World Journal of Sport Sciences 3 (3): 180-186, 2010
ISSN 2078-4724

Psychometric Properties of the Sport Imagery Questionnaire for Egyptian Children (SIQ-EC)

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Abstract: Situating sport imagery at the center of the debate on human development prospective makes the study of both evaluation and measuring significant cognitive and maturational imagery of sport children to determine the content of imagery skill at the intermediate and late stages of childhood in that it helps to identify the objective of imagery process to answer several questionable issues as follows: Does imagery process aim at identifying performance general concepts i.e. cognition and the details related to specific motional skill to improve and correct the errors of such motion, or rather, to increase self motivation to win in sport competition, arousal control, as well as to control levels of tension and anxiety ? Another question: Does it seek to build confidence and support competency to reconcentrate when committing any mistake? The study aims mainly to translate into Arabic language the sport imagery questionnaire for children (SIQ-C) which was basically invented by Hull *et al.* [1]. Linguistic relativity was considered when the scale items were translated to suit children under 14 years old at the Egyptian sport environment. Validity and reliability were performed before putting the measurement into real practice.

Key words: Sport imagery Questionnaire-Egyptian Children's (SIQ-C) % Cognitive Specific (CS) % Cognitive General(CG) % Motivational Specific (MS) % Motivational General-Arousal (MG-A) % Motivational General-Mastery (MG-M)

INTRODUCTION

The integration between physical and mental abilities is one of the basic requisites to achieve sport excellence. This integration enables us to gear the use of all possible physical and mental energies in one direction of mind operation and body in an integral frame to achieve sport competition goals.

Using imagery is important to develop physical planning dimensions, also imagery is a selective, voluntary and mental ability based on using one or more of man's senses to produce or reproduce specific skill or a definite sport situation. Imagery is a simulation experience to imitate real experience [2-8].

It differs from dreams in that imagery processes is in complete consciousness. It is a mental art that can be updated and evolved. The earlier we exercise that art, the more we will be more competent to develop performance efficiency, more self-confident and motivated to participate [9].

Recent researches have based the idea of imagery on the analytical network, like paivio [10]. Networking in this case consists of cognitive and motivation functions. These are unidirectional and general that aim at improving man performance and eradicating error They also seek the identification of general concepts relevant to performance. The researcher agrees totally with paivio that imagery is a functional mental skill that uses all senses to reconstruct or to create new cognitive experiences and motivations within human mind, these experiences can be developed and evolved to increase man motivation to win and to control arousal, tension and anxiety.

In addition, these experiences increase one's self-confidence and focus when committing errors [11]. The researcher views that the study of imagery functions is the cornerstone of understanding physical psychology approaches more specifically [12].

The researcher results emphasize the fact that sport imagery exercises positively affect games as well as sport players as it contribute to achieving performance

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excellence via creating more self-confidence and developing player's motivation for competition and better performance.

Within the frame work of the research study on the imagery content as a cognitive sport skill, the current study aims mainly at translating the English text of the measurement into Arabic as well as deriving its theoretical implication via testing both validity and reliability of the measurement.

The sport imagery questionnaire for children (SIQ-C) presented by Hull *et al.* [1] and amended by the researcher suits children under 14 years old. It seems a significant addition to the literature and application in sport psychology. The ability of measuring the child's imagery can be used as a touchstone to estimate sport child's ability to develop their cognitive content of imagery process via the mental and motivational functions of that ability. Strachan and Chandler [13] highlighted the importance of sport children having imagery strategy to correct their performance mistakes relevant to arousal control, motivation increase, self-confidence support in competition.

McCarthy *et al.* [14] stressed the fact that sport children whose age ranges between 10 to 14 years old are able to understand and to perceive strategies of mental imagery. In addition, Hull *et al.* [1] reported that the knowledge and motivation function at the young children run in parallel with sequential developmental perspective in life cycle of these children including several stages as follows: from 7 to 8 years,9 to 10 years, 11 to 12 years and 13 to 14 years. Results indicated that all sport children use their imagery for acquiring more knowledge and motivation. However their use of imagery for knowledge functions is proportionally higher than motivation ones. Female use for motivational function related to arousal is higher than males use.

Clarity of imagery and competency control is improved gradually as the child grows. Females enjoy better ability of imagery than males [11, 15]. Results presented by Munroe *et al.* [9] indicated that motivational general-Mastery increases the efficiency of team work and participation motivation at the female football team under 13 years old.

