



**UNIVERSITI PUTRA MALAYSIA**

***EFFECT OF IMAGERY PRACTICE PROGRAM ON IMAGERY ABILITY  
IMAGERY FUNCTION AND SELF-CONFIDENCE AMONG THAI  
SPORT SCHOOL CYCLISTS***

***RAWEEWAT RATTANAKOSES***

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**DOCTOR OF PHILOSOPHY  
UNIVERSITI PUTRA MALAYSIA**

**2013**



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By

**RAWEEWAT RATTANAKOSES**

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Fulfillment of the requirement for the degree of Doctor of Philosophy

**EFFECT OF IMAGERY PRACTICE PROGRAM ON IMAGERY ABILITY, IMAGERY  
FUNCTION, SELF-CONFIDENCE AMONG THAI SPORT SCHOOL CYCLISTS**

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**March 2013**

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The purpose of the study was to examine the imagery program among cycling student at Thailand Sport School. Thailand's cyclists were unable to achieve excellent performance due to the athletes' weakness in their mental strategies as well as physical fitness condition. The specific objective of the study were to identify the differences between pre-test, post-test 1 and post-test 2 scores on imagery ability, visual (VI) and kinesthetic (KI), imagery functions: cognitive general (CG), cognitive specific (CS), motivation specific (MS), motivation general-mastery (MG-M), motivation general-arousal (MG-A), self-confidence (SC) and Timing for Riding Bike 2 km (TRB 2 km). A group of 66 cycling-students, 46 male and 20 female were randomly assigned into equally experiment group (n=33), and control group (n=33). Both groups were studied for 10 weeks on Mondays, Wednesdays, and Fridays. Instruments of the study were imagery ability measure MIQ-R (Hall & Martin, 1997), and sport imagery questionnaire

(SIQ) consisted of 28-items to measure self-confidence. Timing of bike 2 km (TRB) was used to measure cycling skills. Data was analyzed by ANOVA was use to test the hypothesis of the study at .05 p-values. Results found that the imagery ability: visualization (VI) had increased in scores across the three different periods. There was an increase in kinesthetic (KI) scores across the three different periods. All of imagery functions (CG, CS, MS, MG-A, MG-M) had increased across the three different periods. Self-confidence (SC) had also improved in score across the three different periods, as well as the riding time 2 km (TRB). This research indicated that a physical program of cycling combined with imagery practice does improve cycling mental imagery and self-confidence. The sport school athletes perform better due to their use of mental imagery practice to enhance their mental skill through relaxation and direct imagery. Hence, coaching program of cycling should match imagery practice with the scheduled cycling routines.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah.

**KESAN PROGRAM LATIHAN IMAGERI TERHADAP KEUPAYAAN, FUNSI DAN  
KEYAKINAN DIRI DALAM KALANGAN ATLET BERBASIKAL DI SEKOLAH  
SUKAN THAILAND**

Oleh

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**Pengerusi: Professor Mohd Sofian Omar Fauzee, PhD**

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Kajian ini adalah untuk mengkaji program imageri dalam kalangan pelumba basikal di Sekolah Sukan Thailand. Pelumba basikal Thailand tidak dapat mencapai prestasi cemerlang kerana kelemahan atlet dalam strategi mental mereka serta kondisi kecergasan fizikal. Objektif spesifik kajian ini adalah untuk mengenal pasti perbezaan dari segi skor ujian pra, pasca ujian 1 dan pasca-ujian 2 dari segi keupayaan imageri, visual (VI) dan kinestetik (KI), fungsi imageri: kognitif umum (CG), kognitif tertentu (CS), motivasi tertentu (MS), motivasi umum penguasaan (MG-M), motivasi umum rangsangan (MG-A), keyakinan diri (SC) dan Masa Menunggang basikal 2 km (TRB). Sekumpulan 66 pelumba basikal, (46) lelaki dan (20) wanita dipilih secara rawak ke dalam kumpulan eksperimen (n=33), dan kawalan (n=33). Kedua-dua kumpulan dikaji selama 10 minggu iaitu pada setiap hari Isnin, Rabu, dan Jumaat. Instrumen yang digunakan dalam kajian ini adalah Pengukur Keupayaan Imageri (MIQ-R), dan Soal

Selidik Imageri Sukan (Sig) yang merangkumi 28 item untuk mengukur keyakinan diri (SC). Masa menunggang basikal 2 km (TRB) telah digunakan untuk mengukur kemahiran berbasikal. Data dianalisis menggunakan Anova bagi menguji hipotesis kajian pada nilai p.05. Hasil kajian mendapati skor keupayaan imageri: visualisasi (VI) telah meningkat dalam tiga tempoh yang berbeza. Terdapat peningkatan skor kinestetik (KI) dalam ketiga-tiga tempoh yang diukur. Kesemua fungsi imageri (CG, CS, MS, MG-A, MG-M) telah meningkat dalam ketiga-tiga tempoh yang berbeza. Skor keyakinan diri (SC) juga telah meningkat skor merentasi tiga tempoh yang berbeza, begitu juga masa menunggang basikal 2 km (TRB). Kajian ini menunjukkan bahawa gabungan program berbasikal fizikal dengan amalan imageri dapat meningkatkan prestasi imageri mental dan keyakinan diri. Prestasi atlet sekolah sukan semakin baik disebabkan mereka menggunakan amalan imageri mental bagi meningkatkan kemahiran mental melalui relaksasi dan imageri secara langsung. Oleh itu, program latihan pelumba basikal perlu dipadankan dengan latihan imageri dalam rutin jadual berbasikal.

