



ISSN: 2456-0057
IJPNPE 2019; SP1: 10-13
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Bhakti H Dave
Student, M.Sc Psychology,
Mount Carmel College,
Bengaluru, Karnataka, India

Durgesh Nandhinee
Assistant Professor, Department
of Psychology, St. Francis
College for Women, Hyderabad,
Telangana, India

(Special Issue- 1)
International Conference
“Sports: An Integral Component of Nation-Building”
(February 19th-20th, 2019)

Imagery ability in athletes playing indoor and outdoor sport

Bhakti H Dave and Durgesh Nandhinee

Abstract

Mental imagery is a central element in human functioning. For example, imagery is involved in the planning and execution of goal-directed movements (Jeannerod, 2001; Jeannerod & Jacob, 2005) [7, 8] and facilitates motor learning and performance (e.g., Driskell, Copper, & Moran, 1994) [3]. This study is a quantitative study with survey method. The objective of this study was to find out the difference between two types of sports (Indoor and Outdoor) in relation to Vividness of Movement Imagery Questionnaire (VMIQ). The study used a purposive sampling technique which comprises of 224 athletes, where 109 girls and 115 boys were chosen from the age group of 18 to 30 years from the academies and were divided on the basis of which sport they played whether Indoor or Outdoor sport. The results revealed that there is a significant difference found between Indoor and Outdoor sports.

Keywords: Imagery Ability, Vividness of movement imagery, Indoor & Outdoor sports

Introduction

Sports are all general forms of physical activity through which casual or organized participation, aim to use, maintain or improve physical ability and skills while providing enjoyment to participants, while in some cases it provides entertainment for spectators. Usually, there are games between two sides trying to win over each other and ensure one winner and one loser but there are some games which allow a tie game. There are hundreds of sports existing where they have single contestants as well as teams or competing individuals. In certain sports such as racing many contestants may compete, each against each other, with one winner.

Athletes use imagery for a variety of purposes other than mental practice. In sports psychology, mental imagery is used to improve athletes' cognition and motivation. Eminent athletes often create their mental imagery as if they themselves are the external observers; such ability plays an important role in sports training and performance. The psych neuromuscular theory explains imagery in these terms: elite performer can practice using imagery; they can imagine movements without performing them, although the brain interprets imagining as if they were performing them, which provides identical impulses in the brain and in the muscles. Small impulses fire from one's brain to one's muscles with the exactness that one is imagining. Imagery serves two functions, a motivational function and a cognitive function (Paivio, 1985) [12]. One of the studies investigated the use of imagery in a variety of tasks including simple association, logical thinking, mental multiplications, and discrimination judgments (Betts, 1909) [1]. Factors affecting imagery are somatic anxiety, motivation, emotions, and confidence. Athletes and coaches have considered that a factor like self-confidence is relevant for good performance. Imagery, in the context of sport, may be considered as the neural generation or regeneration of parts of a brain representation/neural

Correspondence
Bhakti H. Dave
Student, M.Sc Psychology,
MOUNT Carmel College,
Bengaluru, Karnataka, India

network involving primarily top-down sensorial, perceptual and affective characteristics, that are primarily under the conscious control of the imagery and which may occur in the absence of perceptual afference functionally equivalent to the actual sporting experience.” Previous mental imagery research has generally examined the influence of imaging specific skills upon performance (eDenis, 1985; Hall, Buckolz, & Fishburne, 1992) [4], together with the cognitive mechanisms which may underlie such effects (Murphy, 1990).

The Vividness of Movement Imagery Questionnaire is designed to measure “visual and kinesthetic imagery of a variety of motor tasks (e.g., running downhill and jumping off a high wall)” (Roberts *et al.*, 2008). There are two key characteristics of imagery ability which are vividness and controllability (Start *et al.*, 1964). For the first time, sports psychologists made an attempt to clarify concepts such as imagined movements. They pointed out that movement could be imagined from internal or external perspectives where internal perspective consisted of imagining a movement from the first-person perspective as if one was actually performing the movement and the external perspective involved seeing oneself performing the movement from the third-person perspective as if watching oneself on television. A large kinesthetic component consisted of participants to feel oneself performing the imagined movement. The perspectives were considered to be mainly visual in nature (Hall *et al.*, 1990). Imagery is a cognitive process which plays a critical role in the planning and execution of movements or actions. It is often employed to aid motor skill learning, or relearning, as well as to enhance motor performance in clinical, dance, and sport settings (Cumming *et al.* 2012) [16]. Although imagery occurs in a number of sensory factors (e.g., visual, auditory, olfactory), the focus of movement imagery is generally on visual and kinesthetic imagery, which are often experienced simultaneously (e.g., Cumming & Ste-Marie, 2001) [2]. Some of the studies revealed that the benefits of observational learning were much greater for participants with higher levels of imagery ability as some groups had already experienced the observational learning intervention from pre-test to post-test, which demonstrated high imagery ability group compared to the low imagery ability group. These findings illustrated that the effectiveness of observational learning is certainly to produce moderate vivid images. While other studies examined whether differences exist in the vividness of imagery and perspective used amongst adolescent sports performers and the results tentatively suggested that the vividness experienced for internal vividness imagery are comparable, with a slight increase in vividness (lower scores indicated greater vividness) recorded when exploiting internal vividness imagery. Another study explored whether one could improve one’s imagery vividness and imagery ability with the help of self-modeling video and the results demonstrated imminent significance, stating that the imagery vividness of oneself could be enhanced by following a self-modeling intervention. Studies have also suggested that generally, youth sports performers could develop vivid images using both visual and kinesthetic modalities from internal and external perspectives.

