The Effectiveness of Imagery and Coping Strategies in Sport Performance

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Abstract

The present study investigated the effectiveness of imagery and coping strategies in sport performance. Participants were 106 person, both male (n=42) and female (n=64) aged between 17 and 45 years old who represented the different level of participants of sport. Which is State players (n=46), National players (n=38) and District/university players (n=22) in various sports competitions. Participants completed the SIQ questionnaires to measure imagery skill while using ACSI-28 questionnaires to measure coping skill. Result showed Malay respondents is the higher interested in the study are 79 persons. Meanwhile, sports involved of respondents are others sport (archery, football/futsal, netball, rugby, hockey and athletics) which are 50%. The most level of age participated are 21 to 24 years old. Most probably, in this age level, some of them represented for national (n=38) and state (n=46). The result of this study showed that the SIQ and ACSI-28 is reliable to the respondents participated which is the Cronbach's alpha coefficients, mean and standard deviation of all the variables are presented were .932. For the ACSI-28, the participants most frequently used coping skills is the confidence (M=2.0802, SD=.5644) and the least frequently used is coachability (M=1.5519, SD=.4361). From the resulted, there were significant differences in one subscales of ACSI-28 coping with adversity between male and female, which are concentrated with *t* (106) = 2.118, p = .037. One Way ANOVA analysis subscales with level of participants result showed that all subscales imagery (SIQ) were significant differences with levels of participation. In addition five subscales ACSI-28 also were significant differences with level of participations in this study. It might be because of the participated from a national and state player (n=38, n=46). In addition, result showed only subscales coping with diversity are significant differences where p=.037 (M=2.0448, SD=.5115) compare the rest of subscales ACSI-28.

Imagery

Imagery, in the context of sport, may be considered as the voluntary or involuntary creation or re-creation of an experience generated from memorial information, involving quasisensorial, quasi-perceptional, and quasi-affective characteristics which may occur in the absence of the real stimulus

antecedents normally associated with the actual experience and which may have physiological and psychological effects on the imager, modified version of Morris, Spittle, and Watt's (2005). Furthermore, Watt, Spittle and Morris (2002) defined imagery use as the manner in which people imagine themselves in ways that can lead to learning and developing skills and can facilitate performance of those skills. It is normally assessed in terms of its cognitive and motivational attributes.

Imagery is a part of sport psychology skill (mental skill), where it effect to athletes to success in their tournament or game. In addition, many athletes and coaches today recognize the power of imagery in sport performance. In fact, athletes from most sport attribute at least part of their success to their use of imagery. This report was supported Murphy and Martin (2002), said imagery who have better in relationship between imagery ability and sport performance.

Both athletes and exercisers use imagery to aid in their performances (Haunsenblas, Hall, Rodgers & Munroe, 1999). But not all athletes are able to verbally describe exactly how they use imagery, but some can. Clearly, imagery has been useful for great athletes. This fact was supported by Anderson (2000), the imagery system can be used to help person meet some personal or performance goal, but it most effective when it is used for a specific purpose.

The concept of imagery is used in many different contexts (Khaled, 2004). Sport imagery can be defined as using all sense to re-create or create a sport experience in the mind with the goal of enhancing sport performance during training and competition (Morris, Spittle & Watt, 2005; Taylor & Wilson, 2005; Weinberg & Gould, 2007). It was explained clearly where your brain recalls and reconstructs pieces of information stored in your memory to build a meaningful image. It is means that most athletes can recall previous experiences in great vividness and detail through imagery because according to Hall, (2001) said most imagery research has concerned the effect of the cognitive rehearsal of sport skills on subsequent performance. This can be explaining by this phenomenon; a softball player may recall what it feels like hit or contact the pitched ball. Athletes can also create images of event yet to occur by piercing together bits of information already stored in their memories.

Beside imagery use for replaying it also can creating new experiences. Or in the other meaning, imagery is a product of your memory system. It meanings that athletes need to be able to manipulate the content of their imagery to create images that do what they want to do. Without strong imagery control, athletes especially those low in self-confident my find themselves repeating mistakes in their imagery. Some example of weak imagery is a softball player might see herself making critical error, or a runner might experience an overwhelming sense of fatigue in the last leg of a race. Such negative images are counterproductive, serving only to hurt performance (Beilock, Afremow, rabe, & Carr 2001; Short et al. 2002).

