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MENTAL IMAGERY PERSPECTIVES OF COLLEGE BASKETBALL PLAYERS IN KERALA

Thomas Tom* **Manoj T. I.****

*Astt. Prof. Dept. Phy. Edu., Mar Ivanios College, Thiruvananthapuram, Kerala-INDIA.
**Prof. Dept. Phy. Edu., Kerala Agricultural University, Thiruvananthapuram, Kerala-INDIA.
Email: tommuttathupara@gmail.com

Abstract:

The purpose of this study was to evaluate the imagery perspectives of both male and female collegiate basketball players belonging to various universities in Kerala. The sample consists of 96 university level basketball players were belonging to different colleges of four Universities in the State of Kerala. To assess the sexwise difference on sports imagery, the sport imagery Questionnaires (SIQ; Hall et al., 1998) was used. ANOVA results and Post hoc test on mental imagery dependent variables clearly show that male University basketball players were having more imagery perspective than their female counterparts. The male basketball players of Kerala University exhibited the higher imagery perspectives compared to others. MG University female basketball players score was higher when compared to others.

Keywords: Mental imagery, basketball players, gender, universities & Kerala.

Introduction:

In recent years the study of mental imagery has sparked the interest of many scholars in the field of sport psychology. It is now recognized that, in general, imagery is used daily by most people (Barr & Hall, 1992). In addition, many athletes and coaches have realized the important role that imagery plays (Salmon, Hall, & Haslam, 1994) and have incorporated its use in into their training regimens (Martin, Moritz, & Hall, 1999). In general, imagery is defined as "those quasi-sensory and quasiperceptual experiences of which we are self-consciously aware and which exist for us in the absence of those stimulus conditions that are known to produce their genuine sensory or perceptual counterparts" (Richardson, 1969, p. 2-3).

It is added that images are not totally passive reproductions but that they can be active and dynamic. In other words, they are not simply day dreams as they can actually be directed and controlled by the person who is imaging (Barr & Hall, 1992). Imagery can be used to recreate events (i.e., can be used to review something that happened in the past) or to create new events (i.e., to see things that you want to happen; Vealey & Greenleaf, 1998). From a sport perspective, imagery is seen as a key component in mental training programs for athletes (Hall, 1998). In application, imagery is a form of simulation used by athletes most often for improving skill acquisition, motivation, and performance (Martin et al., 1999).

The athletes at all levels of game have been included in imagery studies; the population of interest is to evaluate the imagery perspectives of collegiate athletes. Many patterns have been

found concerning imagery use and effectiveness within the collegiate athlete population. First, athletes at higher levels of play (i.e., collegiate level) use imagery more in practice and competition than lower level (i.e., novice) athletes. In addition, though athletes generally have reported that their imagery sessions were not very structured and not very regular, athletes at higher levels are found to be more structured and more regular in their imagery sessions than novice athletes (Munroe, Hall, Simms, &Weinberg, 1998).

One overwhelmingly common finding between many studies is that athletes at the collegiate level mainly use imagery to keep themselves motivated. Logically, since athletes at this level are most likely proficient in the skills necessary to perform well in their sport, they use imagery less as an aid in learning skills and more as a motivational tool (Hall et al., 1998). Also, since these athletes are found to use imagery more in competition than in practice it is reasoned that imagery is more likely serving to directly influence game-time performance rather than to learn skills (Munroe et al., 2000). For example, the study by Hall et al. (1998) in which the SIQ was 11 developed, it was found that the athletes surveyed reported using MG-M and MG-A imagery most. Munroe et al.'s (1998) study on Canadian collegiate athletes from a variety of sports found that although all types of imagery were used extensively, MG-M imagery was used the most by the general sample, followed by MG-A imagery. Also, in a study of NCAA Division I college athletes done by Weinberg et al. (2003), participants reported using MG-M and MG-A most and identified MG-M imagery as the most effective in enhancing physical and mental skills.