Research Question

1. Is there a significant difference in vividness of movement imagery between indoor and outdoor sportspersons (athletes) played by the participants?

Objective

1. To find a significant difference in vividness of movement imagery between indoor and outdoor sportspersons (athletes) played by the participants

Hypotheses

1. There will be significant difference in vividness of movement imagery between indoor and outdoor sportsperson (Athletes) played by the participant.
 - a) There will be a significant difference between indoor and outdoor sports in internal visual imagery.
 - b) There will be a significant difference between indoor and outdoor sports in external visual imagery.
 - c) There will be a significant difference between indoor and outdoor sports in kinesthetic imagery.

Method

Research Design

The present study is a quantitative study with survey method. In this study, athletes are treated as Independent variable and Vividness of Movement Imagery Questionnaire (VMIQ) as dependent variable. Athletes were divided on the basis of their types of sports (indoor or outdoor game). The statistical analysis was done by adopting t- test to show a significance difference between two types of sports (i.e., indoor and outdoor). This study also aims at showing the difference between male athletes and female athletes. To collect the data, the purposive technique was used.

Operational Definition

Vividness of Movement Imagery- assesses individuals' ability to imagine themselves performing 12 simple motor tasks, from three perspectives: internal visual imagery, external visual imagery and kinesthetic imagery

Imagery- It is also called visualization or mental rehearsal. It means using all of your senses (e.g., see, feel, hear, taste, smell) to rehearse the sport in your mind.

Indoor and Outdoor Sports- Indoor games means game that are played, situated, done or used inside a building for example an indoor swimming, pool championship. It usually means any kind of games or sports organized in the building or inside the room are indoor games. Whereas, outdoor games mean the games that are played, happening or situated outside rather than in a building as an example: football, outdoor swimming, volleyball, cricket, basketball, etc.

Sample

The study consists of 224 male and female athletes who play indoor and outdoor games, age grouped between 18-30 were randomly selected from the academies of the institutions.

Inclusion criteria:

1. Participants should be of age group of 18 to 30 years
2. Participants should be athletes irrespective of any sport
3. They should be male and female athletes
4. Athletes should be playing tournaments
5. They should be literate
6. They should have played minimum at college level

Exclusion Criteria

1. Participants who do not play any sports
2. Participants who play for recreational basis
3. Those who are illiterates
4. Those who haven't played at college level

Instruments

Information Schedule

Participants were requested to fill name, age, educational qualification, and gender, the name of sport, hours of practice, the level of participation and years of experience playing the sport and Vividness of Movement Imagery Questionnaire- 2 (VMIQ-2) (Bangor Roberts *et al.* 2008)

Vividness of Movement Imagery Questionnaire-2

The VMIQ is designed to measure visual and kinesthetic imagery of a variety of motor tasks (e.g., running, downhill and jumping off a high wall). The purpose of the scale is to assess the ability to visually and kinesthetically image a variety of movements, and it comprises of 12 items and is divided into three domains, respectively. These domains are Internal Visual Imagery (IVI), External Visual Imagery (EVI) and Kinesthetic Imagery (KNI). The rating of the scale measures on a 5 point scale ranging from 1 (perfectly clear and vivid as normal vision) to 5 (no image at all, you only know that you are thinking of the skill)

Variables

Independent Variable: Type of sport- Indoor and Outdoor sports

Dependent Variable: Vividness of movement imagery

Result

Table1: Descriptive statistics and t-test of two categories of sports and dimensions of the Dependent variables.