Imagery conducted for sport performance is referred to as sport imagery, but can be used interchangeably with the boarder term mental imagery (Taylor & Wilson, 2005). Several other terms including mental practice, mental rehearsal and visualization have also been used to refer to various components of mental imagery in sport (Morris, Spittle & Watt, 2005; Taylor & Wilson, 2005; Weinberg & Gould, 2007). Since this study will correlates the imagery and coping strategies, the followings will discuss on the coping strategies in sport.

Coping Strategies in Sport

Coping can be described in terms of strategies, tactics, responses, cognitions, or behavior. Actual coping is a phenomenon that can be noticed either by introspection or by observation, and it includes internal events as well as overt actions. According to Lazarus and Folkman (1984) have defined coping as a dynamic process of cognitive and behavioral attempts to deal with internal or external demands which are experienced as taxing or exceeding the individual's resources. With new fact, Lazarus (1991), defined cognitive and behavioral efforts to manage specific external or internal demands that are appraised as taxing or exceeding the resources of a person. So coping can be employed as one of the strategies to overcome such problem in the athletes.

Crocker, Kowalski, and Graham (1998) and Lazarus (1999) said that coping represents an individual's cognitive, affective, and behavioral efforts to manage specific external and/or internal demands. Athletes must develop a range of cognitive and behavioral coping skills to manage the competitive stressors they face (Scanlan, Stein, & Ravizza, 1991). Different coping strategies have to be employed by athletes as they face different critical situation. Kristiansen, Roberts and Abrahamsen (2007), said that different sports have different sources of stress, and consequently participants require special strategies to cope successfully in their particular field.

The Research Problem

Research finding about relationship or effect imagery and coping strategies in sport performance are lacking in Malaysia. Thus, there is lack of information where athlete has to refer/guidance. Therefore, some of problem identified in this study is that some of the athletes don't know how to be a good performer like the athlete that they adore. This might be they don't know how to used imagery and coping skill to enhance their performance. Watt, Spittle, Jaakkola, and Morris (2008) said continued evaluation of imagery use in relation to competitive level and support that task type may influence the functional use of imagery in sport. There are also cases of athletes that do not practice imagery and coping skill in their training thus this creates a negative effect as they important to be practice especially during competition. In competition the use of imagery is more frequent than in practice (Salmon, Hall & Haslam, 1994; Gregg, Hall, & Hanton, 2007), though athletes that uses imagery in conjunction with training report a positive effect (Gregg, et al., 2007).

Indeed, Imagery and coping strategies are two of a mental skill should be had of athlete to help them success in their performance. So, this study to investigate how this two mental skill (imagery and coping strategies) effective and inducing in their sport performance especially for state and national athletes (higher level participant). Nevertheless, three difference levels choose to compare these levels by using through imagery and coping skill in their performance because the probability of national athletes use these skills was better than lower level of participation. Another reason is the national athletes had a good practice in these skills.

Purpose of the study

This study aims to investigate the effectiveness of use imagery and coping strategies in sport performance among level of participation. Also to identify how athlete from higher level of participation use imagery and coping strategies to be a success athlete.

Methodology

Sample

A total of 106 respondents (42 Male, 64 female) are Malaysians athletes which difference level who willing to participate, representing a wide variety of sports (football, futsal, netball, volleyball, hockey, archery etc.) participated in this study. Imagery and coping strategies were assessed using questionnaires. However, in this study, the athletes from one of the largest University in Selangor and some outsiders (athletes) were aimed. The age level of respondents was from 17 to 45 years old (M=23.89, SD=3.373). The ethnicity of the sample was Malay (79%) and others (21% consist of Chinese, Indian and others). The sample of Malay is high due to higher percentage of Malay athletes participate in the particular sports football, futsal, netball, volleyball, hockey etc.) The others ethnicity involves are siam, kenyah, bidayuh, iban, khadazan and dusun. Athletes represent for national level (n=38, 35.8%) where involved in sport Football, archery, softball, netball, volleyball, olahraga, squash,

basketball, rugby, diving, shooting, tenpin bowling, swimming and hockey. However, state athletes is higher level participant (n=46, 43.4%) in this study.

