การเปรียบเทียบการจินตภาพในนักกีฬาประเภททักษะเปิดและทักษะปิด

Comparisons of Imagery among Closed and Open Skill Athletes

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บทคัดย่อ

งานวิจัยนี้มีวัตุประสงค์เพื่อเปรียบเทียบการจินตภาพ (ความสามารถการจินตภาพ และการใช้จินตภาพ) ในนักกีฬาประเภททักษะเปิด และทักษะปิด ผู้เข้าร่วมวิจัยเป็นนักกีฬาระดับตัวแทนจังหวัดเชียงราย จำนวน 86 คน แบ่งเป็นนักกีฬาประเภททักษะปิด จำนวน 44 คน (อายุเฉลี่ย 18.89±4.68 ปี) และนักกีฬาประเภททักษะเปิด จำนวน 42 คน (อายุเฉลี่ย 16.07±6.15 ปี) นักกีฬาทุกคนทำแบบสอบถามการจินตภาพทางการเคลื่อนไหว (Movement imagery questionnaire-revised) และแบบสอบถามการจินตภาพทางการกีฬา (Sport imagery questionnaire) ฉบับภาษาไทย เพื่อประเมินความสามารถการจินตภาพ และการใช้จินตภาพ ตามลำดับ ผลการศึกษาพบว่านักกีฬาทักษะปิดมีการใช้จินตภาพในด้านการเรียนรู้แบบเฉพาะเจาะจง (cognitive specific) มากกว่านักกีฬาทักษะเปิดอย่างมีนัยสำคัญทางสถิติ (4.59±0.90 และ 4.04±1.21 ตามลำดับ $p=.046$) ทั้งนี้นักกีฬาทักษะปิดมีแนวโน้มใช้จินตภาพในด้านอื่นๆ มากกว่านักกีฬาทักษะเปิด (ไม่มีนัยสำคัญทางสถิติ) นอกจากนี้นักกีฬาทักษะปิดมีความสามารถการจินตภาพด้านการเคลื่อนไหว (Kinesthetic) สูงกว่านักกีฬาทักษะเปิด แต่มีความสามารถการจินตภาพด้านการมองเห็น (Visual) ต่ำกว่า (ไม่มีนัยสำคัญทางสถิติ)

คำสำคัญ: จินตภาพ กีฬาทักษะปิด กีฬาทักษะเปิด

ABSTRACT

This research aimed to compare imagery (imagery ability and imagery use) among athletes who performed closed or open skills. Subjects were 86 representatives of Chiangrai province athletes divided into closed skill sport (n=44, age 18.89±4.68 years) and open skill sport (n=42, age 16.07±6.15 years). Subjects were asked to complete Thai version of movement imagery questionnaire-revised and Thai version of sport imagery questionnaire. Independence sample test showed that closed skill athletes significantly used cognitive specific imagery more often than open skill athletes (4.59±0.90 and 4.04±1.21 respectively, $p=.046$). Moreover, closed skill athletes trended to use other types of imagery more often than open skill athletes. In addition, the visual imagery ability of open skill athletes seemed to be better than that of closed skill athletes. In contrast, closed skill athletes had better kinesthetic imagery ability but without statistically significant difference.

Keyword: Imagery, Closed skill sport, Open skill sport

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INTRODUCTION

Imagery is a very popular psychological technique that affects performance in sport. It is generally refer to use all the senses created an experience in the mind (Cox, 2007). A key measurement of imagery use is the Sport Imagery Questionnaire (SIQ; Hall et al., 1998), a 30-item self-report questionnaire measuring the frequencies of athlete's imagery use with which athletes engage in five types of imagery. According to Paivio's model (2005), these imagery types include cognitive specific (CS; images of skills), cognitive general (CG; images of routines and strategies), motivational specific (MS; images of goals and responses to goals), motivational general-arousal (MG-A; images of anxiety and arousal), and motivational general-mastery (MG-M; images of confidence and mastering challenges). Moreover, imagery ability generally refers to an individual's ability to create images (Short et al., 2009). It is often measured using the movement imagery questionnaire (MIQ) or a revised version called MIQ-R (Hall et al., 1997). Both version of this questionnaire are designed to assess individual differences in both kinesthetic and visual imagery ability (Hall et al., 1997 and Short et al., 2009). It has been found that imagery can enhance athlete's performance by improved state anxiety, self-confidence and learning skill (Weinberg et al., 2003).