Variables	Category of games	N	Mean	Std. Deviation	t-ratio	Sig.
VMIQ						
VMIQ Internal	Indoor	109	27.26	9.24	2.59	.01**
	Outdoor	115	24.13	8.83		
VMIQ External total	Indoor	109	31.01	9.34	2.48	.01**
	Outdoor	115	27.79	10.08		
VMIQ Kinesthetic total	Indoor	109	32.27	10.12	2.32	.02*
	Outdoor	115	28.95	11.20		

Note: *.Significant at the 0.05 level. **.Significant at the 0.01 level, VMIQ. Vividness of Movement Imagery Questionnaire. Sig. Significance, N. Number of participants.

Table 1 presents the descriptive statistics and t-ratio for the entire the questionnaire including all the domains. Vividness of Movement Imagery Questionnaire (VMIQ) consisting of three domains namely, internal visual imagery, external visual imagery, and kinesthetic imagery. In the indoor games the mean of (Internal Visual Imagery) is 27.26 and (SD = 9.24) and in outdoor games, the mean is 24.13 and (SD = 8.83). Therefore, there is a significant difference found between two types of sports ($t, 222 = 2.59, p < 0.01$) where the mean of indoor games is more than outdoor games. The mean of second domain (External Visual Imagery) is 31.01 and (SD = 9.34) for the indoor games and in outdoor games, the mean is 27.79 and (SD = 10.08). Therefore, there is a significant difference found two types of sports ($t, 222 = 2.48, p < 0.01$) where the mean of indoor games is more than outdoor games. The mean of the final domain (Kinesthetic Imagery) is 32.27 and (SD = 10.12) in indoor games and in outdoor games, the mean is 28.95 and (SD = 11.20). Therefore, there is a significant difference between two types of sports ($t, 222 = 2.32, p < 0.05$) where the mean of indoor games is more than outdoor games.

Considering the above results which revealed that there is a significant difference found between the participants who play Indoor games and Outdoor games. It means there is a significant difference between indoor and outdoor game

Procedure

This study was conducted after the measurements were selected. The questionnaire and information schedule were organized accordingly. The researcher approached colleges, academies, clubs, institutions and stadiums for the collection of data. The participants were assured that the study was purely voluntary and the individuals who agreed to the participation were requested to sign the 'Informed consent form'. Thereby, Information schedule was administered. The individuals who met the criteria were asked to fill in the questionnaire and answer every questionnaire. Before, starting the assessment the participants a good rapport was established. There was no fixed time limit; still, they were expected to finish the questionnaire within 20-30 minutes. During the assessment, the researcher gave equal attention to the participants and if any doubts arose they were answered by the investigator.

Scoring and Treatment of Data

After completion of data collection, the responses were scored by hand according to the manuals. Then the statistical treatments of the scores were done. Mean and standard deviation of the scale was obtained for the calculation of the total sample. For statistical analysis, a t-test was run so as to find a significant difference between indoor and outdoor sports as well as with the male and female athletes.

participants so far their distraction in all the three dimensions of VMIQ (Vividness of Movement Imagery Questionnaire). Therefore both the type of sports (indoor and outdoor) participants are two heterogeneous groups so far the above-mentioned dimension concerned.

Discussion

The discussion of this research is done hypothesis-wise. The first hypothesis (H1a) is accepted as there is a significant difference found in internal movement imagery more in indoor sports rather than outdoor sports. The outdoor players have many distractions leading them not to concentrate as much as of indoor players. There is more stimulation in the environment hence, as the environmental distraction increase then performance will obviously decrease. This result is corroborated by motive skill performance and physical activity in pre-school children which found that as the environmental distractions increase the motor skill performance in or school children decrease (Williams *et al.*, 2008) [15].

The second hypothesis (H1b) is accepted as there is significant difference found more in external imagery athletes playing indoor sports. Mental imagery is a quasi-perceptual experience emerging from past experience mental imagery is used to improve athlete's cognition and motivation athletes

often create their mental imagery as if they themselves are externally completing the action helping them visualize the task as it enhances their ability to do this in the actual context (Higuchi *et al.* 2011) ^[6].

The third hypothesis (H1c) is accepted as there is significant difference found between indoor and outdoor sports as it is easy for athletes playing indoor games to feel about their movements as it is confined to the small arena in contrast with outdoor sports. This finding is supported by a study on design code for indoor sports buildings (Ma, X., Jian, Y., & Cao, Y. 2006) ^[9].

Conclusion

There is a significant difference in vividness of movement imagery between indoor and outdoor sportspersons (athletes) where the indoor sportspersons indicate higher vividness of movement imagery.

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