Procedure

In this study we used quantitative data to examine the imagery (SIQ) and coping skills (ACSI-28) of athletes who participated. The questionnaires were given to the selected athletes with the various sports events. Mostly, focused to the student from one of the largest University in Selangor which is some of them participates with national team and under state program and the rest were athletes from Selangor and Kuala Lumpur area. The sessions of completing the questionnaires were took 5 minute when explanation of the purpose and information on the completion of the questionnaires. This to ensure that the athletes completed the questionnaires as required. The researcher then passed the questionnaires on to the participants to complete when they attended training sessions, tournament and competition. All of the respondents have signed the consent letter to participate in this study. But participant from the university, researcher went to the athlete's college to collect the data. The completed questionnaires were collected back after finish the sessions.

Instrumentation

The questionnaire was divided into three parts, namely: demographic variables Sport Imagery Questionnaires (SIQ) by Hall, Mack, Paivio and Hausenblas (1998) and The athletic Coping Skills Inventory-28 (ACSI-28) by Smitch, Schultz, Smo; & Placek (1995) was distributed to the selected athletes. The completed questionnaires were collected back after filled.

1. Demographic variables
Contained items that determined the age, gender, race, religion, ethnicity, sport involved, years involved and higher level representative.

2. Sport Imagery Questionnaires (SIQ)
Paivio further conceptualized the practice of imagery to be either situation specific or general in nature. Thus, Paivio's conceptual model of imagery is two-dimensional in nature. The cognitive function could be either situation-specific or general and the motivational function could be either situation-specific or general. Utilizing Paivio's two-dimensional model, Hall, Mack, Paivio and Hausenblas (1998) developed the Sport Imagery Questionnaires (SIQ) for the purpose of measuring how an athlete uses imagery. The Sport Imagery Questionnaires (SIQ; Hall et al., 1998) assesses the frequency with which participants engaged in five types of imagery: CS (Cognitive Specific- specific skill), CG (Cognitive General- game plans and strategies), MS (Motivation Specific- specifics goals and goal-oriented behaviors), MG-A (Motivation General-Arousal- arousal, anxiety and relaxation), and MG-M (Motivation General-Mastery- confidence and mental toughness). The details of the subscales are showed at figure 1. The SIQ has 30 items and is also scored on a 7-point Likert scale, which ordinarily ranges from 1 (*never/rarely*) to 7 (*often*). However, it has previously been found that having digit 1 refers to both "never" and "rarely" can be problematic for participants (Nordin & Cumming, 2006). The SIQ has adequate psychometric properties, with Cronbach's alpha coefficients ranging from 0.70 to 0.88 (Hall et al., 1998).

Figure 1: Terms and definitions of The Sport Imagery Questionnaires (SIQ; Hall et al., 1998

Sub-scales	Description
Cognitive Specific (CS)	In this type of imagery, the athlete imagines himself correctly executing a specific sport skill during competition.
Cognitive General (CG)	In this type of imagery, the athlete imagines himself reviewing team defensive strategies in sport involves.
Motivation Specific (MS)	In this type of imagery, the athlete imagines himself in a specific setting that is highly motivating.
Motivation General-Arousal (MG_A)	In this type of imagery, the athlete imagines himself in a general sport situation exhibiting the ability to control anxiety.
Motivation General-Mastery (MG_M)	In this type of imagery, the athlete imagines himself in a general sport situation exhibiting the ability to remain focused.