Purpose of the Study:

The purpose of the study was to evaluate the imagery perspectives of both male and female collegiate basketball players in Kerala. The results of this study will provide athletic trainers/ coaches and administrators with an understanding of the imagery usage of basketball players at the collegiate level have with them and the services they provide. More importantly, the results provide insight into the types of imagery used among collegiate basketball players of different universities. It was hypothesized that there would be a significance difference between male and female basketball players on the types of imagery they are employed. It was also hypothesized that there would be a significance difference between basketball players belonging to various universities.

Materials and Methods:

Selection of Subjects:

The sample consists of 96 male and female basketball players. The basketball players belong to different colleges of four Universities in the State of Kerala viz. Mahatma Gandhi University, Kottayam, Kerala University, Thiruvananthapuram, Calicut University, Thenjipalam and University of Kannur, Mangattuparambu. The subjects were the members of the university team selected from the intercollegiate basketball games. The player's age ranged from 17 to 23 years with a mean age of 19.98 years and a standard deviation of 2.38 years. The details of the subjects of the study were presented on Table 1.

Table: 1
Details of Participants in the study

Group		Value Label	N
Sex	1	Male	48
	2	Female	48
University	1	Kerala University	24
	2	University of Calicut	24
	3	MG University	24
	4	Kannur University	24

Instrumentation:

To assess the gendered perspective on sports imagery, the Sport Imagery Questionnaires were used. 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 scope of this study is limited to mental imagery usage by the college basketball players in Kerala.

Data Collection:

The measurement was conducted over a period of 3 weeks in November 2013. The samples were taken from the college basketball players of Kerala state who participated in the University level competitions during the 2013 - 2014 academic years. Participants are asked to respond to mental imagery questionnaire 30 items questions and it was 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).

Data Analysis

The basketball players belong to different colleges of four Universities in the State of Kerala (Mahatma Gandhi University, Kottayam, Kerala University, Thiruvananthapuram, Calicut University, Thenjipalam and University of Kannur, Mangattuparambu). The Univariate Analysis of Variance (ANOVA) was computed to assess differences on mean scores on mental imagery. The data were analysed by using SPSS Version 20.0 (SPSS Inc., Chicago, IL). Scheffe post hoc analysis was performed when statistical significance ($p < .05$) was obtained to identify pair wise differences.

Results:

Table: 2

Descriptive Statistics on sports imagery subscale- cognitive specific on genders.

Gender	University	Mean	SD	N
Male	Kerala University	5.95	.604	12
	University of Calicut	3.88	2.006	12
	MG University	5.02	1.003	12
	Kannur University	6.22	.774	12
	Total	5.26	1.505	48
Female	Kerala University	5.22	.606	12
	University of Calicut	4.69	1.023	12
	MG University	5.23	.697	12
	Kannur University	4.58	1.369	12
	Total	4.93	.987	48

Table 2 shows the descriptive statistics on sports imagery of the dependent variable i.e. cognitive specific. This involves in visualizing oneself performing specific skills. It illustrates the imagery experienced by the basketball players with regard to the dependent variable cognitive specific. This table reveals that the maximum possible score in sports imagery sub scale on cognitive specific is 7 and the minimum score is 1. In the case of male participants total mean score on this sub scale is 5.26, which is 75.14 % of the total possible maximum score; in the case of female, the total score 4.93 which is 70.43% of the maximum possible score. The table further shows that within male participants Kannur University basketball players scored the highest mean of 6.22, which is 88.86% of the maximum score possible in sub scale on cognitive specific. And in the case of other universities, male basketball players of Kerala University mean score was 5.95(85%), MG University was 5.02 (71.71%), and the lowest mean score was obtained by the players of Calicut University 3.88 (55.43%). In the case of female basketball players, MG University scored the highest 5.23 (74.71%), Kerala University mean score is 5.22 (74.57%), Calicut University mean score is 4.69 (67%) and the lowest place was scored by Kannur University female players with 4.58 (65.43%) . Considering the total mean scores among the Universities, Kerala University scored highest mean of 5.58, which was 79.71%; and the other universities like the Kannur University mean scores were 5.40 (77.14%); MG University and University Calicut scored.5.12 (73.14%) and 4.28 (61.14%) respectively.