In addition, Tennis sport children imagery trained on knowledge strategies at the age of seven to 10 years improves and develops their performance [16]. The researcher emphasizes that any increase in participation motivation at school activities improves the process of learning new skills and the sense of enjoyment when sport children perform them.

Hall *et al.* [8] stressed the idea that imagery leads to an increase of maturation and more involvement into physical exercises via learning new skills and strategies.

MATERIALS AND METHODS

Participants: Comprises 14 male and female children under 14 years old, classified into three age categories: 14-13 years old / 12-11 years old / 10-9 years in Semouha Sport Club in Alexandria. Their distribution of young males to females in individual games are as follows: in tennis 14 young males to 11 young females, in squash 11 young males to 9 young females, in gymanstique 15 young males to 11 young females, in swimming 15 young males to 11, in volleyball 11 to 9 and finally in basketball 11 young males to 7 young females.

Measures: The sport imagery questionnaire for children (SIQ-C) by Hull *et al.* [1] Description: The original format of the measure implies 21 items under five main dimensions. These dimensions represent the following sport child cognitive and motivation strategies: Cognitive specific (CS), Cognitive General (CG), Motivational Specific (MS), Motivational General-Arousal (MG-A), Motivational General-Mastery (MG-M)

Procedures: Preparing imagery measures in Arabic format. Reference is made to instruction issued by International Test Commission [17] in developing test content, mechanism and interpretation of its score. These guidelines deem it necessary to base the charting of the measure steps on systematic empirical evidences. These steps run as follows:

- Consulting three carriers of Ph.Doctorship in English Department, Faculty of Arts, Alexandria University on the draft wording of the measure to revise its translation and matching it with the original English version.
- Consulting three experts on psychology who are qualified in English language to match both English and Arabic versions. They make sure of that translation emotionally agrees with the English text and carries the mental content of themes. Based on cultural relativity, the linguistic arbitration should judge the sentences of the measure according to the Egyptian culture. Amendments have been made at the final version of the questionnaire.
- Language charity and fitting have been emphasized to the target age as the questionnaire was revised by an expert on Arabic language.

Table 1: Correlation coefficient between scores of children, athletes in the application of English and Arabic

	AR		EG		
SIQ-C	SD	Mean	Mean	SD	Correlation coefficient
CS	14.112	1.133	13.111	3.222	0.731
CG	16.101	2.104	15.222	3.311	0.722
MS	12.412	3.412	13.114	3.003	0.683
MG-A	19.011	2.441	18.063	1.244	0.643
MG-M	14.001	1.434	13.113	3.332	0.763

The value of Correlation coefficient (0.64-0.76)

- A verification trials of the final form of the questionnaire is attained by experimenting the data collecting tools on 10 sport children at Smouha Club from outside the sample. These experimental group include students at the British and American schools. First, they are exposed to the English version, then after 10 minutes they are exposed to the Arabic version. Correlation coefficient is calculated between responses to English and Arabic forms. The results that the correlation values ranged between 0.64-0.76 (Table 1).

Scientific Handling of the Measure at the Egyptian Environment

Factor Validity Analysis: The measure was administered to the research sample. Factor validity analysis was conducted to extract the intercorrelation of the measured items for each dimension as well as the before and after rotation loadings on the light of Holling Analysis and the Kaiser touchstone for the salient components of the correlation matrix and rotation varimax. Summarize here the main statistical procedures:

- Statistical description of data statistical i.e. Average, derivation and skewness.
- Correlation matrix of measure items.
- Calculating loadings of items on factors before rotation.
- Calculating loadings of items on factors after rotation.
- Estimating factors of commonality and specificity.

Reliability: The measure was administered after operating factor analysis to ten sport children to extract measure reliability via estimating the value of Crunbach Alpha. It ranges between 0. 841 and 0.772. In addition, the average time to elicit response to the measure's items ranges from 15 to 25 minutes.

RESULTS AND DISCUSSION

When the researcher addresses the factors extracted from varimax rotation of the first class factors, he relies on the following assumptions:

- Following rules set by Thurston and imply that descriptive factor should be short and concise, highlighting the unique aspects of the measure, variant loadings factors with particular attention on meaningful factors.
- Accepting factors that run parallel to the established clinical facts, the extracted factors and the previous factorial distribution.
- Deciding upon the acceptance of factors whose loading significance is not less than ±3
- Exclusion of factors whose loading are fragmented into more than one factor.
- Exclusion of factor that seems complex or difficult to name it (4).