Source: Adapted from Paivio's two dimensional model, Hall, Mack, Paivio and Hausenblas (1998),

3. Athletic Coping Skill Inventory-28

The Athletic Coping Skill Inventory-28 (ACSI-28; Smitch, Schultz, Smo; & Placek 1995) was used to assess the psychological coping skill for each athlete. The ACSI-28 is a self-report questionnaire developed using exploratory and confirmatory factor analysis. The instruments consisted of a 28-item scale measuring' seven classes of sport-specific psychological coping skills including coping with adversity, peaking under pressure, goal setting and mental preparation, concentration; freedom from worry, confidence and achievement motivation and coachability. Individuals were asked to respond to each statement by indicating how often they experienced different situations using a 4 point scale ("0' = almost never to "3"= almost always). The subscales were found to be internally consistent with alpha levels ranging from 0.62 to 0.78 and a total (personal coping resources) scale alpha of 0.86 as reported in Smith, Schutz, Smoll & Ptacek (1995). Detail information and description about subscales or classes showed at as figure 2.

Figure 2: Terms and definitions of ACSI-28 psychological coping skills

Sub-scales	Description
Coping with adversity	Remains positive and enthusiastic even when things are going badly; remains calm and controlled; can quickly bounce back from mistakes and setbacks.
Peaking Under Pressure	Is challenged rather than threatened by pressure situations and perform well under pressure; a clutch performer.
Goal setting/mental preparation	Sets and work towards specific performance goal; plan and mentally prepares him/herself for competition and clearly has a 'game plan' for the competition.
Concentration	Not easily distracted; able to focus on the task at hand in both practice and competitive situations, even when adverse or unexpected events occur.
Freedom form Worry	Does not put pressure on him/herself by worrying about performing poorly or making mistakes; does not worry about what others will think if he/she perform poorly.
Confidence and Achievement Motivation	Is confident and positively motivated; consistently gives 100% during practice and competitions and works hard to improve his/her skills.
Coachability	Open to and learns from instruction; accepts constructive criticism without taking it personally or becoming upset.

Source: Adapted from Smith, R. E., and Christensen, D. S. (1995). Psychological skills as predictors of performance and survival in professional baseball. Journal of Sport and Exercise Psychology, 17, 399-415.

Result

All the data entry was analyzed using SPSS (Statistical Package of Social Sciences) program software version 15.0.

Demographic data

All result from analysis demographic has shown at Table 1.

Table 1: General of analysis demographic (Mean and Standard Division for demographic information of respondents)

Characteristic of Respondent	Level	Number of person	Percent (%)	Mean	Standard deviation
Age of respondent	21	11	10.4	M=23.89	SD=3.373
	22	15	14.2		
	23	25	23.6		
	24	25	23.6		
Gender	Male	42	39.6		
	Female	64	60.4		
Religion	Islam	79	74.5		
	Others	27	25.5		
Race	Malay	79	74.5		
	Others	27	25.5		
Years of experience	5 years & below	32	30.2	M=8.75	SD=4.751
	6 -10 years	39	36.8		
	11- 25 years	35	33		
Sport Involvement	Football/futsal	24	22.6	M=4.1509	SD=2.12375
	Netball	10	9.4		
	Badminton	3	2.8		
	Hockey	11	10.4		
	Volleyball	5	4.7		
	Others	53	50		
Level of participation	District/university	22	20.8	M=4.1132	SD=0.83176
	State	46	43.4		
	National	38	35.8		

Descriptive statistic

The reliability of the question is important to know whether the question reliable with respondent or not. The reliability of questions has shown as at table 2.

Table 2: Descriptive statistic of Mean, Standard deviation and reliability for subscales (Imagery and Coping strategies)

Subscales	Mean	Std. deviation	N	alpha
Imagery (Likerts scale 1 to 7)				
Cognitive specific	5.4403	.87080	106	.918
Cognitive general	5.4811	.79858	106	.916
Motivation specific	5.6509	.92426	106	.925
Motivation general_arousal	5.0708	.74178	106	.926
Motivation general_mastery	5.5519	.84589	106	.918
Coping (Likerts scale 0 to 3)				
Coping with adversity	2.0448	.51153	106	.923
Peaking under pressure	2.0094	.54655	106	.921
Goalsetting	2.0472	.57747	106	.921
Concentration	1.9245	.51774	106	.922
Freedom from worry	1.7571	.63944	106	.932
Confidence	2.0802	.56437	106	.923
Coachability	1.5519	.43605	106	.937

As table 11 revealed, the subscales of imagery reported the reliability difference. Based on the SIQ has adequate psychometric properties, with Cronbach's alpha coefficients ranging from 0.70 to 0.88 (Hall et al., 1998). Nevertheless, In term of the internal reliability of ACSI-28, consistent with alpha levels ranging from 0.62 to 0.78 and a total (personal coping resources) scale alpha of 0.86 as reported in Smith, Schutz, Smoll & Ptacek (1995).