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Raweewat Rattanakoses

I certify that a Thesis Examination Committee has met on 14 March 2013 to conduct the final examination of Mr. Rawewat Rattanakoses on his thesis entitled “Effects of Imagery Practice Program on Imagery Ability, Imagery Function and Self-confidence among Thai Sport School Cyclists” in accordance with the Universities and University Colleges Act 1971 and Constitution of the Universiti Putra Malaysia [P.U. (A) 106 15 March 1998]. The Committee recommends that the student be awarded the Doctor of Philosophy.

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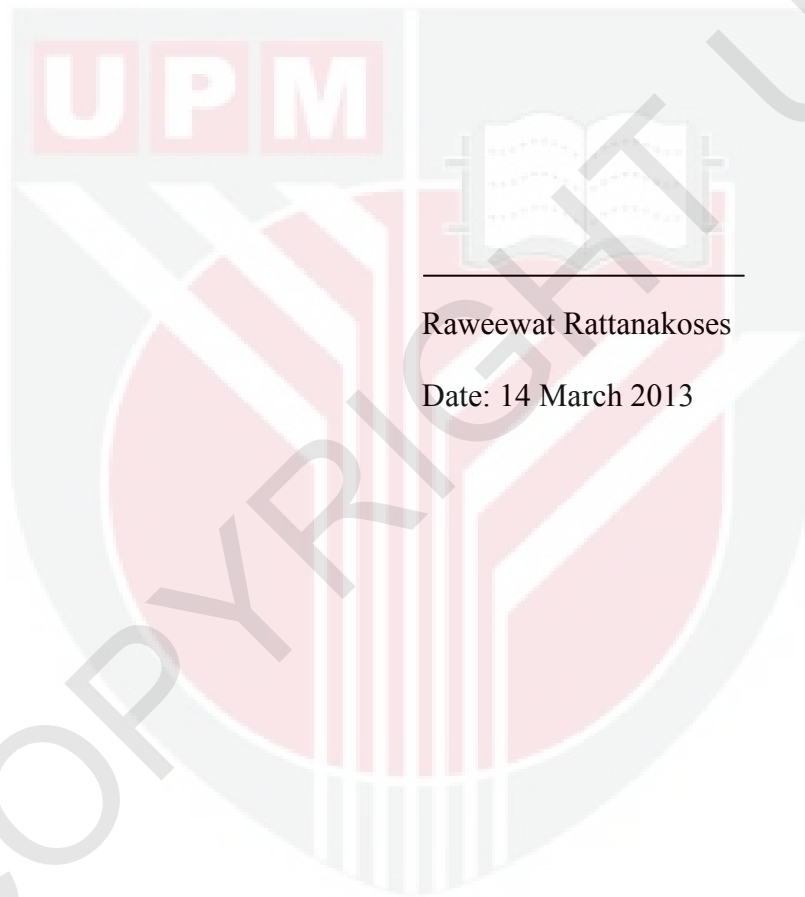
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## DECLARATION

I declare that the thesis is my work expect for quotation and citations which have been duty acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.



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Raweewat Rattanakoses

Date: 14 March 2013



## TABLE OF CONTENTS

	<b>Page</b>
<b>ABSTRACT</b>	i
<b>ABSTRAK</b>	iii
<b>ACKNOWLEDGEMENTS</b>	v
<b>APPROVAL</b>	vii
<b>DELARTION</b>	ix
<b>LIST OF TABLES</b>	xiii
<b>LIST OF FIGURES</b>	xv
<b>CHAPTER</b>	
<b>1 INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Statement of the Problem	7
1.3 Objective of the Study	11
1.4 Research Questions	12
1.5 Research Hypothesis	13
1.6 Significant of the Study	14
1.7 Limitations of the Study	16
1.8 Definitions of Terms	17
1.9 Research Framework	20
<b>2 LITERATURE REVIEW</b>	<b>21</b>
2.1 Introduction	21
2.2 Thailand Sport Schools	23
2.3 Overview of the Imagery	27
2.3.1 The perspective of imagery	27
2.3.2 The implication of imagery on sports performance	30
2.4 Research Variables	36
2.4.1 Imagery Ability	37
2.4.1.1 Visual ability	38
2.4.1.2 Kinesthetic ability	39
2.5 Imagery Functions	40
2.6 Self-confidence	43
2.7 Cycling Performance and Relation Aerobic Exercise	47
2.8 Related Imagery Theories	56
2.8.1 Psycho Neuromuscular Theory	56
2.8.2 Symbolic Learning Theory	57

