

國立臺灣師範大學體育與運動科學系

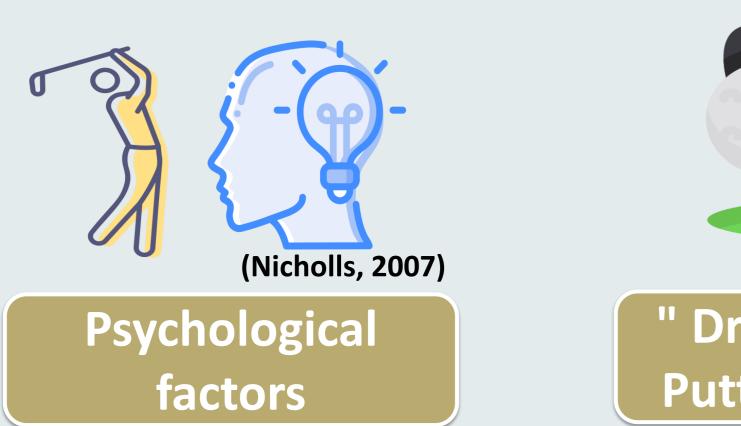
Department of Physical Education and Sport Sciences, National Taiwan Normal University



The relationship between psychological process and golf putting related EEG in Golfers Chang-You Hsia