Independent T-test

From the analysis of T-test, there were significant differences in one subscales of ACSI-28 coping with diversity between male and female, which are concentrated with T(106)=2.118, p<.05 has shown at Table 3.

Table 3: Independent sample T-test result on SIQ and ACSI-28 scale according to gender.

Subscales	Gender	N	Mean	Std. deviation	Sig	t
Coping with adversity	Male	42	2.1726	.4603	.037	2.118
	Female	64	1.9609	.5293		

(significant level, p<.05)*

One Way ANOVA (Analysis of varians)

Table 4:   One way ANOVA analysis subscales with level of participants

Subscales	Level of Participant	N	Mean	F	sig.	Turkey Post-Hoc
Imagery						
Cognitive specific (CS)	District/university	22	4.4357	9.141	.000	N>S,D
	State	46	5.2065			S>D
	National	38	5.9825			
Cognitive general (CG)	District/university	22	4.6915	8.181	.000	N>S,D
	State	46	5.2681			S>D
	National	38	5.9781			
Motivation specific (MS)	District/university	22	4.9444	5.002	.001	N>S,D
	State	46	5.3986			S>D
	National	38	6.1140			
Motivation general_arousal (MG_A)	District/university	22	4.5263	2.729	.033	N>S,D
	State	46	4.9167			S>D
	National	38	5.3202			
Motivation general_mastery (MG_M)	District/university	22	4.7617	7.828	.000	N>S,D
	State	46	5.3406			S>D
	National	38	6.0658			
Coping						
Coping with adversity (CWA)	District/university	22	1.6842	3.295	.014	N>S,D
	State	46	1.9076			S>D
	National	38	2.2434			
Peaking under pressure (PUP)	District/university	22	1.5066	3.528	.010	N>S,D
	State	46	1.9130	S>D		
	National	38	2.2303			
Goalsetting (GS)	District/university	22	1.5439	3.371	.012	N>S,D
	State	46	1.9620			S>D
	National	38	2.2763			
Concentration (CT)	District/university	22	1.5110	3.345	.013	N>S,D
	State	46	1.7989			S>D
	National	38	2.1250			
Freedom from worry (FFW)	District/university	22	1.4232	1.266	.288	N>S,D
	State	46	1.6630			S>D
	National	38	1.8355			
Confidence *(CD)*	District/university	22	1.6206	2.425	.053	N>S,D
	State	46	2.000			S>D
	National	38	2.2697			
Coachability (CA)	District/university	22	1.3838	3.843	.006	S>N,D
	State	46	1.5489			N>D
	National	38	1.4539			

(* significant level, p<.05).

As illustrated in table 4, all subscales imagery (SIQ) were significant differences with levels of participation. In addition five subscales ACSI-28 also were significant differences with level of participations in this study.

Discussion

This study attempted to examine the effectiveness imagery and coping strategies in sport performance where imagery was also found to be associated with coping strategies. The result of the study showed the total respondent participated in this study are 106 (male= 42, female=64, Malay and Muslim

respondents is the higher interested in the study are 79 persons. It might be, the population of Malay is higher than other ethnic. Meanwhile, sports involved of respondents are others sport (archery, football/futsal, netball, rugby, hockey and athletics) which are 50%. It might be the respondent more like the others sports compare to sport stated in questionnaires. The most level of age participated 21 to 24 years old. Most probably, in this age level, some of them represented for national (n=38) and state (n=46). This because, they have maximum of energy to spent for their sport and still younger compare to others.

From the resulted, there were significant differences in one subscales of ACSI-28 coping with adversity between male and female, which are concentrated with t (106) = 2.118, p = .037. It mean that the respondents can remains positive and enthusiastic even when things are going badly, remains calm and controlled and can quickly bounce back from mistakes and setbacks. Study by Tamres, Janicki and Helgeson (2002) which found that female reported greater use of coping behaviors compared to men.