Table: 3

Descriptive Statistics on sports imagery subscale- cognitive general of genders

Gender	University	Mean	SD	N
Male	Kerala University	6.36	.599	12
	University of Calicut	3.48	2.017	12
	MG University	5.18	.949	12
	Kannur University	6.04	.719	12
	Total	5.26	1.625	48
Female	Kerala University	5.03	.433	12
	University of Calicut	4.67	1.147	12
	MG University	4.95	.687	12
	Kannur University	4.27	1.215	12
	Total	4.73	.947	48

Table 3 shows the descriptive statistics on sports imagery of dependent variable i.e. cognitive general. This involves images of strategy and game plan related to sports competition. The table further illustrates that, within the male participants Kerala University basketball players scored the highest mean of 6.36, which is 90.86% of the maximum possible score in sub scale cognitive general and in the case of other universities, Kannur University mean score was 6.04(86.28) MG University was 5.18 (74%), and the lowest mean scored by the players of Calicut university 3.48 (49.71%). In the case of female basketball players, Kerala university scored the highest 5.03 (71.86%), MG university mean score was 4.95 (70.71%), Calicut university mean score was 4.67(66.71%) and the lowest score was obtained by the Kannur University female players with the score of 4.27(61%).

Table: 4

Descriptive Statistics on sports imagery subscale- Motivational Specific of Genders

Gender	University	Mean	SD	N
Male	Kerala University	6.00	1.114	12
	University of Calicut	3.53	2.029	12
	MG University	5.68	.592	12
	Kannur University	5.89	1.198	12
	Total	5.28	1.649	48
Female	Kerala University	5.18	.620	12
	University of Calicut	5.23	.975	12
	MG University	5.28	.803	12
	Kannur University	4.67	1.491	12
	Total	5.09	1.023	48

In Table 4 illustrates the descriptive statistics on sports imagery of dependent variable i.e. motivational specific. Motivational specific involves in visualizing oneself as winning an event, receiving a trophy or medal and being congratulated by other athletes. The table shows that,

within male participants Kerala University basketball players scored the highest mean of 6, which is 85.71% of the maximum possible score in sub scale motivational specific and in the case of other universities, Kannur University mean score was 5.89(84.14%) MG University was 5.68 (81.14%), and the lowest mean score was from the players of Calicut 3.53(50.43%). In the case of female basketball players, MG university scored the highest 5.28 (75.43%), Calicut university mean score was 5.23 (74.71%), Kerala and Kannur University scored the mean of 5.18 (74%) and 4.67 (66.71%) respectively.

Table: 5

Descriptive Statistics on sports imagery subscale- Motivational general arousal of genders

Gender	University	Mean	SD	N
Male	Kerala University	6.36	.602	12
	University of Calicut	3.33	1.508	12
	MG University	4.95	1.089	12
	Kannur University	5.74	.847	12
	Total	5.10	1.541	48
Female	Kerala University	4.68	.686	12
	University of Calicut	4.71	.786	12
	MG University	4.76	.755	12
	Kannur University	4.54	.826	12
	Total	4.67	.745	48

Table 5 shows the descriptive statistics on sports imagery of dependent variable Motivational general arousal. This imagery reflects the feelings of relaxation, stress, anxiety or arousal in relation to sports competition. The table shows that, within male participants kerala university basketball players scored the highest mean of 6.36, which is 90.86% of the maximum score possible in sub scale motivational general arousal and in the case of other universities, Kannur University mean score was 5.74(82%) MG University was 4.95(70.71%), and the lowest mean score obtained was from the players of Calicut 3.33(47.57%). In the case of female basketball players, MG university scored the highest 4.76 (68%), Calicut university mean score was 4.71 (67.29%), Kerala and Kannur university scored the mean of 4.68(66.86%) and 4.54 (64.86%) respectively.