On the light of the above mentioned consideration the following is clear:

Statistical Characterization of the Sample Data (Mean-SD-Skewness): Tables 2,3,4,5 and 6 delineate the statistical description of the sample's five dimensions of the measure (CS,CG,MS,MG-A,MG-M). This reflects that the sample is moderate,non-dispersed,and naturally distributed. The skewness coefficients of the five dimensionsare(0.270-0.283)-(0.081-0.030)-(-0.190,-0.647)-(0.324-0.268)-(0.172,-0.239). These values range from ±3, a value that indicate the homogeneity of the research sample as the dimensions of the measure.

Matrix of Correlation Coefficients Between the Items: Tables 7,8,9,10 and 11 present the six values of correlation coefficients based on matrix of items of dimension number one (CS), two of these values are negative whereas the other four values are positive. In addition, two correlations are statistically significant whereas the other four are insignificant. As to the second dimension (CG) one of the six correlation coefficients values is negative whereas the other five are positive. Maenwhile, one correlation is significant whereas the other five correlations are insignificant. As to the fourth dimension MG-A, two out of six correlation coefficients are negative whereas four are positive values. Moreover, these correlations are significant whereas the other three correlations are insignificant. As to the fifth dimensions

Table 2: Statistical characterization of the sample data for CS. N =141

The statistical Variables	Mean	SD	Skewness
CS1	3.433	1.130	-0.283
cs2	2.936	1.070	0.270
CS3	3.447	1.124	-0.064
CS4	3.291	1.112	0.066

Table 3: Statistical characterization of the sample data for CG. N =141

The statistical Variables	Mean	SD	Skewness
CG1	3.149	1.146	-0.008
CG2	3.241	1.276	0.081
CG3	3.518	1.018	0.013
CG4	3.362	1.185	-0.030

Table 4: Statistical characterization of the sample data for MS. N =141

The statistical Variables	Mean	SD	Skewness
MS1	3.397	1.275	-0.196
MS2	3.589	1.184	-0.647
MS3	3.567	1.016	-0.124
MS4	3.929	1.163	-0.109

Table 5: Statistical characterization of the sample data for MG-A1. N =141

The statistical Variables	Mean	SD	Skewness
MG-A1	3.369	1.339	-0.268
MG-A2	3.248	1.326	-0.114
MG-A3	3.348	1.352	0.100
MG-A4	2.936	1.154	0.324

Table 6: Statistical characterization of the sample data for MG-M1. N =141

The statistical Variables	Mean	SD	Skewness
MG-M1	2.879	1.066	0.172
MG-M2	3.035	1.065	0.037
MG-M3	3.206	1.228	-0.096
MG-M4	3.610	1.398	-0.293
MG-M5	2.730	1.062	0.014

Table 7: Matrix of correlation coefficients between the items for CS. N =141

Items	CS1	cs2	CS3	CS4
CS1	-----			
cs2	-0.042	------		
CS3	0.179*	-0.125	-------	
CS4	0.183*	0.124	0.078	-------

** 0.01 = 0.208 * 0.05 = 0.159

Table 8: Matrix of correlation coefficients between the items for CG. N =141

Items	CG1	CG2	CG3	CG4
CG1	------			
CG2	-0.030	-------		
CG3	0.062	0.140	-------	
CG4	0.097	0.211**	0.122	-------

** 0.01 = 0.208 * 0.05 = 0.159

Table 9: Matrix of correlation coefficients between the items for MS. N =141

Items	MS1	MS2	MS3	MS4
MS1	-----			
MS2	0.237**	------		
MS3	0.205	0.302	--------	
MS4	0.149	0.088	-0.014	-------

** 0.01 = 0.208 * 0.05 = 0.159

Table 10: Matrix of correlation coefficients between the items for MG-A. N =141

Items	MG-A1	MG-A2	MG-A3	MG-A4
MG-A1	-------			
MG-A2	0.117	--------		
MG-A3	-0.099	0.103	--------	
MG-A4	0.163*	0.267**	-0.169*	--------

** 0.01 = 0.208 * 0.05 = 0.159

Table 11: Matrix of correlation coefficients between the items for MG-M. N =141

Items	MG-M1	MG-M2	MG-M3	MG-M4	MG-M5
MG-M1	----				
MG-M2	-0.015	----			
MG-M3	0.177	0.000	----		
MG-M4	0.232**	-0.072	0.276**	----	
MG-M5	-0.042	0.072	-0.127	-0.028	------

** 0.01 = 0.208 * 0.05 = 0.159

(MG-M), five out of ten correlation coefficients are negative whereas the other five are positive. However, two correlations are significant whereas eight of these correlations are insignificant.