Sport skills consisted of closed skill and open skill sport. Closed skill is a skill performed in a stable or largely predictable environmental setting. The movement pattern for closed skill can be planned in advance. While open skill is a skill performed in an unpredictable, changing environment, which dictates how and when the skill is performed. Example of closed skill sport are athletics, swimming, shooting etc, and open skill sport are taekwondo, boxing, volleyball etc (Ong et al., 2012 and Jarvis, 2006).

The differences of those closed and open skill sports may have an effect on imagery abilities and imagery use. Very few researches investigated the differences of imagery on closed and open skill sports. Thus, this study aimed to compare imagery (imagery abilities and imagery use) among athletes who perform closed and open skills.

MATERIALS AND METHOD

The subjects were 86 representatives of Chiangrai province athletes from many types of sports (athletics, taekwondo, rugby, cycling: road race, body building, boxing, swimming, wushu, and fencing) included by purposive sampling method. They were divided into closed skill sports (athletics, body building, swimming, and wushu) and open skill sports (taekwondo, rugby, cycling: road race, boxing, and fencing). Demographic characteristics of all subjects were summarized in table 1. The average age was 18.98±4.68 and 16.07±6.15 years old for closed skill and open skill sports respectively.

Table 1: Demographic data of all subjects

	Closed skill athletes	Open skill athletes
Number of subjects (N)	44	42
Gender (Males : Females)	25:19	20:22
Age (years) (Mean±SD)	18.98±4.68	16.07±6.15
Type of sport (N : %)	Athletics (34: 77.27%)	Taekwondo (18: 45.85%)
	Body building (6: 13.63%)	Rugby (11: 29.19%)
	Swimming (2: 4.54%)	Cycling (8: 19.04%)
	Wushu (2: 4.54%)	Boxing (3: 7.14%)
		Fencing (2: 4.76%)

Subjects were asked to complete Thai version of movement imagery questionnaire-revised: Thai-MIQ-R and Thai version of sport imagery questionnaire: Thai-SIQ. Data was statistically analyzed at the 0.05 level of significant.

Imagery assessment

Imagery ability was assessed by the Thai version of movement imagery questionnaire-revised: Thai-MIQ-R (ศศิมา และกนกทิพย์, 2555). The Revised Movement Imagery Questionnaire (MIQ-R) assessed imagery abilities. MIQ-R has 8 items that measured visual imagery ability (4 items) and kinesthetic imagery ability (4 items). It scored on a 7-point Likert scale which anchored by 1 = extremely hard to see/feel and 7 = extremely easy to see/feel. The MIQ-R had adequate psychometric properties, with Test-retest reliability 0.83, internal consistency reliability of visual subscale 0.89 and kinesthetic subscale 0.88 (Hall et al., 1997). The Thai version of MIQ-R was translated and evaluated with Internal Consistency Reliability 0.80-0.82, Test-retest reliability 0.70-0.76 (ศศิมา และกนกทิพย์, 2555). (Table 2)

Imagery use was assessed by the Thai version of sport imagery questionnaire: Thai-SIQ (ศศิ-มา และกนกทิพย์, 2555). The Sport Imagery Questionnaire assessed the frequency that participants engaged in five types of imagery: CS (cognitive specific), CG (Cognitive general), MS (motivational specific), MG-A (motivational-general arousal), and MG-M (motivational-general mastery). The SIQ had 30 items and was scored on a 7-point Likert scale, which ordinarily ranged from 1 (rarely) to 7 (often). The SIQ had adequate psychometric properties with internal consistency reliability ranging from 0.70 to 0.88 (Hall et al., 1998). The Thai version of SIQ was translated and evaluated with Internal Consistency Reliability 0.95-0.96, Test-retest reliability 0.43-0.78 (ศศิมา และกนกทิพย์, 2555). (Table 2)

Table 2: Alpha Coefficient (Internal Consistency Reliability) and Coefficient of Stability (Test-Retest Reliability) of Thai-MIQ-R and Thai SIQ

Questionnaire		Alpha Coefficient (Internal Consistency Reliability)	Coefficient of Stability (Test-Retest Reliability)
Thai-MIQ-R	All 8 items:	0.80-0.82	0.70-0.76
	-Visual Scale:	0.80-0.80	0.73-0.76
	-Kinesthetic Scale:	0.80-0.82	0.70-0.76
Thai-SIQ	All 30 items:	0.95-0.96	0.43-0.78
	-Motivational Specific (MS):	0.95-0.95	0.65-0.78
	-Motivational General-Arousal (MG-A):	0.95-0.96	0.58-0.64
	-Cognitive Specific (CS):	0.95-0.95	0.53-0.64
	-Cognitive General (CG):	0.95-0.96	0.43-0.64
	-Motivational General-Mastery (MG-M):	0.95-0.95	0.65-0.69