Table: 6

Descriptive Statistics on sports imagery subscale- Motivational general mastery

Gender	University	Mean	SD	N
Male	Kerala University	6.62	.488	12
	Universityof Calicut	3.60	2.181	12
	MG University	5.33	.887	12
	Kannur University	5.88	.659	12
	Total	5.36	1.650	48
Female	Kerala University	4.89	1.484	12
	University of Calicut	5.12	.947	12
	MG University	5.52	.701	12
	Kannur University	4.31	1.114	12
	Total	4.96	1.152	48

Table 6 shows the descriptive statistics on sports imagery of dependent variable Motivational general mastery was presented. This imagery is based on visualizing oneself and mastering challenging situations. The table shows that, within male participants kerala University basketball players scored the highest mean of 6.62, which is 94.57% of the maximum possible score in sub scale motivational general mastery and in the case of other universities, Kannur University mean score was 5.88(84%), MG University was 5.33(76.14%), and the lowest mean score obtained was from the players of Calicut 3.60(51.43%). In the case of female basketball players, MG university scored the highest 5.52 (78.86%), Calicut university mean score was 5.12 (73.14%), Kerala and Kannur university scored the mean of 4.89(69.86%) and 4.31 (61.57%) respectively.

Table: 7

ANOVA on Sports Imagery sub scales between genders

Dependent Variable	Type III, S.S	df	Mean Square	F	Sig. (*p*)
Sports Imagery-Cognitive Specific	2.700	1	2.700	2.211	.141
Sports Imagery-Cognitive General	6.880[a]	1	6.880	5.922	.017*
Sports Imagery-Motivational Specific	.844[b]	1	.844	.595	.443
Sports Imagery-Motivational general Arousal	4.335[c]	1	4.335	5.039	.027*
Sports Imagery-Motivational general Mastery	3.800[d]	1	3.800	2.753	.101

*Significance at .05 level

The ANOVA result reveals that, the dependent variables of sports imagery subscales Cognitive general (F=5.922, p>0.017) and Motivational general arousal (F=5.039, p>0.027) were found significant. The other three variables of mental imagery namely; cognitive specific (F=2.211, p<0.141), Motivational specific (F=.595, p>.443) and Motivational general mastery (F=2.753, p>0.101), did not show any significant difference and further Pair wise comparison and post hoc test (LSD) was performed only on the subscales of Cognitive general and Motivational general arousal to find out which are the independent variable differ each other.

The pair wise comparison of sports imagery sub scale cognitive general and Motivational general arousal between gender with mean differences and level of significance has been presented below in table 5.8

Table: 8

Pair wise Comparisons of mental imagery Sub Scales between Sex

Dependent Variable	(I) Sex	(J) Sex	Mean Difference (I-J)	Std. Error	Sig.[b]
Cognitive general	Male (5.265)	Female (4.729)	.535*	.220	.017
	Female	Male	-.535*	.220	.017
Motivational general Arousal	Male (5.096)	Female (4.671)	.425*	.189	.027
	Female	Male	-.425*	.189	.027

*. The mean difference is significant at the .05 level. b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The pair wise comparison of sports imagery sub scales reveals that, only two variables found the significance difference between genders. In sub scale, cognitive general the total male mean score was 5.26 and female mean score was 4.72, which is having a mean difference of 0.53 and found significant at 0.01 level. This also confirm that, male having higher level of cognitive general, which is equivalent to 7.64% of the maximum possible score in sub scale cognitive general.

In Motivational general arousal the total male mean score is 5.09 and female mean score is 4.67, which having a mean difference of 0.42 and found significant at 0.02 level. This also confirm that, male having higher level of motivational general arousal, which is equivalent to 6.07% of the maximum possible score in sub scale motivational general arousal.