	2.8.3 Bio-information Theory	58
	2.8.4 Attention and Arousal Set Theory	61
	2.8.5 PETTLEP Imagery Model	62
	2.8.6 Applied Model of Imagery	66
	2.9 Summary of Research Literature on Imagery	68
	2.10 Summary of Literature	80
<b>3</b>	<b>METHODOLOGY</b>	<b>82</b>
	3.1 Introduction	82
	3.2 Research Design	83
	3.3 The Imagery Practice Program	85
	3.4 Subject and Sampling of the Study	87
	3.5 Sample Size	88
	3.6 Instrumentations	89
	3.6.1 The movement imagery questionnaire (MIQ-R)	89
	3.6.2 Sport imagery questionnaire (SIQ)	90
	3.6.3 Self-confidence questionnaire (SC)	92
	3.6.4 Cycling 2 km Time Trial (timing riding bike 2 km)	92
	3.7 Pilot Test	93
	3.8 Design Procedure	94
	3.9 Data Analysis	99
<b>4</b>	<b>RESULTS</b>	<b>102</b>
	4.1 Introduction	102
	4.2 Descriptive Data Analysis	103
	4.2.1 Maturation	105
	4.2.2 Study conditions	105
	4.2.3 Sports experiences	105
	4.2.4 Sport ability	105
	4.2.5 Training intensity	106
	4.2.6 Sleeping condition	106
	4.2.7 Physical fitness levels	106
	4.2.8 History of healthy	107
	4.2.9 Personality	107
	4.3 Hypothesis Tests	107
	4.3.1 Visual (VI)	107
	4.3.2 Kinesthetic (KI)	110
	4.3.3 Cognitive specific (CS)	112
	4.3.4 Cognitive general (CG)	114
	4.3.5 Motivation specific (MS)	115

4.3.6	Motivation general-arousal (MG-A)	119
4.3.7	Motivation general-mastery (MG-M)	122
4.3.8	Self-confidence (SC)	125
4.3.9	Timing riding bike 2 km (TRB 2 km)	128
<b>5</b>	<b>DISCUSSION CONCUSSION AND SUGGESTION</b>	<b>132</b>
5.1	Introduction	132
5.2	Discussion Hypothesis Test	132
5.2.1	Imagery Ability	133
5.2.1.1	Visual imagery	133
5.2.1.2	Kinesthetic imagery	137
5.2.2	Imagery function finding	141
5.2.2.1	Cognitive specific	142
5.2.2.2	Cognitive general	145
5.2.2.3	Motivation specific	148
5.2.2.4	Motivation general-arousal	150
5.2.2.5	Motivation general-mastery	151
5.2.3	Self-confidence	152
5.2.4	Timing riding bike 2 km	155
5.3	Answer Research Problem	157
5.4	Research Implication	158
5.5	Theory Synthesis	158
5.6	Conclusion	160
5.7	Suggestions	161
	<b>REFERENCES</b>	<b>163</b>
	<b>APPENDICES</b>	<b>179</b>
	<b>BIODATA OF STUDENT</b>	<b>225</b>
	<b>LIST OF PUBLICATIONS</b>	<b>227</b>

## LIST OF TABLE

Table	Page
1.1: The Gold Medal tally for Cycling in the 2005 South East Asia Games	8
2.1: Thailand Sport Schools since 1996	23
2.2: Financial Support to Thailand Sport Schools: 2003-2008	24
2.3: Thailand Sport School Successfully in International Competition	25
2.4: Definition Terms and Sample of Question in Imagery the Five 41 Functions	41
2.5: Definition of PETTLEP	65
3.1: Descriptive of the Imagery Procedure used by the Experimental 86 Group (Hogg, 2002)	86
3.2 List Name of Statistics Tests	100
4.1 Background of Sample in Experimental and Control Groups	104
4.2 Results of Repeated Measure ANOVA for Visual Imagery Ability (VI)	108
4.3 Results of Repeated Measure ANOVA for Kinesthetic Imagery Ability (KI)	110
4.4 Results of Repeated Measure ANOVA for Cognitive Specific Imagery (CS)	112
4.5 Results of Repeated Measure ANOVA for Cognitive General Imagery (CG)	115
4.6 Results of Repeated Measure ANOVA for Motivation Specific Imagery (MS)	117
4.7 Results of Repeated Measure ANOVA for Motivation General-Arousal (MG-A)	120
4.8 Results of Repeated Measure ANOVA for Motivation General-Mastery (MG-M)	123



4.9: Results of Repeated Measure ANOVA for Self -confidence (SC)	126
4.10: Results of Repeated Measure ANOVA for Timing Riding Bike 2km (TRB2km)	128
4.11: Result of Mixed Repeated Multivariate Analysis of Variance (MANOVA) for Mental Imagery between Experiment and Control Groups	130