One Way ANOVA analysis subscales with level of participants result showed that all subscales imagery (SIQ) were significant differences with levels of participation. It indicates that the most athletes from higher level had well in imagery skill because before the athletes goes on to represent his or her country, he or she needs to gain a lot of imagery experience through competing in tournament and training. Athletes who practice and who can master the imagery skill at the highest will have vast improvement in their sports performance. This was proved by Vealey and Greenleaf (2006), studies which have investigated the effect of imagery training have examined sport skills such as basketball shooting, volleyball serving, tennis serving, golf shots, football placekicking, figure skating, swimming starts, dart throwing, alpine skiing, karate skills, diving, trampoline skills, competitive running, dance, rock climbing and field hockey performance. Mamassis and Doganis (2004) said imagery has also been used as an intervention technique to enhance confidence. Furthermore Nordin, Cumming, Vincent and Mcgrory (2006) found that athletes use MG_M type of imagery in a deliberate way, they also found that high level athletes use more deliberate images.

Paivio (1985) developed an analytic framework that identified the functional roles through which imagery influences sport performance. The frame work indicates that imagery affects performance through both cognitive and motivational functions with each operating at a general and specific level. Motivational specific (MS) imagery use involves imaging goal and goal attainments. Cognitive general (CG) imagery entails rehearsing strategies of play and routines and cognitive specific (CS) imagery involves the rehearsal of specific skills. However, Hall and his colleagues (Hall, Mack, Paivio, & Hausenblas, 1998) later identified a fifth function of imagery use in sport when the further divided the motivational general function into motivational general_mastery (MG_M) and motivational general_arousal (MG_A) functions. MG_M imagery is used to imagine oneself in a difficult situation and then image overcoming that difficultly. The MG_A imagery function may used to control athletes emotions.

In addition five subscales ACSI-28 also were significant differences with level of participations in this study (*see Table 4*). We know that, there are national player and state player (n=38, n=46), so i think there had higher expectation in coping strategies because, based on the experienced and situation of the games, they used this skill to cope the uncontrolled situation and succeed in their sport performance. However, state and national athletes level are considered high achieves has they go long period of experience. Obviously, athletes who played their game more years were better in performance than novice. Novice and inexperienced athletes do no attain the same physiological and psychological prowess that elite athletes do (Stanley, 2004). The difference of this two level were an experience of year participated. This is because state and national athletes perceived the critical situation, change strategy quickly and had many options to cope the situation. Based on the several researchers have defined coping as the person's behavioral and cognitive actions to manage the internal and external demands experienced during a stressful situation (Skinner, Edge, Altman, & Sherwood, 2003). So, controlling the situation of the game with this skill can induce the athlete performance. Therefore, the arousal, anxiety and maturity can be enhancing.

However, result showed that subscales Coachability are significant differences with level of participant which were concentrated with $p<.05=.006$. But, the mean of coachability of state players is higher than national players. According Smith and Christensen (1995), the meaning of coachability is open to and learns from instruction; accepts constructive criticism without taking it personally or becoming upset. Therefore, this might be state player need more advice, support and guider to go further and can accept critics positively to become a national athlete. This result could be due to the fact that state level players push themselves at greater level to compete and qualify to the national level. Meanwhile the national level players might be in a comfortable zone and do not push themselves as the state players. Furthermore, state level players are more receptive to positive feedback from their coaches. It is because of this Malaysian national player still lacking and attaining gold medal at Olympic. Therefore further study should be examined.

Conclusion and Recommendations

In conclusion, result showed that there are relationships between the imagery skill and coping strategies where two of these skills affect the sport performance. These two skills are mental practice as very useful practicing for all athletes to enhancing the performance. Murphy, Nordin and Cumming (2008) said that imagery can aid learning and performance, support important psychological qualities such as self-confidence, and is characteristic of high-level performance. Besides that, according to Cox (2002), mental practice is most effective for activities that require some thinking and planning. The more they are used these skills, the more helpful mental practice will be for them and it proved by Cumming and Hall (2002) said successful and highly skilled athletes are more likely than less accomplished athletes to use imagery regularly. In addition, according Cox (2002), the higher the skill level of the athlete and the larger the cognitive component of the skill, the stronger the relationship between imagery and enhanced performance. Furthermore, the national and state athletes had more mental skill compare to novice athletes through training and game experienced. In this study, national and state players used effectively these two skill be involve in high level.