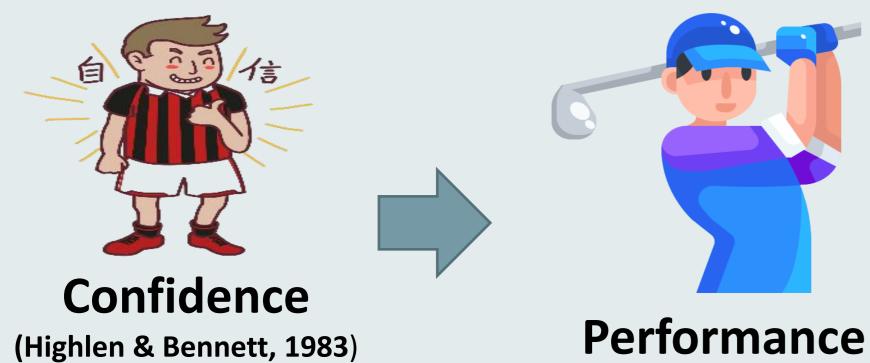
Introduction

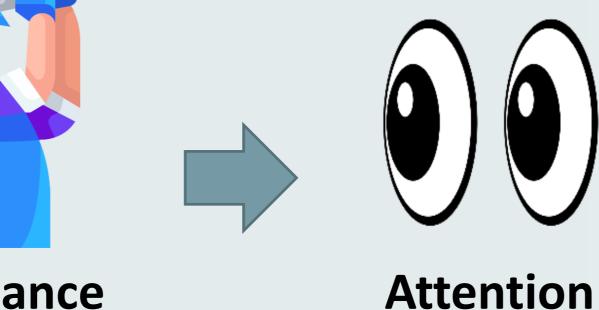
I. Golf putting



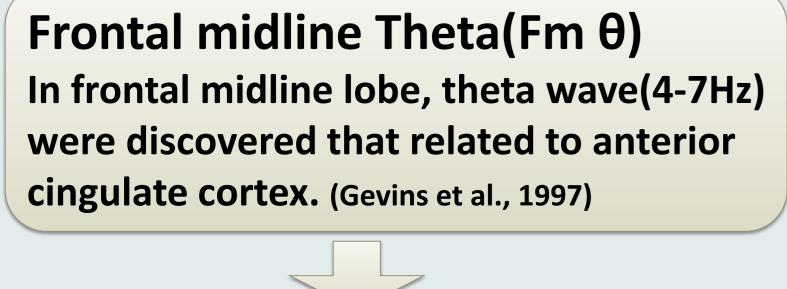


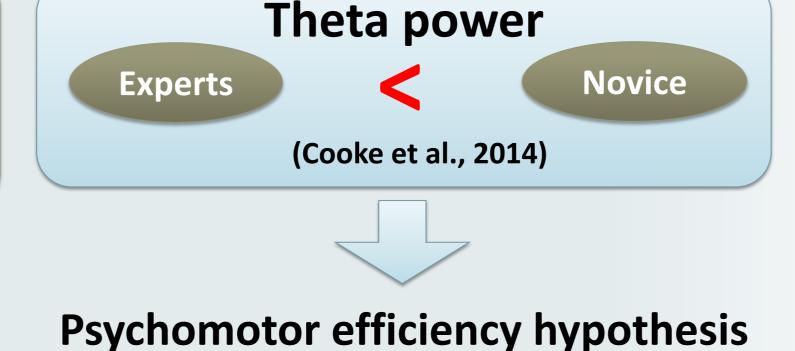
II. Cognitive-motor process





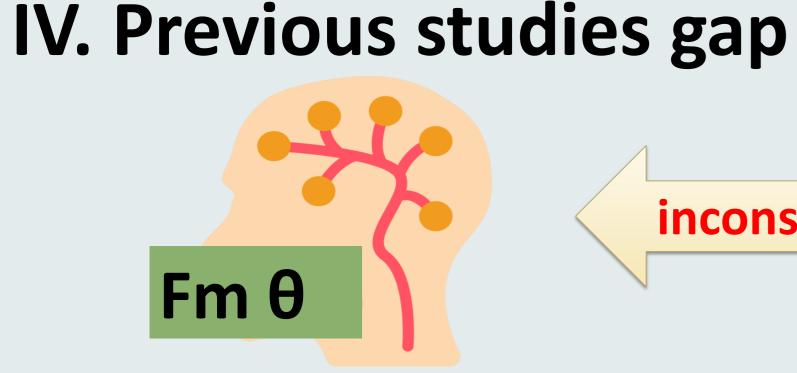
III. Previous studies results





(Hatfield and Hillman, 2001)

A top-down indicator of sustained attention. (Mitchell et al., 2008; Buschman & Miller, 2007)



