
Comparative Study of Academic Achievement on Selected Physical Fitness and Psychological Factors among the School Respondents

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Abstract: The Purpose of the study was designed to find out the comparison of academic achievement on selected physical fitness and psychological factors among the school respondents. 10 girls studying XIth standard in the academic year 2012 – 2013, in Government Higher Secondary School, Chidambaraviduthi, Erichi, Aranthangi, Pudukkottai, Tamilnadu, India were randomly selected to achieve the purpose of the study. They were selected based on the academic achievement in their X Standard State Board Examination as superior, good and average achievers from a total of 30 respondents. The age of the respondents ranges from 15 to 17 years. Two variables selected for the study includes physical fitness variables such as 50 mts run, Flexed arm hang and Psychology variables such as Trait anxiety, Aggression. The data is statistically analyzed using One way Analysis of Variance (ANOVA). When F – ratio values found to be significant the Scheffe's Post Hoc Test was applied to determine the paired mean difference, if any. In all cases, 0.05 level of confidence was to test the significance. The result reveals that there existed significant differences between the superior achievers and average achievers on aggression. It is also reveals that there existed no significant difference between remaining pairs of different categories of academic achievement on Speed, Muscular endurance and Trait anxiety.

Key Words: *Speed, Muscular endurance, Trait anxiety, Aggression and Academic achievement.*

Introduction:

Education is an important aspect which will raise the economic growth of the country and promote knowledge and understanding of rural communities. Education has a vital role to play in assisting respondents to understand their cultural identity. Academic achievement measures the extent to which individuals have acquired certain knowledge, skills, concept

and abilities as a result of instruction received at the school (Arjunasamy, 1995). Physical education trends have developed recently to incorporate a greater variety of activities. It helps respondents to develop good activity habits that will carry over into adulthood (Jesse, 1930).

Physical fitness gives the ability to perform daily tasks vigorously and alertly, with energy left for enjoying leisure – time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in any circumstances; where an unfit person could not manage it without good health and well-being (Ajmer Singh, 2003). Doing regular exercise improves the healthy lifestyle that contributes to optimal health and quality of life and it prevents diseases and promotes health. Unlike heredity, lifestyle can be changed to improve fitness and health.

Sports psychology is analyzing the behavior of the individual when he / she perform various activities in a group. The sport psychologist uses psychological assessment techniques and intervention strategies in an effort to help the individuals to achieve their optimal performance. Sport is the field where sportsman's behavior is moulded, modified and studied. Every aspect of sportsman's behavior becomes a respondent of study under sports psychology (Gita Mathew, 1997).

Materials and Methods:

The Purpose of the study was designed to find out the comparison of academic achievement on selected physical fitness and psychological factors among the school respondents. 10 girls studying XIth standard in the academic year 2012 – 2013, in Government Higher Secondary School, Chidambaram, Erichi, Aranthangi, Pudukkottai, Tamilnadu, India were randomly selected to achieve the purpose of the study. They were selected based on the academic achievement in their X Standard State Board Examination as superior, good and average achievers from a total of 30 respondents. The age of the respondents ranges from 15 to 17 years. The academic achievement of the respondents in the X Standard examinations was considered as independent variables for the study.

The respondents who scored 70 percent to 80 percent were considered as superior achievers; respondents who scored 60 percent to 70 percent were considered as good achievers and respondents who scored 50 percent to 60 percent were considered as average achievers. Two variables selected for the study includes physical fitness variables such as 50 mts run, Flexed arm hang and Psychology variables such as Trait anxiety, Aggression. The data

pertaining to the study were collected from the respondents with the help of standardized test items mentioned in Table – I. The data is statistically analyzed using One way Analysis of Variance (ANOVA). When F – ratio values found to be significant the Scheffe’s Post Hoc Test was applied to determine the paired mean difference, if any. In all cases, 0.05 level of confidence was to test the significance.

Table –I
Selection of Variables and Test Items

Criterion Variables						
Independent variable			Dependent Variables			
Academic achievement			Physical fitness		Psychology	
Superior achievers (Respondents those who scored 70 percent to 80 percent	Good achievers (Respondents those who scored 60 percent to 70 percent	Average achievers (Respondents those who scored 50 percent to 60 percent	Speed	Muscular endurance	Trait anxiety	Aggression
			50 mts run	Flexed arm hang	Trait anxiety Questionnaire	Smith’s Aggression Questionnaire

Statistical Analysis:

The data collected from the respondents for selected physical fitness and psychological factors were analyzed by One Way Analysis of Variance and are presented in the following table - II

Observation and Results:

Table – II
Summary of One Way Analysis of Variance of Different Categories of Academic Achievement on Selected Physical Fitness and Psychological Factors among the School Respondents