## LIST OF FIGURE

Figure	Page
2.1 PETTLEP of Motor Imagery (Holmes & Collins 2001)	65
2.2 Applied Model of Imagery Use in Sport (Martin et al., 1999)	67
3.1 Experimental Research Design	84
3.2 Flow Chart of the Research Procedure	98
4.1 Graph Estimated Marginal Means of Visual Imagery Ability (VI) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	109
4.2 Graph Estimated Marginal Means of Kinesthetic Imagery Ability (KI) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	111
4.3 Graph Estimated Marginal Means of Cognitive Specific Imagery (CS) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	114
4.4 Graph Estimated Marginal Means of Cognitive General Imagery (CG) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	116
4.5 Graph Estimated Marginal Means of Motivation Specific (MS) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	119
4.6 Graph Estimated Marginal Means of Motivation General Arousal (MG-A) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	122
4.7 Graph Estimated Marginal Means of Motivation General Mastery (MG-M) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	125
4.8 Graph Estimated Marginal Means of Self-confidence (SC) Score between Experiment and Control Groups at Week 1, Week 5, and Week 10	127

4.9 Graph Estimated Marginal Means of Timing Riding Bike 2km.  
(TRB2km) Score between Experiment and Control Groups at  
Week 1, Week 5, and Week 10

129



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## CHAPTER 1

### INTRODUCTION

#### 1.1 Introduction

The mental aspect of training by athletes is important to the development of their psychological preparation in dealing with mental stress and resistance (i.e., nervousness, fear, and or lack of focus). These are circumstances that are faced by athletes before and during competition (Weinberg & Gould, 2007), and athletes may use perspective preference related mental training (Callow & Robert, 2010). This mental training practice is a great process towards mental stability which will also help to improve the athlete's psychological skills (i.e., self-confidence, relaxation, concentration and motivation) as well as their physical skills (i.e., visualizing of the correct skills execution, improve ability, aerobic capacity and physical readiness) of athletes in training and competition. Mental imagery also helps to learn the perfectionism of behavioral for athlete (Lee, Roberts-Collins, Coughtrey, Phillips & Shafran, 2011). Morgan and Costill (1972) identified that most successful marathoners in the history of the Boston Marathon possessed an excellent psychological profile, which is a normal characteristic of excellent athletes.

Thus, this psychological profile includes the mental readiness in preparing psychological skills which includes improving self-confidence, decreasing anxiety level, increasing positive energy, coping with strategy, and the ability to perform imagery (Dominikus, Fauzee, Abdullah, Meesin, & Choosakul, 2009; Gammage & Hall, 2006; Loehr, 1986). In fact, there have been many psychological research experiments performed on motivation, self-confidence, self-concentration, self-talk, focusing, arousal, stress, anxiety, and imagery (Cleary & Zimmerman, 2001; Cornelius, Silva, Conroy, & Petersen, 1997; Darling, 2008; Eslinger, 2002; Gordon, 2004; McQuown, 2001; Weinstein, 2006; Rout, Hall, & Shapior, 2004; Thomson, 2003; Wang, Marchant, & Moriss, 2004)

Despite the numerous other mental preparation components (as mentioned above) which can be used to improve mental strength, this research will focus on only one of the component, which is the practice of imagery. Imagery practices is interesting to examine because in the study by Cumming (1998), Hall (1995), Morris, Spittle and Watt (2005), and Weinberg and Gould (2003) it was found that imagery when combined with physical training does improve sports performances. Therefore, an effective imagery (i.e., in line with Thailand's high school cyclist) should pave the way for major performances improvement (Callow & Robert, 2010). The ten weeks of imagery practice schedule in this study is to build athlete's imagery ability, imagery functions, self-confidence and improvements of cycling

performances through timing of bike riding for a distance of 2 km. On the other hand, a specific imagery cycling strategy performed by using a video and relaxation techniques (i.e., music) were also used for preparing athlete's skill on starting positions, step pedal movements, aerodynamic body position on the bike, legs muscle ride tempo, control the line principal and the skill to increase speed (i.e., Wei & Luo, 2009). Further to that, the imagery program is to improve their capability of performing imagery, self-confidence, and mastering their cycling skills. Once they have mastered these skills by imagery, this will help the riders to execute the skills smoothly and increase their aerobic endurance and the timings of bike ridings for a distance of 2 km.

Additionally, the high ability of performance among athletes can also be resumed by their imagery ability. In view of that, athletes can perform consistently because they have the ability to feel the action (i.e., as if the actual action) and increase their internal drive for success and during competition (Eslinger, 2002). The clear pictures created in their mind are designed to enable the athletes themselves to master the situation before the actual competition. In fact, the imagery is the perspective of the individual skills which consisted of two major concepts, which are; external, and internal imagery. External imagery requires the individual to self-visualize his performance like watching a movie. While, internal imagery occurs when individuals visualize themselves performing the act from inside (Stewart,