Factors Before Rotation after Deleting Matrix: Based on Tables 12,13,14,15 and 16 that introduce values of factors before rotation, the loadings of factors run as follows:

- As to the first dimension (CS) only two factors are saturated, first with loadings from items 1, 3 and 4 with loading ratio of 0.562, 0.643 and 0.743 whereas the second with loadings from items number 2 and 4 with loading ratio of 0.572 and 0.823.
- As to the second dimension (CG) two factors are saturated: the first with items 2,3 and 4 with loadings ratio of 0.703-0.734 and 0.664 whereas the second factor has only one loading from item number 1 at a ratio of 0.909.
- As to the third dimension (MS) two factors are saturated, the first with loadings of items number 1, 2 and 3 whose ratio loadings amount to 0.672-0.734 and 0. 672 whereas the second is saturated with item number 4 with loading of 0.877.

Table 12: Factors before rotation after deleting Matrix by less 0.5 for CS

The statistical Variables	F Factor	S Factor	Extraction
CS1	0.743		0.553
cs2		0.823	0.696
CS3	0.643		0.548
CS4	0.562	0.572	0.644
Canonical Correlation	1.301	1.140	2.441
Variance Cumulative %	32.535	28.491	
T	61.026		

Table 13: Factors before rotation after deleting Matrix by less 0.5 for CG

The statistical Variables	F Factor	S Factor	Extraction
CG1		0.909	0.889
CG2	0.664		0.633
CG3	0.580		0.338
CG4	0.703		0.497
Canonical Correlation	1.335	1.023	2.357
Variance Cumulative %	33.365	25.569	
T	58.934		

Table 14: Factors before rotation after deleting Matrix by less 0.5 for MS

The statistical Variables	F Factor	S Factor	Extraction
MS1	0.672		0.498
MS2	0.734		0.560
MS3	0.672		0.643
MS4		0.877	0.856
Canonical Correlation	1.529	1.029	2.558
Variance Cumulative %	38.220	25.724	
T	63.944		

Table 15: Factors before rotation after deleting Matrix by less 0.5 for MG-A

The statistical Variables	F Factor	S Factor	Extraction
MG-A1	0.574		0.354
MG-A2	0.607	0.613	0.744
MG-A3		0.836	0.798
MG-A4	0.775		0.602
Canonical Correlation	1.399	1.099	2.498
Variance Cumulative %	34.963	27.479	
T	62.441		

Table 16: Factors before rotation after deleting Matrix by less 0.5 for MG-M

The statistical Variables	F Factor	S Factor	Extraction
MG-M1	0.616		0.440
MG-M2		0.729	0.560
MG-M3	0.697		0.491
MG-M4	0.718		0.539
MG-M5		0.650	0.509
Canonical Correlation	1.495	1.044	2.539
Variance Cumulative %	29.902	20.872	
T	50.774		

Table 17: Factors after the rotation after deleting Matrix by less 0.5 for CS

The statistical Variables	F Factor	S Factor	Extraction
CS1	0.737		0.553
cs2		0.808	0.696
CS3	0.671		0.548
CS4	0.513	0.617	0.644
Canonical Correlation	1.300	1.140	2.441
Variance Cumulative %	32.507	28.518	
T	61.026		

Table 18: Factors after the rotation after deleting Matrix by less 0.5 for CG

The statistical Variables	F Factor	S Factor	Extraction
CG1		0.939	0.889
CG2	0.729		0.633
CG3	0.563		0.338
CG4	0.684		0.497
Canonical Correlation	1.325	1.032	2.357
Variance Cumulative %	33.132	25.802	
T	58.934		

Table 19: Factors after the rotation after deleting Matrix by less 0.5 for MS

The statistical Variables	F Factor	S Factor	Extraction
MS1	0.553		0.498
MS2	0.739		0.560
MS3	0.783		0.643
MS4		0.924	0.856
Canonical Correlation	1.467	1.091	2.558
Variance Cumulative %	36.669	27.274	
T	63.944		