Mean				Source of Variance	Sum of Square	df	Mean square	F -ratio
Criterion Variables	Superior achievers	Good achievers	Average achievers					
Speed	11.38	12.51	11.91	Between group	6.436	2	3.218	1.105
				Within group	78.610	27	2.911	
Muscular endurance	13.30	8.63	9.18	Between group	130.286	2	65.143	2.378

				Within group	739.697	27	27.396	
Trait Anxiety	48.20	45.90	48.40	Between group	38.600	2	19.300	0.754
				Within group	690.900	27	25.589	
Aggression	5.20	6.70	7.80	Between group	34.067	2	17.033	4.929*
				Within group	93.300	27	3.456	

*Significant at 0.05 level of confidence

[The table value required for significant at 0.05 with df 2 & 27 was 3.35]

The above table indicates the F-ratio values obtained for selected Physical fitness such as Speed, Muscular endurance and Psychology such as Trait anxiety were 1.105, 2.378 and 0.754 respectively. These F-ratio values are less than the required value of 3.35 which is significance at 0.05 level of confidence with df 2 and 27. Hence it is understood that there existed no significant difference among the respondents of different academic achievement level on Speed, Muscular endurance and Trait anxiety. The F-ratio value obtained for Psychology variable, aggression was 4.929 which are greater than the required value of 3.35 which is significance at 0.05 level of confidence with df 2 and 27. This result indicates that there existed significant difference among the respondents of different academic achievement level on aggression. Further to find out the significant differences among the paired means, the concepts of scheffe's test was employed and presented in the table – III

Table – III

Summary of Paired Mean Differences between the Different Categories of Respondents on Aggression

Criterion Variables	Mean			Mean differences	C.I
	Superior achievers	Good achievers	Average achievers		
Aggression	5.20	6.70		1.50	1.52
	5.20		7.80	2.60*	1.52
		6.70	7.80	1.10	1.52

*Significant at 0.05 level of confidence

The above table indicates that the paired mean differences of aggression between superior achievers and good achievers was 1.50, good achievers and average achievers was 1.10 respectively. The mean difference between superior achievers and good achievers, good

achievers and average achievers were less than the C.I value of 1.52. Hence it is inferred that there existed no significant difference between the above pairs on aggression. It is also shown from the table that the paired mean difference between the superior achievers and average achievers was 2.60 which are greater than the C.I value of 1.52. Hence it is understood that the existed difference among the above pairs on aggression.

The mean values of Speed, Muscular endurance, Trait anxiety and Aggression of superior achievers, good achievers and average achievers were graphically represented in the Figure – I, Figure – II, Figure –III and Figure – IV.

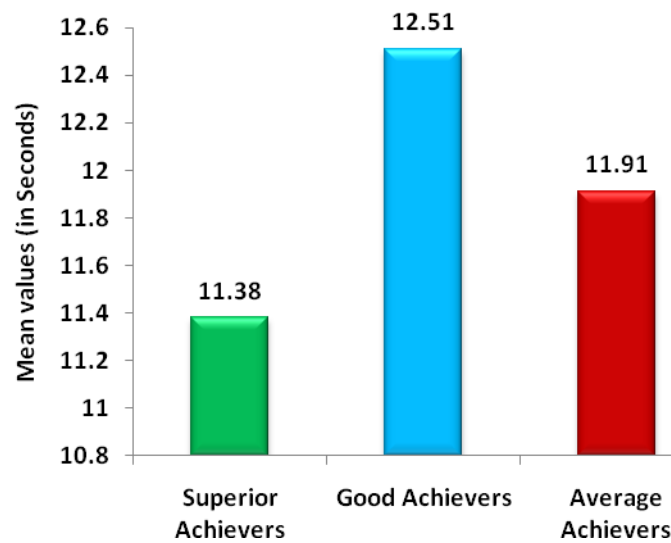


Figure – I: Mean Values of Different Levels of Academic Achievement among the School Respondents on Speed

