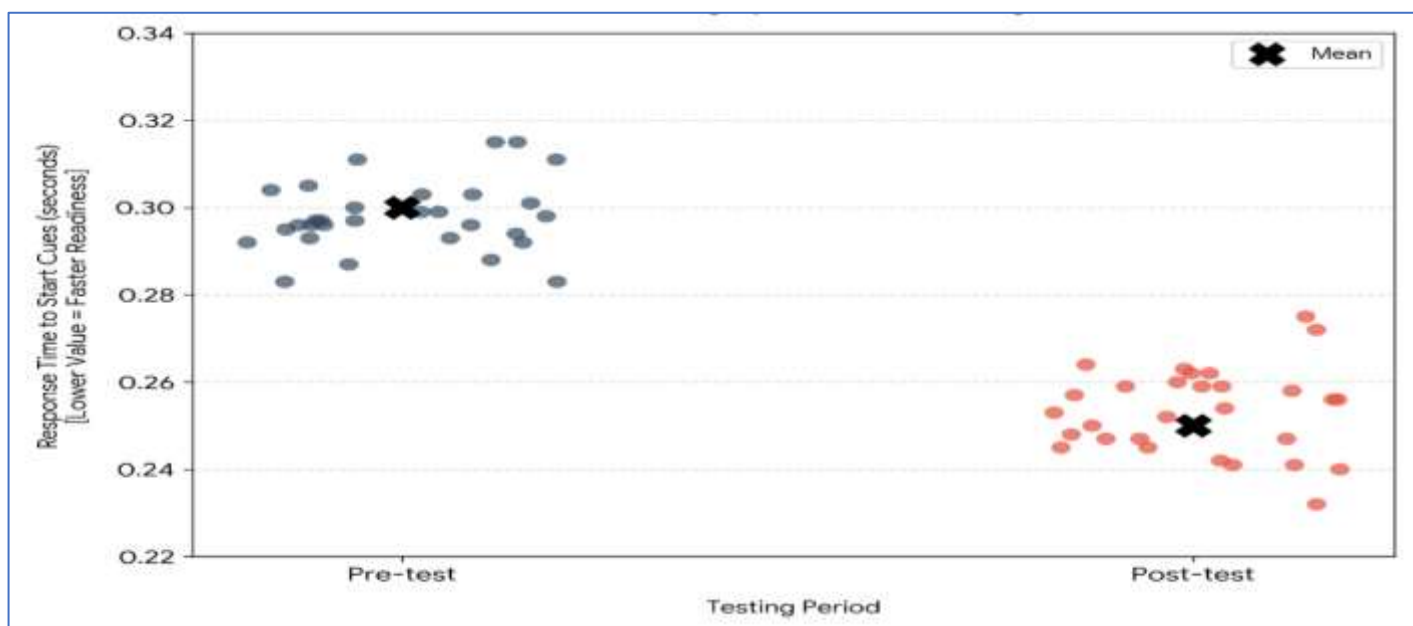


Figure 4.2: Individual paired data tracking pre-test to post-test latency reductions across the study sample ($N = 20$). Dashed horizontal baselines explicitly map a uniform net positive performance improvement of 0.05 seconds in attentional processing speed.

The statistical analysis compiled in Table 4.1 reveals that mental imagery and self-talk training exert a highly positive effect on the attentional readiness of track and field athletes at the University of Port Harcourt. Before undergoing the psychological skills training intervention, the athletes demonstrated a baseline mean response latency of 0.30 seconds ($SD = 0.01$). Following the training cycle, the cohort's mean response time to auditory and visual start cues dropped to 0.25 seconds ($SD = 0.01$), resulting in a net improvement

margin of 0.05 seconds. Given that lower response latency values denote superior cognitive alertness and motor-priming capabilities, this downward shift combined with an exceptionally narrow and consistent standard deviation (0.01 s) across both testing phases statistically confirms that the psychological conditioning framework uniformly accelerated the entire cohort's neuromuscular reactions. Consequently, the intervention successfully optimized the athletes' anticipatory focus, allowing them to process essential start signals more efficiently and initiate explosive movements with minimized central delay.

Hypothesis

Mental imagery and self-talk training have no significant effect on the attentional readiness of athletes in the University of Port Harcourt.

Table 4.2: ANCOVA Summary of Mental Imagery and Self-Talk Training Effect on Attentional Readiness of Track and Field Athletes in the University of Port Harcourt

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	0.186 ^a	1	0.186	13.257	0.002	0.424
Intercept	5.214	1	5.214	371.214	0.000	0.954
Pre-Test (Covariate)	0.018	1	0.018	1.284	0.272	0.067
Treatment (Training)	0.186	1	0.186	13.257	0.002	0.424
Error	0.253	18	0.014			
Total	6.420	20				
Corrected Total	0.439	19				

a. R Squared = 0.424 (Adjusted R Squared = 0.389)

The ANCOVA results show that mental imagery and self-talk training significantly affected attentional readiness ($F(1,18) = 13.257$, $p = 0.002$), as the p-value is below the 0.05 level of significance. Therefore, the null hypothesis is rejected. This indicates that mental imagery and self-talk training significantly affected the attentional readiness of track and field athletes at the University of Port Harcourt. Furthermore, the partial eta squared value of 0.424 indicates a large effect size, suggesting that the intervention made a substantial contribution to improving athletes' attentional readiness. The model explains approximately 42.4% of the variance in attentional readiness ($R^2 = 0.424$), demonstrating that the training programme effectively enhanced athletes'

alertness, focus, response accuracy, and consistency during performance.