Table 20: Factors after the rotation after deleting Matrix by less 0.5 for MG-A

The statistical Variables	F Factor	S Factor	Extraction
MG-A1	0.562		0.354
MG-A2	0.648	0.570	0.744
MG-A3		0.856	0.798
MG-A4	0.772		0.602
Canonical Correlation	1.397	1.101	2.498
Variance Cumulative %	34.927	27.514	
T	62.441		

Table 21: Factors after the rotation after deleting Matrix by less 0.5 for MG-M

The statistical Variables	F Factor	S Factor	Extraction
MG-M1	0.660		0.440
MG-M2		0.747	0.560
MG-M3	0.690		0.491
MG-M4	0.732		0.539
MG-M5		0.706	0.509
Canonical Correlation	1.461	1.078	2.539
Variance Cumulative %	29.218	21.556	
T	50.774		

Table 22: Items for CS-CG-MS-MG.A-MG.M

Items for CS			Items for CG			Items for MS			Items for MG-A1			Items for MG-M1		
M	Items	Matrix	M	Items	Matrix	M	Items	Matrix	M	Items	Matrix	M	Items	Matrix
1	CS1	0.737	1	CG2	0.729	1	MS3	0.783	1	MG	0.772	1	MG	0.732
2	CS3	0.671	2	CG4	0.684	2	MS2	0.739	2	MG	0.648	2	MG	0.690
3	CS4	0.513	3	CG3	0.563	3	MS1	0.553	3	MG	0.562	3	MG	0.660

Reliability Internal Consistency

As to the fourth dimension, there are two factors, the first is saturated with sentences, items number 1, 2 and 4 with loadings 0. 775-0.607 and 0.574 whereas the second is saturated with sentences number 2 and 3whose loadings amount to 0.836 and 0.613.

As to the fifth dimension, there are two factors; the first becomes saturated with items number 1, 3 and 4 with loading 0. 718-0. 697 and 0. 616 whereas the second with two items number 2 and 5 where loadings are 0. 729 and 0. 650.

Factors after the Rotation after Deleting Matrix: Tables 17, 18, 19, 20 and 21 clarify loading values after factor rotation:

- As to the first factor (CS) only two factors are saturated, the first is loaded with items number 1,3and 4 with loadings of 0. 513-0.671 and 0.737 whereas the second factor is saturated with two items number 2 and 4 whose loadings are 0.808 and 0.617.
- As to the second dimension (GC) only two factors are saturated: the first with items number 2,3and 4 with loadings of 0.684-0.563 and 0.729 whereas the second is saturated with one item number 1 with loadings of 0.572 and 0. 823.
- As to the third dimension, two factors are saturated, the first with two items number 1, 2 and 3 whose loadings are 0.783-0.739 and 0.553 whereas the second factor is saturated with items number 4 whose loading amount to 0.924.
- As to the fourth dimension (MG-A) there are two factors: the first is saturated at items number 1,2 and 4 with loadings of 0.772-9.648 and 562 whereas the second factor is saturated with items number 2 and 3 with loadings of 0. 856 and 0.570.
- As to the fifth factor (MG-M) there are only two factors, the first is saturated with items number 1,3and 4 whose loadings amount to 0.732-0.690 and 0.660. In addition, the second factor is saturated with items number 2 and 5 whose loadings reach 0.747 and 0.706.

Table 23: Crunches Alpha for items the SIO-CE

(SIQ-C)	M	Items	F.A.K
CS	1	CS1	0.772
	2	CS3	
	3	CS4	
CG	1	CG2	0.815
	2	CG4	
	3	CG3	
MS	1	MS3	0.841
	2	MS2	
	3	MS1	
MG-A	1	MG-A4	0.792
	2	MG-A2	
	3	MG-A1	
MG-M	1	MG-M4	0.779
	2	MG-M3	
	3	MG-M1	

Crunches Alpha (0.842-0.772)

Items for (CS-CG-MS-MG.A-MG.M): Based on Table 22, which sentences/ items of each dimension, they run as follows:

- Dimension number 1 with items number 1, 2 and 3
- Dimension number 2 with items number 2, 3 and 4
- Dimension number 3 with items number 1, 2 and 3
- Dimension number 4 with items number 1, 2 and 4
- Dimension number 5 with items number 1, 3 and 4

Based on Table 23, Chronbach Value ranged from 0.84 to 0.77 which reflect a high degree of reliability.