Table: 9

Univariate Analysis on Independent variable Universities with mental Imagery sub scales

Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig. (*p*)
Cognitive Specific	23.728[e]	3	7.909	6.476	.001*
Cognitive General	32.495	3	10.832	9.323	.000*
Motivational Specific	21.661	3	7.220	5.091	.003*
Motivational general Arousal	29.103	3	9.701	11.276	.000*
Motivational general Mastery	25.867	3	8.622	6.246	.001*

The table 9 obviously shows that, all the *p* values were found lower than 0.05 levels in all the sub scale mean scores and total imagery score between the independent variables. Further pair wise comparisons have been done to find out the significant differences between the groups in independent variables.

Table: 10

Pair wise comparison of Sports imagery subscale cognitive specific between Universities

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.[b]
Kerala University (5.583)	University of Calicut	1.30*	.319	.000
	MG University	.45	.319	.154
	Kannur University	.187	.319	.558
University of Calicut (4.283)	Kerala University	-1.30*	.319	.000
	MG University	-.842*	.319	.010
	Kannur University	-1.11*	.319	.001
MG University (5.125)	Kerala University	-.45	.319	.154
	University of Calicut	.84*	.319	.010
	Kannur University	-.271	.319	.398
Kannur University (5.396)	Kerala University	-.18	.319	.558
	University of Calicut	1.11*	.319	.001
	MG University	.27	.319	.398

*Significant at .05 levels

The pair wise comparison of sports imagery subscale cognitive specific between the universities are displayed on Table 10 and clearly revelled that mental imagery sub scale cognitive specific, significant mean difference is seen between Kerala university basketball players and

Calicut university basketball players (MD=1.30) and significant difference were also seen in MG university (MD=-.84) and Kannur university (MD=-1.11) basketball players when compared with university of Calicut. Significant mean difference were also seen between Kannur university basketball players and Calicut university basketball players (MD=1.11)

Table: 11

Pair wise comparison of Sports imagery subscale cognitive general between universities

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.[b]
Kerala University (5.692)	University of Calicut	1.613*	.311	.000
	MG University	.629*	.311	.046
	Kannur University	.537*	.311	.088
University of Calicut (4.079)	Kerala University	-1.613*	.311	.000
	MG University	-.983*	.311	.002
	Kannur University	-1.075*	.311	.001
MG University (5.062)	Kerala University	-.629*	.311	.046
	University of Calicut	.983*	.311	.002
	Kannur University	-.092	.311	.769
Kannur University (5.154)	Kerala University	-.537*	.311	.088
	University of Calicut	1.075	.311	.001
	MG University	.092	.311	.769

Table 11 shows that in Cognitive General subscale of imagery, significance mean difference was seen when Kerala university was compared with the other universities i.e. Calicut University(MD=1.613) and MG University(MD=.629) basketball players . The table further shows that significance mean difference were also found between University of Calicut and MG university (MD=-983); and Kannur university (MD= -1.075) basketball players. Significance mean difference was also seen between kannur university with kerala university (MD=-537) basketball players.

Table: 12

Pair wise comparison of Sports imagery subscale Motivational specific between Universities

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.[b]
Kerala University (5.587)	University of Calicut	1.204*	.344	.001
	MG University	.104*	.344	.763
	Kannur University	.308*	.344	.372

University of Calicut (4.383)	Kerala University	-1.204	.344	.001
	MG University	-1.100*	.344	.002
	Kannur University	-.896*	.344	.011
MG University (5.483)	Kerala University	-.104	.344	.763
	University of Calicut	1.100*	.344	.002
	Kannur University	.204	.344	.554
Kannur University (5.279)	Kerala University	-.308*	.344	.372
	University of Calicut	.896*	.344	.011
	MG University	-.204	.344	.554

Table 12 shows that mental imagery subscale motivational specific significance mean difference was seen when Kerala University was compared with other universities i.e. Calicut University(MD=1.204),MG university (MD=.104) and Kannur university(MD=.308) basketball players. Significance mean difference were also exists between Calicut university and Kannur University (-.896); and MG university (-1.100) basketball players.

