

Effects of Demographic Factors on Performance Strategies and Brain Wave Quality on Performance among Athletes

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Abstract

The purpose of this research is to investigate the effects of demographic factors and brain wave quality on performance strategies among athletes. The demographic factors such as gender, years of study, and years of involvement in sports play an important role in the use of performance strategies in determining their performance strategies in sports. The instruments used for this research is the Test of Performance Strategies (TOPS) to measure the performance strategies. The findings have revealed that there were significant differences in the performance strategies by the demographic factors as follows: gender at $t(21) = 13.75$; $p < .05$; years of study at $t(21) = 9.46$; $p < .05$, and years of involvement at $t(20) = 11.37$; $p < .05$. In addition, there were also significant differences in the sub factors of the performance strategies such as goal setting, relaxation, activation, imagery, self-talk, attentional control, emotional control, and automaticity. Based on the finding from the qEEG application, in the stroop effect tasks, the Beta and Gamma wave had the tendency to dominate the Frontal region (Fp1,Fp2), somatosensory area (C3,C4) which related to the development of the psychomotor skills and visual spatial area (P3,P4) and O1 and O2. The athletes have less thought process in seconds prior to the shot and have quieter mind than the non-athletes. It could be inferred that the athletes needed to be calm and relaxed while facing their challenge so that they could focus on their target and performance. The implication of this research includes the brain wave quality and effect on the performance strategies. The improvement in the brain quality (Alpha, Beta and Gamma) wave would assist the athletes to perform.

Keywords: Athletes; brain wave quality; demographic factors; effects; qEEG; performance strategies.

1. Introduction

The demographic factors play a huge role in identifying performances among athletes. Demographic factors such as gender, years of study, and years of involvement of athletes. According to [1], there were no significant differences in the measures of psychological coping skills between the players of youth and junior age category. The senior have different mechanisms from junior athletes based on their experiences. However, the findings in this research were dissimilar.

Previous literatures have reported that the demographic factors, psychological strategies and brain wave quality were connected with each other in determining performance among athletes.

2. Demographic

In previous research, the gender showed the difference in performance between male and female. According to [19] a major factor on measured the performance of athlete through the impact of height, weight, body fat, muscle mass, aerobic capacity or anaerobic threshold as a result of genetic and hormonal differences.

Through this literature the gender obviously difference in determining the level of performance among athletes.

Result from previous research mentions the gender gap also occurred in Olympic game. There is clearly described the performance between male and female are different. The gender gap has been established since 1983. Due to this condition, the body of sports' management determined the measurement on performance among male and female should be differenced.

Research proof the level of performance between male and female was not at the similar level. In other word the women's performances at the high level will never match those of men and this stabilization is the reflection of a significant to reduce gaps for all events [20]. The performances improved according to gender differences. Stability appears through all of the parameters studied: coefficients of variation, slope coefficients, coincident breakpoint dates between world records and ten best performances [21]. The external stimulant such as doping can provide the stability and it will become the challenges to the athletes.

According to [22], the gender and ranking do not significantly different on coping strategies. Finding from this research showed the gender and ranking have no significant difference with coping strategies which is consistent from the above finding. Thus, the