2006). The internal imagery helps to improve the execution of a skill as the individual has to use same muscle movements as the real movements. However, imagery has been proved beneficial when conducted together with physical training (Patrick & Hrycaika, 1998; Wright & Smith, 2007). Namely, imagery helps athlete to be relaxed, confident and thus improves their performances. If the athletes can master the imagery skills before a competition, it will make them more relaxed before the competition and prepare them to be more focused on recalling their skills (Tenenbaum & Eklund, 2007). Moreover, relaxation caused by imagery has certain functions such as facilitating the feeling and movements associated with real action, increasing confidence, maintaining a positive attitude, and staying in control (Hall & Martin, 1997; Martin, Morite, & Hall, 1999). According to Sisterhen (2005), in athletic situations the relaxation technique seems to be important because the performer needs to decrease anxiety level during competition. Doing so, athlete will be able to give more concentration, increase self-confidence, and be able to focus on the task during training and competition. Athletes with regular training of the imagery process shows improved performances as compared to non-trained athletes. Therefore, both relaxation and imagery techniques have met to evolve instinctively as a natural form of mental practice. Athletes will perform better as they produce vivid images clearly while they are relaxing. Research has found that adopting the combination of relaxation and imagery, will increase a relax stage of self-confidence (Handgard, Joyner, Burke, & Reimann, 2006), increase the

utilization at different skill levels (Kendall et al., 1990), improve focus (Liggett, 2000; Morris, Spittle, & Watt, 2005), and increase vividness (Howland, 2007).

Imagery can improve sport skills performance as well as enhancing self-confidence among cyclist (Callow & Hardy, 2001; Klung, 2006). According to Moritz, Hall, Martin, and Vadocz (1996), and Weinberg and Gould (2007), self-confidence improves with the effect of imagery practice where athletes develop their confidence level through internal and external imagery. In other words, the more successful their imagery is, the higher their confidence level will be. This statement is also acceptable by Omar-Fauzee, Wan Rezawana Binti Wan Daud, Rahim Abdullah, and Salleh Abd Raisid (2009) who found that those athletes with high confidence level will have more imagery ability compared to those with less confidence. A cyclist preparing for a race may feel more confident about the race if he had imagined a strategy in his mind prior to his race. (Thelma, 2008)

On the other hand, highly skilled athlete employs all functions of imagery more regularly than low skilled athletes. Likewise, International and National level athletes engage significantly more imagery than lower level athletes (Andrew & Friedl, 1998; Cumming & Hall, 2002; Gregg, 2005; Hall, 1995; Hausenblas, Hall, Rodgers, Muroe, 1999; Morris, et al., 2005; Nideffer, 1976; Stewart, 2006; Thomson, 2003). Further to that, Hausenblas, et al.,



(1999) also examined how cyclists improve their skills by focusing on aerobic exercises with imagery. Results of the study showed that there had been significant improvements in the cyclists' overall average power output when the application of mental skills and imagery were used during training and prior to the competition. Similar results were found by Patrick and Hrycaika (1998), where physical and imagery practice when performed alone resulted in poorer performance results than those individuals who conducted both physical and imagery practices together. Although, it was found that the combination of the imagery and physical practice have been proven to improve performance (i.e. Sosovec, 2004; Ziegler, 1987), unfortunately, these techniques have still not been practiced extensively by most athletes and coaches (Gordon, 2004; Omar-Fauzee et al., 2009). Therefore, it is hoped that this study will attract more coaches in Asia, especially in Thailand to perform both practices. Perhaps, the lack of understanding of how to conduct imagery among athlete and coaches is the reason for not practicing it (Eddy & Mallalieu, 2003).

In order to understand how imagery techniques work to improve performance, one should learn from the model or theory behind it. How the imagery model and theory have influenced sport performances and thus it works. According to Gill and Williams (2008), the theory of imagery is a plan on how an athlete performs mental skills and helping them to understand the relationship with other inter-related aspects, such as environment,

physical, and motor skills as a foundation to support all the perspective of the athlete's senses. Therefore, this thesis will be focusing on six imagery theories that relate to sporting performance such as psycho-neuromuscular theory, symbolic learning theory, bio-information theory, attention and arousal set theory, PETTLEP imagery model, and applied model of imagery.

## **1.2 Statement of the Problem**

Firstly, Thailand had seen successes in high level sports competition such as the 'SEA Games', 'Asian Games', and 'Olympic Games'. However, the performance of Thailand's cyclist was unimpressive as compared to their neighboring countries such as Malaysia, The Philippines, Indonesia, and Vietnam (Table 1.1). For example in the South East Asia Games in 2005, Thailand's achievements in cycling is the lowest (no gold medal) compared to four other nations; Indonesia (three gold medals), Philippines (three gold medals) Malaysia (four gold medals) and Vietnam (two gold medals). Thailand's achievements in cycling since the winning of four gold medals in the 1962's Asian Games in Bangkok, Thailand requires a thorough research from all aspects including the psychological point of view. Although, the government had provided better facilities such as Velodrom stadiums, sport schools, higher-level bicycle technologies, and more financial support, Thailand's cycling achievements have fallen short of the performance levels anticipated.