Table: 13

Pair wise comparison of Sports imagery subscale Motivational general arousal between Universities

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.[b]
Kerala University (5.517)	University of Calicut	1.496*	.268	.000
	MG University	.663*	.268	.015
	Kannur University	.375*	.268	.165
University of Calicut (4.021)	Kerala University	-1.496*	.268	.000
	MG University	-.833*	.268	.003
	Kannur University	-1.121	.268	.000
MG University (4.854)	Kerala University	-.663*	.268	.015
	University of Calicut	.833	.268	.003
	Kannur University	-.288	.268	.286
Kannur University (4.854)	Kerala University	-.375*	.268	.165
	University of Calicut	1.121	.268	.000
	MG University	.288*	.268	.286

Table 13 shows that mental imagery subscale, motivational general arousal significance mean difference were seen between Kerala university and Calicut University (MD=1.496), MG University (.663) and Kannur university (MD=.375) basketball players. Significance mean difference were also exists between Calicut university and MG university (-.833) basketball players.

Table: 14

Pair wise comparison of Sports imagery subscale Motivational general mastery between universities

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.[b]
Kerala University (5.517)	University of Calicut	1.400	.339	.000
	MG University	.329*	.339	.334
	Kannur University	.667	.339	.053
University of Calicut (4.021)	Kerala University	-1.400	.339	.000
	MG University	-1.071*	.339	.002
	Kannur University	-.733	.339	.033
MG University (4.854)	Kerala University	-.329*	.339	.334
	University of Calicut	1.071*	.339	.002
	Kannur University	.337	.339	.322
Kannur University (4.854)	Kerala University	-.667	.339	.053
	University of Calicut	.733*	.339	.033
	MG University	-.337*	.339	.322

Table 14 shows that mental imagery subscale motivational general mastery, significance mean difference were seen between Kerala university and MG university (MD=.329). Significance mean difference were also seen between University of Calicut and MG university (MD=-1.071) basketball players.

Table: 15

Pair wise Comparisons of Athlete Satisfaction Sub Scales Variables between Sex

Dependent Variable	(I) Sex	(J) Sex	Mean Difference (I-J)	Std. Error	Sig.[b]
Cognitive general	Male (5.265)	Female (4.729)	.535*	.220	.017
	Female	Male	-.535*	.220	.017
Motivational general Arousal	Male (5.096)	Female (4.671)	.425*	.189	.027
	Female	Male	-.425*	.189	.027

*. The mean difference is significant at the .05 level. b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The pair wise comparison of sports imagery sub scales only two variables were found the significance difference between genders. In sub scale, cognitive general the total male mean score was 5.26 and female mean score was 4.72, which having a mean difference of 0.535 and found significant at 0.017 level. In Motivational general arousal the total male mean score was

5.09 and female mean score was 4.67, which having a mean difference of 0.42 and found significance at 0.05 level.

Table: 16

Univariate Analysis on Independent variable Universities with Imagery

Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig. *(p)*
Cognitive Specific	23.728[e]	3	7.90	6.47	.001
Cognitive General	32.495	3	10.83	9.33	.000
Motivational Specific	21.661	3	7.22	5.09	.003
Motivational general Arousal	29.103	3	9.70	11.27	.000
Motivational general Mastery	25.867	3	8.62	6.24	.001

The table obviously shows that, all the p values were found lower than 0.05 level, in all the sub scale scores and total imagery score between independent variables. Further pair wise comparisons have been done to find out the significant differences between independent variables (between universities).