The final formula of the measurer has five dimensions which imply 15 items / sentences. Each Factor has three items and enjoys high validity and reliability at the Egyptian environment.

Average time of sample answers to items of the scale ranging between 15-20 minutes.

Recommendation: The study offers the following recommendations:

- The use and application of Sport Imagery Questionnaire for Egyptian Children (SIQ.C) as its final form as a measure enjoys high validity and reliability at the Egyptian environment.

- Emphasizing the importance role of sport imagery training programs to increase child's self-confidence, support his motivation to participate in the daily school activities.
- Further studies are to be advances to relate sport imagery of children with other competitive, psychological and qualitative variables of sport children.

REFERENCES

1. Hull, C., M. Chandler and F. Hull, 2009. The sport imagery questionnaire for children. Measurement in Physical Education and Exercise Sci., 13: 93-107.
2. Shimon, M.L., 2001. Mental training in the sports field, Dar Arab Thought, Cairo, pp: 35.
3. Haslam, I.R., 2003. Imagery use and web based interventions for advanced learning in soccer. International Conference on Imagination and Education, Simon Fraser University, Vancouver, BC, Canada, July, pp: 16-19.
4. Ratb, O.K., 2007. Sport Psychology Concepts and Applications, Dar Al-Fikr El-Araby, Cairo, pp: 318-320.
5. David, S., S.D. Mellalieu, R. Thomson and C. Shearer, 2008. The Effects of an Imagery Intervention with Motivational General-Mastery Content upon Collective Efficacy Perceptions for a Novel Team Task, Imagination, Cognition and Personality, 27: 293-311.
6. MacIntyre, T.E. and A.P. Moran, 2007. A Qualitative Investigation of Imagery Use and Meta-Imagery Processes among Elite Canoe-Slalom Competitors. J. Imagery Res. Sport and Physical Activity, 2: 1-3.
7. Raweewat, R., O. Fauzee, S.K. Geok, M.C. Abdullah, C. Choosakul, M.N. Nazaruddin and H. Nordin, 2009. Evaluating the Relationship of Imagery and Self-Confidence in Female and Male Athletes, European J. Social Sci., 10: 130-131.
8. Hall, C., W. Rodgers, P. Wilson and P. Norman, 2010. Imagery Use and Self-Determined Motivations in a Community Sample of Exercisers and Non-Exercisers. J. Appl. Social Psychol., 40: 135-152.
9. Chandler, M. and C.R. Hall, 2004. Enhancing the collective efficacy of a soccer team through motivational general-mastery imagery. Imagination, Cognition and Personality, 24: 51-67.
10. Paivio, A., 1985. Cognitive and motivational functions of imagery in human performance. Canadian J. Appl. Sport Sci., 10: 22-28.
11. Wolmer, L., N. Laor and P. Torne, 1999. Image control from childhood to adolescence. Perceptual and Motor Skills, 89: 471-485.
12. Youssef, M.H., 2008. The athletes' cognitive and motivational strategies of imagery in sports field. The Fourth Regional Conference of the International Council for Health and Physical Education, Recreation and Dance expressive of the Middle East, pp: 471-489.
13. Strachan, L. and K.M. Chandler, 2006. Using Imagery to Predict Self-Confidence and Anxiety in Young Elite Athletes. Journal of Imagery Research in Sport and Physical Activity, 1: 1-19.
14. McCarthy, J., M.V. Jones, C.G. Harwood and S. Olivier, 2010. What Do Young Athletes Implicitly Understand About Psychological Skills?. J. Clin. Sport Psychol., 4: 158-172.
15. Kosslyn, S.M., J.A. Margolis, A.M. Barrett, E.J. Goldknopf and P.F. Daly, 1990. Age differences in imagery ability. Child Development, 61: 995-1010.
16. Li-Wei, Z., M. Qi-Wei, T. Orlick and L. Zitzelsberger, 1992. The effect of mental-imagery training on performance enhancement with 7-10-year-old children. The Sport Psychol., 6: 230-241.
17. International Test Commission, 2000. ITC test adaptation guidelines. Retrieved February, April 21, 2007.http://www.intestcom.org/test_adaptation.htm