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Effect of reasoning ability on motor coordinative ability if tribal adolescent girls

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Abstract

The present study assessed the motor coordinative ability of tribal adolescent girls in the light of their reasoning ability. To conduct the study, 30 tribal adolescent girls residing in the State of Chhattisgarh, were selected as sample. The age range of the selected subjects was between 12 to 17 years. To assess motor coordinative ability, i.e. agility of the tribal adolescent girls, Cooper's JCR test (1947) was used. To measure reasoning ability, Mehrotra's (1984) Mixed Type Group Test of Intelligence (MGTI) was used. Results indicate that the motor coordinative ability of tribal adolescent girls with high reasoning ability is significantly better than the tribal adolescent girls with low level of reasoning ability. It was concluded that reasoning ability is a significant predictor of motor coordinative ability as far as tribal adolescent girls are concerned.

Keywords: adolescent girls, agility

Introduction

Reaching for a piece of paper, driving a bicycle, etc. are examples of physical movement requiring coordinative abilities. Motor coordinative is the coordinated functioning of muscles of groups of muscles in the execution of a complex task. There are basically seven coordinative abilities. They are combinatory ability, orientation, differential ability, agility, balance, reactive ability, adaptive ability, adaptive ability and rhythmic sense. Out of these seven coordinative ability agility is the ability to change the direction of the body in an efficient and effective manner.

Researchers in the recent past through their research provided valuable information regarding the role of cognitive abilities in motor coordination. One of the important cognitive ability is reasoning ability. Drawing conclusions from any source of information is called reasoning. Reasoning always requires going beyond the information that is given (Bruner, 1957) ^[1]. An inference is called deductive if the truth of the initial information (or premises) guarantees the truth of the conclusion.

Although researchers such as Goldstein *et al.* (1994) ^[4], Cummins (1988) ^[3], Planinsec (2006), Williams H.G. *et al.* (2008) ^[7], G. (2011) ^[6] conducted studies related with motor coordination, intelligence and various factors associated with motor coordination but much research needs to be done to ascertain the impact of reasoning ability on motor coordinative ability of young adolescent and specially tribal adolescents because the environment they live in should be a fine ground for learning new motor skills. Whether reasoning ability influences their motor coordinative abilities, is the point of contention in the present study.

Hypothesis

Level of reasoning ability will influence motor coordinative ability of tribal adolescent girl.

Methodology

The following methodological steps were taken in order to conduct the present study.

Sample: To conduct the study, 300 tribal adolescent girls residing in the State of Chhattisgarh, were selected as sample. The age range of the selected subjects was between 12 to 17 years. The selection of sample was based on convenience sampling technique.

Tool

Motor Coordinative Ability

To assess agility of the tribal adolescent subjects Cooper's test (1947) was used. This is the modified, well-known JCR test for school boys and girls. The agility of the selected subjects was assessed by shuttle run item of this test. This test is highly reliable and valid. The motor coordinative scores of subjects was ascertained by their shuttle run timings; hence lower the timing, higher the motor coordinative ability formula is used.

Reasoning Ability

To assess reasoning ability of the selected subjects, Mehrotra's (1984) [5] Mixed Type Group Test of Intelligence (MGTI) was used.

Procedure

Prior permission was obtained from school authorities to conduct the test. They were assured that the data will be strictly confidential and will only be used for research purpose. First of all, selected subjects were subjected to Cooper's JCR test item shuttle run. Mehrotra's (1984) [5] Mixed Type Group Test of Intelligence (MGTI) was given to each subject. Timings on shuttle run were recorded for each subject. Response on MGTI (non-verbal part) by the subjects was calculated as per the instructions given by the author and after scoring it was tabulated into their respective groups. Q1 (25th percentile) and Q3 (75th percentile) statistical technique is used to bifurcate cases into high and low level of reasoning ability as per the scoring pattern of these variables. Scores on reasoning ability which falls above Q3 were treated as high reasoning ability scores while scores on reasoning ability which falls below Q1 were treated as low reasoning ability scores. To compare agility which falls below Q1 were Q1 were treated as low reasoning ability scores. To compare agility of tribal adolescent girls belonging to high and low reasoning ability group, "t" test was used. Analysis of data is depicted in table no. 1.

Analysis and Interpretation of Statistical Data

Table 1: Comparison of Mean Scores of Motor Coordinative Ability (Agility) on the Basis of High and Low Reasoning Ability in a Group of Tribal Adolescent Girls

Reasoning Ability	Mean	S.D.	"T"	Level of Significance
High (N = 95)	30.16	3.27		
Low (N = 85)	31.31	3.59	2.25	.05

From the analysis of table 1, it is evident that motor coordinative ability of tribal girls ($M = 30.16$) with high reasoning ability is significantly better than the tribal adolescent girls with low level of reasoning ability ($M = 31.31$). The reported $t = 2.25$, which is statistically significant at .05 level, confirms this statement.

Result and Discussion

On the basis of analysis, it is observed that motor coordinative ability as measured by agility among tribal adolescent girls with higher level of reasoning is significantly higher as compared to adolescent tribal girls with low level of reasoning ability. In a previously study by Planinsec J. (2006), he reported positive correlation between motor coordination and intelligence. The findings of the present study is consistent with this study and it support the notion that speed

of information processing is associated with motor coordinative ability.

Conclusion

On the basis of results, it may be concluded that reasoning ability is a strong predictor of motor coordinative ability in adolescent girls.

References

1. Bruner JS. (Ed.). Going beyond the information given. Un Contemporary approaches to cognition: A symposium held at the University of Colorado. Cambridge, MA: Harvard University Press; c1957. p. 41-69.
2. Cooper Motor Fitness Test. Measurements in Physical Education, Carlton T. Meyer, 2nd Edition, The Ronald Press Company, New York; c1974.
3. Cummins A. Motor coordination, empathy, and social; behaviour. *Clinical Psychologist*. 1998;47:437-442.
4. Goldstein DJ, Britt TW. Visual-motor coordination and intelligence as predictors of reading. Mathematics, and written language ability. *Perceptual and motor skills*. 1994;78(3):819-823.
5. Mehrotra PN. Manual for mixed type of group test of intelligence (Verbal and non-verbal), Agra National Psychological Corporation Agra; c1984.
6. Shahzada G, Ghazi SR, Ali R, Khan A. Differences Between Self-Perceived Multiple Intelligences of Urban & Rural Schools Students. *Mediterranean Journal of Social Sciences*, 2011, 2(2).
7. Williams HG, Pfeiffer KA, Jennifer R O'Neil, Dowda M, McIver KL, Brown HB, *et al*. Motor Performance and Physical Activity in Preschool Children, Obesity. 2008;16(6):1421-1426.