**Table 1.1. The Gold Medal tally for Cycling in the 2005 South East Asia**

**Games**

<b>Country</b>	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Total</b>
Malaysia	4	2	1	7
Philippines	3	4	2	9
Indonesia	3	3	3	9
Vietnam	2	0	3	5
<b>Thailand</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>Total</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>36</b>

Sources: Wikipedia (2005)

[http://en.wikipedia.org/wiki/Cycling\\_at\\_the\\_2005\\_Southeast\\_Asian\\_Games](http://en.wikipedia.org/wiki/Cycling_at_the_2005_Southeast_Asian_Games)

Secondly, Thailand's cyclists were unable to achieve excellent performances due to the athletes' weakness in their mental strategies as well as physical fitness coordination (Morris et al., 2005). In fact, athletes would be more likely to be successful using a combination of psychological and physical skills to improve performances, as a new method in its sports foundation and to extract some of the problems in the cycling event. With due respect, this study will further investigate whether what was suggested by Morris et al., (2005) is actually true with the Thailand high school cyclists (age between 13 to 18 years old). Therefore, to understand the psychological characteristics such as imagery, this study will adapt a ten-week imagery program from Hogg (2002) and Suinn (1980) in examining how capable are Thailand's cyclists to learn and create their own imagery ability and function to excel in their performances.

Thirdly, Sport Psychologist researchers (i.e., Hall, 2000; Mumford & Hall, 1985; Sosovec, 2004; Stephen, 1989) have found that with both the physical and imagery training the athlete's performance was improved. This generalization about the effectiveness of imagery skills towards performance improvements should also be applied to others (Hall, 2000). Thus, this suggestion should also include athletes from Asian country such as the Thailand high school cyclists. Therefore, this research will investigate the effectiveness of imagery practice with their regular cycling trainees. Thus, it will help us to understand upon which, imagery types will be used and how it grows in a ten weeks period of time. The findings will also help coaches to create better imagery programs in cycling in order to compete with other elite athletes.

Fourthly, with imagery assisted the image perceived in the athletes' mind by recreating the actual movements, including several muscles groups, nervous system, feedback from external and internal responses, and feedback of external and internal stimulus (Vealey, 2005). For instance, perspective muscle movements help to control the athlete's heart rate during periods of heavy exercise. Although, the imagery practice would force visual and kinesthetic sensory work to create a clear picture on technical and strategy of sports skill (Fried, 1998), yet it is still inadequate to understand how it works on individual sport cycling such as time performance of competitive bike riding for the distance of 2km. This is due to the fact that research on

imagery within aerobics exercise setting is limited (Hausenblas et al., 1999). Therefore, the study will examine all the consequences of the imagery feedback on the cyclist exercise.

In addition, the imagery practice has been used quite a number of times in other sports such as throwing, golf, football, hockey, weight training, gymnastics, and figure skating except cycling (Hall, Rodgers, & Barr, 1990; Hale, 1994). Therefore, due to little focus on cycling, this study will help to explore it more in order to give a wider range of knowledge in this area of study. More specifically, this study will focus on the 'cycling training program' and more precisely the Thailand Sport School students. Therefore, it is the aim of this study to create and adapt the appropriate imagery practice among high school cycling in Thailand. Thus, this investigation will apply a specific program that is applicable to Thailand's population (that has been content validated by a Sport Psychology Expert from Thailand). It is hypothesized that with the imagery practice program, the aerobic performance of the cyclist by Timing of Bike Riding for a distance of 2km it will be faster or slower).

Lastly, my thesis will investigate how this novice high school students will be able to adapt imagery program into creating the imagery ability (i.e., visuals and kinesthetic perspectives), and the five functions of imagery [i.e., cognitive general (CG), cognitive specific (SC), motivation specific (MS),

motivation general-mastery (MG-M), and motivation general-arousal (MG-A)] and self-confidence. From the findings, it is hoped that the implication of the study will produce and contribute new knowledge in this area of study.

### **1.3 Objective of the Study**

To determine the impact of psychology program training on the effects of imagery practice of cyclists on their imagery ability, imagery functions, self-confidence, and physical aerobic exercises. The following objectives were formulated to:

1. Identify the differences in pre-test, post-test 1 and post-test 2 scores on imagery ability: visual and kinesthetic between the experiment and the control group.
2. Distinguish the difference between the experimental and control group in terms of the differences between pre-test, post-test 1 and post-test 2 scores on imagery functions: cognitive general (CG), cognitive specific (CS), motivation specific (MS), motivation general-mastery (MG-M), and motivation general-arousal (MG-A).
3. Ascertain the difference between the experimental and control group in terms of the difference between pre-test, post-test 1 and post-test 2 scores on self-confidence variables: high level, middle level, and lower level.

4. Determine the difference between the experimental and control group in terms of the difference between pre-test, post-test 1 and post-test 2 scores on aerobic endurance by Timing Riding bike 2 km (TRB 2 km).

#### 1.4 Research Questions

Based on the research objectives, listed below were the research questions:

1. What are the differences between the experimental and control groups in terms of the score difference between pre-test, post-test 1 and post-test 2 score on imagery ability: visual and kinesthetic?
2. What are the differences between the experimental and control groups in terms of the score difference between pre-test, post-test 1 and post-test 2 score on imagery functions (CG), (CS), (MG), (MG-M), (MG-A) variables?
3. Are there any differences between the experimental and control groups in terms of the differences between pre-test, post-test 1 and post-test 2 score on self-confidence?
4. Are there the any differences between the experimental and control group in terms of the difference between pre-test, post-test 1 and post-test 2 scores on the aerobic endurance by the 2km Time Trial (Timing Riding Bike 2km)?