The pair wise comparison of sports imagery subscale cognitive specific between the universities significant mean difference were seen between Kerala university basketball players and of Calicut university basketball players and significant mean difference were also seen between MG University and Kannur university basketball players when compared with university of Calicut. Significant mean difference is also seen between Kannur university basketball players and Calicut university basketball players In Cognitive general subscale of imagery, significance mean difference was seen when compared with Kerala University and Calicut University; and MG University basketball players. The table further shows that significance mean difference was seen between University of Calicut and MG University; and Kannur university basketball players. Significance mean difference was also seen between kannur university and Kerala university basketball players. Mental imagery subscale, motivational specific, significance mean difference was seen when Kerala University was compared withities i.e. Calicut University, MG University and Kannur university basketball players. Significance mean difference also exists between Calicut University and Kannur University and MG university basketball players. Mental imagery subscale, motivational general mastery significance mean difference were seen between Kerala University and MG University. Significance mean difference is also seen between University of Calicut and MG University.

Discussion:

The purpose of the study was to evaluate the imagery usage of college basketball players in the State of Kerala. The first hypothesis stated that, there would be a significant difference between male and female basketball players with regard to the type of imagery employed. This hypothesis was not fully supported by the result of the study and hence it was not accepted. The results revealed that, with regard to gender, significant difference exists between male and female basketball players only in terms of the mental imagery variables of cognitive general and

motivational general arousal. In addition to using imagery to learn and rehearse individual motor skills, athletes have also reportedly used imagery to learn and rehearse game plans, tactics and strategies (Feltz & Landers, 1983; Hecker & Kaczor, 1988; Paivio, 1985). It is suggested that CG imagery may be beneficial when used to rehearse game plans and strategies and for solving unexpected problems that may arise during a competitive event (Guillot & Collet, 2008). There has been a fairly limited amount of research to investigate the use of imagery to develop cognitive plans for athletic events. It is suggested that game plans and strategies may first be developed and learned through the use of Cognitive general imagery, and subsequently it is practiced mentally (Guillot & Collet, 2008).

The finding of the results reveals that the imagery differences exist in basketball players when comparing males and females. The male basketball players utilized significantly higher levels of imagery when compared to females. This finding suggests that the players of male basketball team were having more imagery usage than the players of female basketball team. The male basketball players were more experienced and had higher levels of physical fitness and that may be the reason for higher usage of imagery in sports situation more than the females. This conclusion is based on a previous study found that experience may affect the function of imagery (Munreo-Chandle & Gammage 2005). The results partially support the findings of the study conducted by Alfredo Campos (2014) that, men obtained higher scores than women on the performance tests; but no significant gender differences were observed on the imagery questionnaires.

The finding suggests that Cognitive general imagery has been shown through case study analysis to have positive effects on performance for the purpose of game plans/strategy (e.g., football plays, wrestling strategies) or entire routines/races (e.g., pommel-horse routine, entire track races).

Athletes reported using motivation specific imagery the least frequently used of the five different types of imagery (Weinberg et al., 2003). Motivation specific imagery is the only type found to be used more frequently by team sport athletes than by individual sport athletes in more than one research study (Hall et al., 1998 & Weinberg et al., 2003).

Conclusion:

Following were the main conclusions of the study:-

- The result reveals that, the dependent variables of sports imagery subscales, Cognitive general and Motivational general arousal were found significant. The other three variables of mental imagery namely; Cognitive specific, Motivational specific and Motivational general mastery did not show any significant difference
- Among the mental imagery sub scales viz Cognitive Specific, Cognitive General, Motivational Specific, Motivational general Arousal and Motivational general Mastery, significance difference were found between male and female players of different universities in Kerala state, India.

- Analyzing mental imagery subscale on motivational specific, among the different university level basketball players, significant differences were found between Kerala University and Calicut University and also between Calicut University and MG University.
- In mental imagery subscale on motivational general arousal, significant difference have been noticed among the different university level basketball players i.e. Kerala University and Calicut University, Calicut University and MG University, Kannur University and Calicut university,.

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