RESULTS AND DISCUSSION

RESULTS

The study showed that there was statistically significant difference of cognitive specific (CS) imagery use between closed skill and open skill sports. Closed skill athletes used the cognitive specific imagery more often than open skill athletes. Moreover, closed skill athletes trended to use other function of imagery (motivational specific: MS, motivational-general arousal: MG-A, cognitive general: CG, and motivational-general mastery: MG-M) more often than opened skill athletes (with no statistically significant difference). In addition, there was no statistically significant difference of imagery ability between closed skill and open skill sports. The visual imagery ability of open skill athletes seemed to be better than that of closed skill athletes. In contrast, closed skill athletes trended to have a better kinesthetic imagery ability (with no statistically significant difference). (Table 3)

Table 3: Imagery ability and imagery use among closed and opened skill athletes

	Closed skill sport (N=44)	Opened skill sport (N=42)	T value*	P value*
Movement Imagery Ability				
Visual imagery	4.85±1.33	4.93±1.11	-0.288	0.070
Kinesthetic imagery	5.02±1.07	4.85±1.12	0.698	0.849

	Closed skill sport (N=44)	Opened skill sport (N=42)	T value*	P value*
Imagery Use				
Motivational Specific (MS)	4.91±1.06	4.38±1.44	1.918	0.134
Motivational General-Arousal (MG-A)	4.82±0.94	4.34±1.03	2.235	0.362
Cognitive Specific (CS)	4.59±0.90	4.04±1.21	2.386	**0.046**
Cognitive General (CG)	4.90±0.92	4.52±1.02	1.811	0.580
Motivational General-Mastery (MG-M)	5.09±0.95	4.80±1.05	1.316	0.529

Data was shown as Mean±SD

**Independent sample t test*

DISCUSSION

The key finding of present study was the statistically significant difference of cognitive specific (CS) imagery use between closed skill and open skill sports. Closed skill athletes used the cognitive specific imagery more often than open skill athletes. Moreover, closed skill athletes trended to use other function of imagery (motivational specific: MS, motivational-general arousal: MG-A, cognitive general: CG, and motivational-general mastery: MG-M) more often than opened skill athletes (with no statistically significant difference). This would indicate that closed skill athletes used all types of imagery more often than open skill athletes. Kizildag and Tiryaki, (2012) also found that the individuals with closed skill sports used more motivational general-mastery (MG-M) imagery than the individuals with open skill sports (with statistically significant difference). Moreover, the finding of Coelho et al., (2007) study suggested that imagery may be more powerful in improving performance of closed skill movements than that of open skill movements. However, Arvinen-Barroe et al., (2007) showed that athletes in open skill sports used more motivational general-mastery (MG-M) imagery than those in closed skill sports. In addition, some studies reported no difference of imagery usage between open and closed skill athletes (Highlen and Bonnie, 1983, Spittle and Morris, 2007).

Nevertheless, there was no statistically significant difference of imagery abilities between closed skill and open skill sports. The visual imagery ability of open skill athletes seemed to be better than that of closed skill athletes. In contrast, closed skill athletes had better kinesthetic imagery ability (with no statistically significant difference). Very little research investigated difference in imagery ability between open and closed skill sports. Besides, Guillot et al., (2004) reported closed skill athletes (gymnastics) showed equally how to perform visual imagery and kinesthetic imagery.

Conversely, fifty percent of open skill athletes suggested that visual imagery was more effective. The remaining 50% suggested more effective in kinesthetic imagery.

Closed skill is a skill performed in a stable situation, so athletes only focus on their skill. This may enhance imagery use easily. Moreover, focusing on skills may affect kinesthetic imagery ability which only feels their movement as the result of no opponents or changing environment. While open skill performed in a changing situation, athletes cannot only focus on their skills. These complex situations would be difficult to image. As well as less imagery use, they have to keep eyes on opponents or changing situation. This would promote their visual imagery ability.

CONCLUSION

The imagery technique seems to be widely used among closed skill athletes. This could refer that the imagery use may benefit to the performance of closed skill sports. Types of skill sports may affect visual or kinesthetic imagery ability. Closed skill sports promote kinesthetic imagery ability and open skill sports promote visual imagery ability. The results of this research could lead coaches and sport psychologists to design the proper imagery training programs among closed and open skill athletes.

ACKNOWLEDGEMENT

We would like to gratefully acknowledge that this research is successfully completed by research fund of Mae Fah Luang University.

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