## 1.5 Research Hypothesis

The hypothesis of this study is to test the differences between the imagery practices in terms of imagery ability, imagery functions, self-confidence, and physical aerobic exercise.

Ho1: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in the imagery ability (VI) in terms of visualization between treatment and control group.

Ho2: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in imagery ability in terms of kinesthetic (KI) between treatment and control group.

Ho3: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in imagery function: cognitive general (CG) between treatment and control group.

Ho4: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in imagery function: cognitive specific (CS) between treatment and control group.

Ho5: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in imagery function: motivation specific (MS) between treatment and control group.



Ho6: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in imagery function: motivation general-mastery (MG-M) between treatment and control group.

Ho7: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in imagery function: motivation general-arousal (MG-A) between treatment and control group.

Ho8: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in self-confidence (SC) between treatment and control group.

Ho9: There are no significant differences between pre-test, post-test 1 and post-test 2 scores in the aerobic exercise by Timing Riding Bike 2 km between treatment and control group (TRB2 km).

## **1.6 Significance of Study**

Based on the findings of this study, a number of implications can be used to promote the imagery practice program to athletes in Thailand, specifically for Sports School athletes. The following is the significance of the study, which can be promoted and applied to the cyclists in Thailand's Sports Schools.

Firstly, the use of imagery practice program will persuade Sports School coaches to use the imagery program as part of the program in training their athletes in order to improve athletes' imagery ability, imagery function, self-

confidence and Time riding bike 2km. By introducing this program, I hope to improve the performances of these cyclists. Furthermore, this study will unveil ways to improve cycling techniques, cycling exercise uptake, and psychological improvements.

Secondly, based on the previous study, it has been reported that most imagery practice conducted among athletes to improve one's skill (i.e, Basketball Football, Track and Field), however, the study on improving the aerobic capacity is lacking. Thus, this study is to introduce to coaches that by using the imagery practice program it is also hypothesized to improve individual aerobic performances.

Thirdly, this study will introduce a basic understanding of the imagery by applying the test of evaluating the athlete's imagery ability (visual and kinesthetic) and imagery functions (CG, CS, MG, MG-M, MG-A). Thus, through this research it helps coaches to understand how these two basic components of imagery are expanded with the imagery practices. Therefore, it will also help the coaches to create a more systematic program of imagery for their athletes in the future.

Lastly, the study is intended to explore cyclist's imagery practice during cycling event performances to compare and capture the reason and activity that influences the mental skills in cyclist. Imagery training is the way to

support skills and their skills provide techniques in cycling events. At this point the cyclists who are weak in imagery also have lower self-confidence (Salmon, Hall, & Haslam, 1994). Thus, the study is to confirm how the imagery program is actually appropriate to be used by high school athletes from Thai culture.

## **1.7 Limitations of the Study**

There are a few limitations in terms of the research design and methodology. In this study, the Researcher has identified the limitations as stated below

1.7.1 This study used respondents in from particular Sports School in Thailand (Lampang Sport School) with small sample size. Therefore, this study cannot be generalized to all cyclists in Thailand.

1.7.2 There is the potential for bias from the Sports School; School environment, Administration policy, and the Instructor's bias. In order to minimize this limitation, the Researcher will prepare proper procedures for each category by asking permission from the Sports School and demonstrate the process to the Instructors first before starting the imagery practice program. The duration of the intervention is 10 weeks, and it will be impossible to control the external and internal variables that will affect the mental and physical condition of respondents.

The answers given by the respondents will be totally dependent on their honesty which cannot be controlled by the Researcher.

1.7.3 Furthermore, the internal threat may also affect the samples if they are interacted between each other because they have participated together in this program. However, the Researcher had taken the following precautionary step to minimize the internal threat by explaining to the Experimental Group that they should not discuss the imagery program with each other or with the Control Group during the imagery practices process. With the help of the coaches, they will also be reminded constantly not to share the imagery practices program among themselves.

1.7.4 The Researcher cannot control what answers are given by the Respondents for the imagery ability test, imagery function test, and self-confidence test. The answers to those questionnaires are up to the Respondents themselves to answer truthfully and honestly. The Researcher can only ask and remind the Respondents to answer honestly.

## **1.8 Definitions of Terms**

The terms and definition variable is to explain the meaning, of terms that are used in this study. The operations on imagination in cycling performances

are based on the literature review and the theoretical terms. All of the factors are explained below:

1.8.1 Imagery practice – Practicing an imagery program in the mind; picture skill riding, visual experience that support the individual time trial skill. All of the cyclist use this image during training programs for solution to any problems or relax before training, during competition,

1.8.2 Self-confidence–the accumulation of the athletes’ unique experiences in achieving many different things, which results in specific expectations he or she has about achieving success in a future activity. It is a vital part of an athlete’s personality (Martens, 1987)