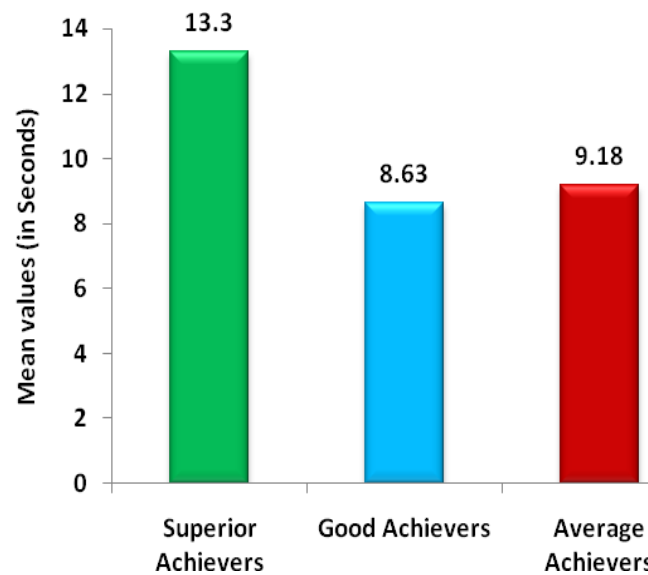


Figure – II: Mean Values of Different Levels of Academic Achievement among the School Respondents on Muscular Endurance

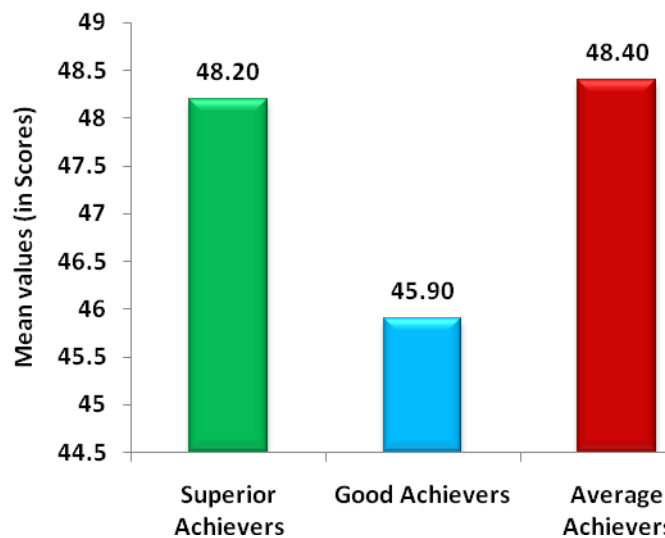


Figure – III: Mean Values of Different Levels of Academic Achievement among the School Respondents on Trait Anxiety

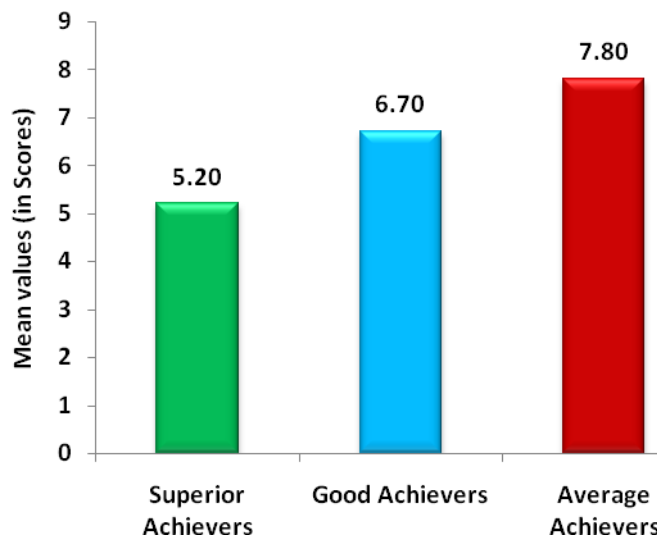


Figure – IV: Mean Values of Different Levels of Academic Achievement among the School Respondents on Aggression

Discussion on Findings:

From the analysis of data, it is found that there existed significant difference between superior achievers and average achievers on aggression. It is also found that there existed no significant difference between the physical fitness such as 50 mts and Flexed arm hang, Psychological such as Trait anxiety. According to Dawn Podulka Coel, (2006) suggested that the academic achievement was not significantly related to the physical fitness among the respondents. From the present study, the result reveals that there were no significant difference between the physical fitness and academic achievement.

Darla Castelli, (2007) and Grissom, (2005) indicated positive relationship with physical

fitness and academic achievement. But the present researcher suggested that there were no significant difference between the physical fitness and academic achievement. The respondents are not basically fit because lack of good nutrition, lack of daily activities, Shyness to participate any activity and illness. Kuo Yi – Lung (2011) suggested significant relationship with psychological factors and academic achievement. David Crystal, (1994) reported less anxiety and aggression factors are associated with academic achievement. The researcher suggested that only aggression has less state than the anxiety, it is also proved that less aggression was presented among the respondents.

Conclusions:

1. There existed significant difference between the superior achievers and average achievers on aggression.
2. It also concluded that there existed no significant difference between the different categories of academic achievement level on speed and muscular endurance.
3. Further, it also concluded that there existed no significant difference between the different levels of academic achievement on Trait anxiety.

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