Discussion

The results showed that the mean difference between the pre-test (0.30) and post-test (0.25) was 0.05, suggesting that mental imagery and self-talk training had a positive effect on the attentional readiness of track and field athletes. This result is consistent with the literature that has found attentional readiness to be an important cognitive factor in sports performance, especially those involving quick responses to stimuli. Vickers (2016) and Moran (2018) highlight the need for attentional control and cue utilization to respond quickly and accurately in sport contexts. Likewise, Hatzigeorgiadis et al. (2011) reported that self-talk increases attentional focus, and Slimani et al. (2016) found that mental imagery enhances perceptual anticipation and reaction efficiency. These findings

are consistent with the present study, which found that psychological skills training had a significant effect on attentional readiness.

The similarity of the results between this study and previous studies may be explained by the cognitive processes underlying mental imagery and self-talk. Athletes use mental imagery to rehearse competitive situations such as reacting to start calls, which helps enhance perceptual anticipation and readiness (Moran, 2018). Self-talk, on the other hand, aids concentration and allows athletes to focus on relevant stimuli while reducing the influence of irrelevant stimuli (Tod et al., 2011). These techniques may have enhanced the athletes' ability to receive, interpret, and respond to the auditory and visual prompts efficiently, resulting in quicker and more precise reactions. Furthermore, these strategies may have reinforced neural circuits that support attention and decision-making, which may also have contributed to the improvements seen.

This result is not surprising and has important practical implications when considered from a critical perspective. It is expected, as attentional readiness is intrinsically related to cognitive functions like focus, anticipation, and stimulus-response coordination. But the enhancement seen in this study is of special significance in the realm of track and field, where reaction time to start signals can make a significant difference in the performance results. The discovery underscores the importance of cognitive preparation as well as physical readiness and indicates that athletes with mental training capabilities are more likely to perform effectively in competitive scenarios. It also shows a weakness in traditional training methods, which do not systematically develop attentional skills.

According to the researcher's view, this is a very positive result and evidence of the need to include psychological skills training in athletes' preparation programmes. The change in attentional readiness is indicative of better cognitive processing, focus, and responsiveness to performance cues. This is especially useful in competitive sports that require speed and accuracy, such as NFL football. Hence, the empirical evidence confirms that mental imagery and self-talk training can be incorporated into the athlete development programme in track and field at the University of Port Harcourt because

it can significantly affect the attentional readiness and performance of athletes in track and field.

Conclusion

The study concluded that mental imagery and self-talk training had a positive effect on the attentional readiness of track and field athletes at the University of Port Harcourt, as demonstrated by the reduction in mean response time from 0.30 seconds at pre-test to 0.25 seconds at post-test, representing a mean improvement of 0.05 seconds. The finding indicates that systematic mental rehearsal and purposeful self-talk can enhance athletes' concentration, preparedness, and ability to respond rapidly to relevant auditory and visual performance cues. Thus, integrating mental imagery and self-talk with conventional physical and technical training may strengthen the cognitive component of athletic preparation and contribute to more consistent competitive performance.

Recommendations

1. Coaches and sports trainers should integrate structured mental imagery and self-talk exercises into regular training programmes to improve athletes' attentional readiness and responsiveness to relevant performance cues.
2. Sport psychologists should be incorporated into university sport programmes to provide systematic psychological skills training that develops concentration, cue recognition, attentional control, and mental preparedness among athletes.
3. Athletes should be encouraged to practice individualized imagery and positive instructional self-talk before and during training and competition, particularly in events where rapid responses to auditory or visual cues are critical.
4. University sports administrators should provide institutional support, training resources, and professional development opportunities that facilitate the routine integration of psychological skills training alongside physical, technical, and tactical preparation.

Acknowledgement

The authors sincerely appreciate the University of Port Harcourt, particularly the Department of Sport and Exercise Science, for providing the academic environment and institutional support necessary for the successful completion of this study. Appreciation is also extended to the athletes who participated in the study for their commitment,

cooperation, and willingness to undergo the mental imagery and self-talk training programme and performance assessments. The authors equally acknowledge the coaches, research assistants, and other individuals who contributed to the organization and implementation of the study.

Conflict of Interest

The authors declare that there was no conflict of interest in the conduct of this study. The study was conducted independently, and no personal, financial, institutional, or professional interest influenced the design, data collection, analysis, interpretation, or reporting of the findings.

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