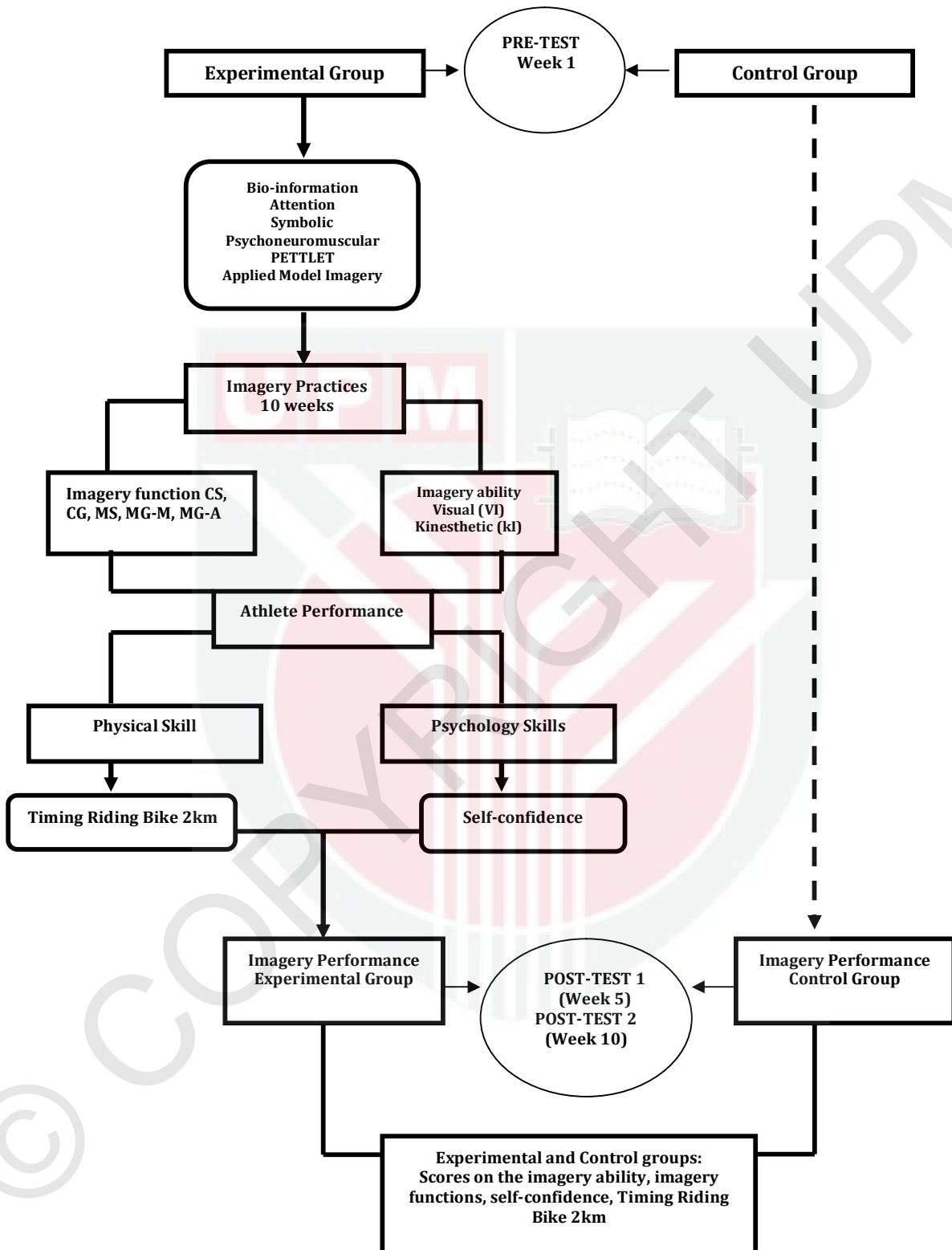
1.8.3 Imagery functions–is the imagery effect on motor performance, which are affected on both cognitive and motivation function, with each operating at a general or specific level (Cumming, 1998). The imagery functions consist of five components which are; Cognitive general imagery (CG) (the imagery of game plans, strategies of play, and routines); Cognitive specific imagery (CS) (the imagery rehearsal of skills); Motivation specific imagery (MS) (the image involving a specific goal and activities necessary for achieving those goals, which specific two type; performance and out come); Motivation general-

mastery imagery (MG-M) (the imagery use to imagine being in control and feeling confident); and Motivation general-around imagery (MG-A) (the degree of physiological arousal and emotions that might accompany the image success or failure of achieving a given goal).

1.8.4 Imagery ability- the ability imagery refers to an individual's capacity of forming vivid, controllable images and retaining them with sufficient time to effect the desired imagery rehearsal and the quality of an individual's imagery (Gregg & Hall, 2005). The imagery ability contain two major components that is visual (visual themselves forming internally or externally) and kinesthetic (their feeling of body about imagery which employ sensory recall of their own experiences including the observation)

1.8.5 Internal imagery and External perspective- the approximation of the real-life phenomenology such as the person actually imagines being inside his or her own body and experience those sensations which might be expected in the actual situation. But, external imagery refers to a person who views himself in the perspective of external observation of similar home video movies (Morris et al., 2005).

## 1.9 Research Framework



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