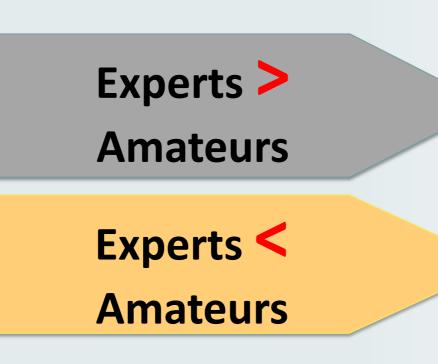




V. This study hypothesis



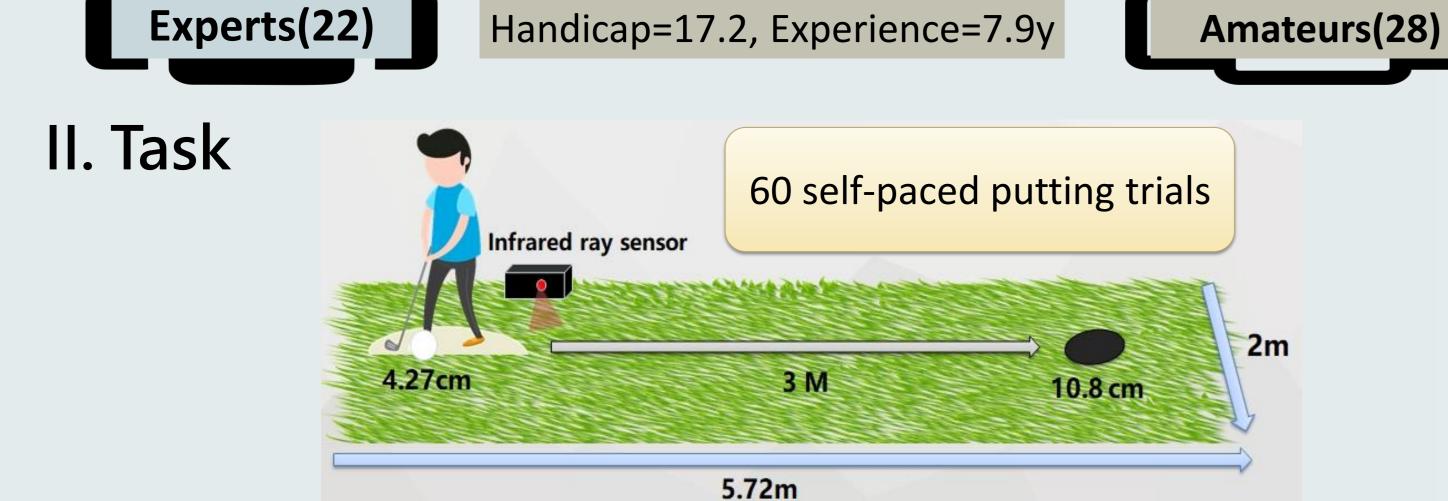




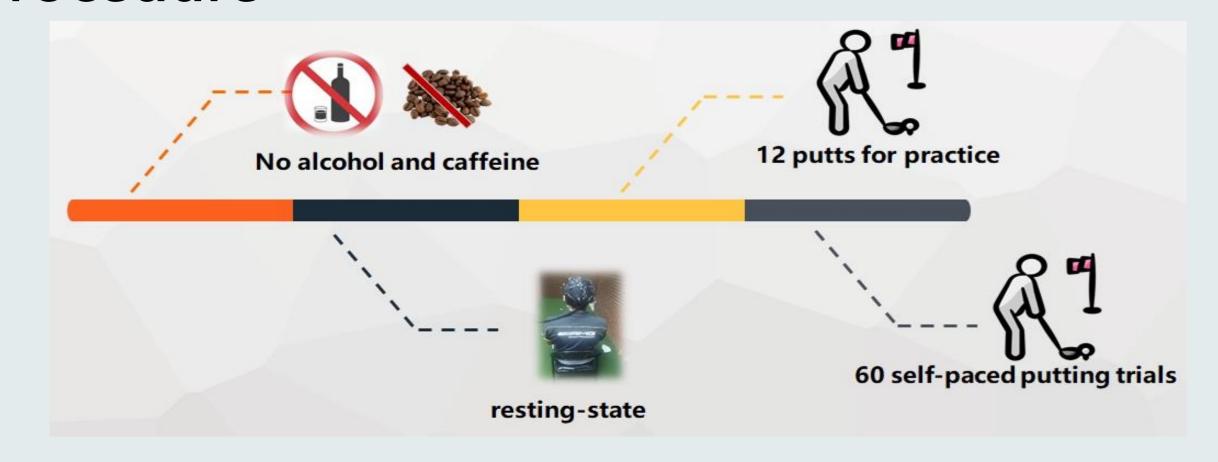
Method

Handicap=10.4, Experience=14y

I. Participants: 50 golfers



III. Procedure



IV. Statistical analysis



Result

Performance

Putting	Mean success rate (%)	Mean±SD	
Experts	58.8	14.6	
Amateurs	47.9	16.6	

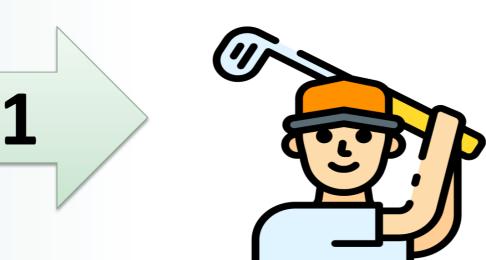
There is a significant difference in putting performance between the two groups (t=2.484 p=.017)

Frontal midline Theta

Region	t	p	Mean ± SD
Fm Theta	-3.801	.000	Experts (2.34±1.02) < Amateurs(4.74±2.82) *p<.05