In addition, the state and national athletes had better imagery and coping strategies skill to succeed in sport performance. Researchers have found athlete of higher skill level employ all functions of imagery more frequently than athletes participating at lower skill levels. For example Cumming and Hall (2002) found provincial and national level athletes engaged in significantly more imagery than regional level athletes during the off season. These skills should be polish to every athlete in every level of participants because these skills will support the athletes through the situation they experienced while participating in tournaments. The younger athletes should practice these skills to improve and control the situation during the game. These skills are very effective to succeed in their game. However, these findings also suggest that further research in this area is likely to assist sport psychologist and coaches in developing a more thorough understanding of the importance and the effectiveness of imagery skill and coping strategies in sport performance. Therefore, this study should be conducted in large population scale and focuses more on the athletes. Maybe this study can also be done not only for level of participation but also focus in core sport in Malaysia, such as football, hockey, badminton, cycling and gymnastics.

Moreover, further study should compare the gender differences on the imagery and coping skills among the athletes (national athletes). In addition, the effect of coachability among level of athletes should also be conducted longitudinally for more effective results.

References

[1]   Anderson, M.B. (2000). Doing sport psychology *(chapter 6, doing imagery in the field).*

[2]   Beilock, S.L., Afremow, J.A., Rabe, A.L., and Carr, T.h. (2001). "Don't miss!" The debilitating effects of suppressive imagery on golf putting performance. *Journal of Sport and Exercise Psychology* 23: 200-221.

[3]   Cumming, *J., & Hall, C.R.* (2002). Deliberate *imagery* practice: The development of *imagery* skills in competitive athletes. *Journal of Sports Sciences, 20.*

[4]   Cumming, *J., & Hall, C.R.* (2002). Athletes' use of imagery in the off-season.The Sport Psychologist, *16*, 160-172.

[5]   Cox, R.H. (2002), Sport psychology concepts ad applications 5th ed. (*chapter 17, Imagery and sport performance.*)

[6]   Crocker, P.R.E., Kowalski, K.C., & Graham, T.R.(1998). Measurement of coping strategies in sport. In J.l. Duda (Ed), Advance in measurement of sport and exercise psychology (pp. 149-161). Morgantown, WV: Fitness Information Technology.

[7]   Gregg, M., Hall, C., & Hanton, S. (2007). Perceived effectiveness of heptahtletes mental imagery. *Journal of sport behavior, 40*, 398-414.

[8]   Hausenblas, H.A., Hall, C. R., Rodgers, W.M., &Munroe, K.J. (1999) Exercise imagery: its nature and measurement. *Journal of Applied Sport Psychology, 11*, 171-180.

[9]   Hall,C.R., Mack, D.E., Paivio, A., & Hausenblas, H.A (1998). Imagery use by athletes: Development of the Sport Imagery Questionnaires. *International Journal of Sport Psychology, 29*, 73-89.

[10]   Hall, C. (2001). Why athletes and exercisers use imagery. Symposium presented at the annual conference for the Association or the Advancement of Applied Sport Psychology. Oct. 3-7, 2001, Orlando, FL.

[11]   Khaled, T. (2004). The effects of mental imagery on the acquisition of motor performance: A literature review with theoretical implications. *Journal of mental imagery*, *28*, 79-114.

[12]   Kritiansen, E., Roberts, G.S., & Abrahamsen, F.E (2007). Achievement involvement and stress coping in elite wrestling. *Scandinavian Journal of Medicine & Science in Sport*.

[13]   Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.

[14]   Lazarus, R. S. (1991). Emotion and adaptation. New York: Oxford University Press.