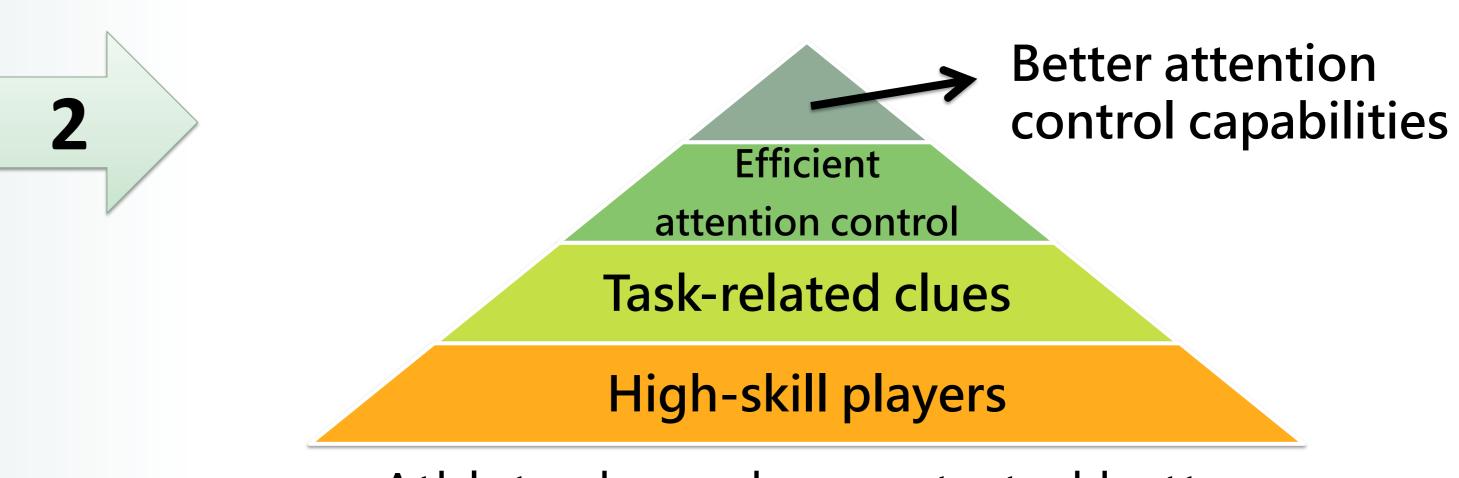
One-Way Repeated Measurement ANOVA							
Descriptive statistics		Paired comparison					
Region	Mean ± SD			p			
Fz theta	3.41±3.21	Fz theta	Cz theta	.023			
Cz theta	2.52±1.24	Cz theta	Pz theta	.000			
Pz theta	1.99±0.93	Fz theta	Pz theta	.004			
F=10.841, p=.002		Fz > Cz > Pz					

Discussion



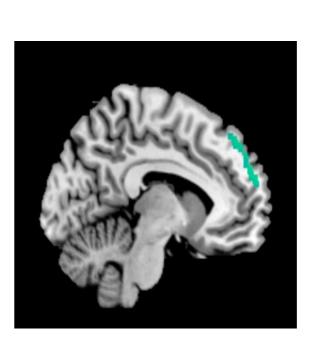


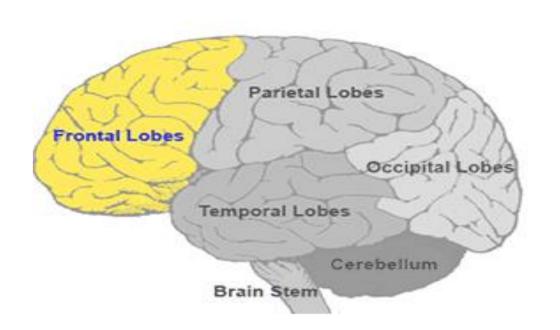
Kao et al. (2013) believe that when the skill reaches a certain level, the lower Fm θ helps facilitate the journey of automation.

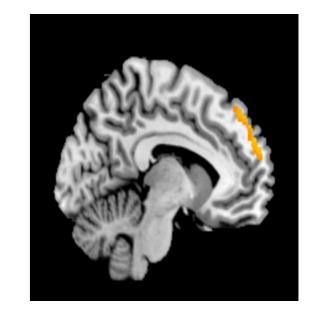


Athletes have demonstrated better attention control capabilities.









Utilizing neurofeedback to focus on the indicator of Fm theta for professional players or different skills in golf.