[15]   Lazarus, R.S. (1999). *Stress and emotion*: A new synthesis New York: Springer

[16]   Mamassis, G., & Doganis, G. (2004). The effects of a mental training program on juniors pre competitive anxienty, self-confidence and tennins performance. *Journal of Applied Sport Psychology*, 16, 118-137.

[17]   Morris, T., Spittle, M., Watt, A.P. (Eds.).(2005). Technical Aids to Imagery. In *Imagery in Sport* (pp. 237-266). Champaign, IL: Human Kinetics.

[18]   Murphy, S.M., and K.A. Martin. (2002). The use of imagery in sport. In *advances in sport psychology*, 2nd ed. T.S. Horn. Champaign, IL: Human Kinetics.

[19]   Murphy, S.M., Nordin, S.M., & Cumming, J. (2008). Imagery in Sport, Exercise and Dance. In T. Horn (Ed.), *Advances in Sport Psychology* (3rd ed., pp. 297-324) Champaign, IL: Human Kinetics.

[20]   Nordin, S.M., Cumming, J. (2006). Measuring the content of dancer's images: development of the Dance Imagery Questionnaires (DIQ). *Journal of Dance Medicine and Science*, *3&4*, 85-98.

[21]   Nordin, S., Cumming, J., Vincent, J., & Mcgrory, S. (2006). Mental practice or spontaneous play? Examining which types of imagery constitute deliberate practice in sport. *Journal of applied sport psychology*, *18*, 345-362.

[22]   Paivio, A. (1985). Cognitive and motivational functions of imagery in human performance. *Canadian journal of applied sport sciences, 10*, 22s-28s.

[23]   Salmon, J.C., Hall, C., & Haslam, I. (1994). The use of imagery by soccer players. *Journal of Applied Sport Psychology, 6*, 116-133.

[24] Scanlan, T.K., stein, G.L., & Ravizza, K. (1991). An in-depth study of former elite figure skaters: III. Sources of stress. Journal of Sport and Exercise Psychology, 13, 102-120.

[25] Short, S., Bruggeman, J., Engel, S, Marback, T., Wang, L., & Willadsen, A. (2002). The effect of imagery function and imagery direction on self efficacy and performance on a golf putting task. *The sport psychologist,* 16, 48-67.

[26] SIQ Paivio's (SIQ) Questionaires by Hall, Mack, Paivio and Hausenblas (1998).

[27] Skinner, E.A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin, 129*, 216-269.

[28] Smith, R.E., Schultz, J.T., Smoll, F., & Placek, J.T. (1995). Development and validation of a multidimensional measure of sport-specific psychological skill: The Athletic Coping Skill Inventory-28. *Journal of Sport and Exercise Psychology, 17*, 379-398.

[29] Smith, R.E., Christensen, D.S. (1995). Psychology skills as predictors of performance and survival in professional baseball. *Journal of Sport and Exercise Psychology, 17*, 399-415

[30] Stanley, C.T., (2004). A comparison of coping strategies: Effects upon perceived exertion in a cycling task.

[31] Tamres, L.K., Janicki, D., & Helgeson, V.S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review, vol 6(1)*, 2-30.

[32] Taylor, J & Wilson, G. (2005). *Applying Sport Psychology: Four Perspectives.* 117-134. Champaign, IL: Human Kinetics.

[33] Vealey, R.S., & Greenleaf, C.A. (2006). Seeing is believing: Understanding and using imagery in sport. In J.M. Williams (Ed.) *Applied Sport Psychology: Personal growth to peak performance:* 5th edition. (pp. 306-348), Boston: McGraw Hill.

[34] Watt, A.P., Spittle, M., Jaakkola, T, and Morris, T. (2008) "Adopting Paivio's General Analytic Framework to Examine Imagery Use in Sport," *Journal of Imagery Research in Sport and Physical Activity*: Vol. 3: Iss. 1, Article 4.

[35] Weibull, F.G.W. (2005). *Imagery experiences in tennis: A comparison of professional and promising players* (C-level dissertation in Sport Psychology, 41-60 p.). School of Social and Health Science: University of Halmstad.

[36] Weinberg, R. & Gould, D. (2007) *Foundations of Sport ad Exercise Psychology*, (4th ed., 296-317). Champaign, IL: Human Kinetics.