

# A Comparative Study of Coordinative Skills and Psychological Factors Between Navodaya Vidyalaya and Government School Girls Students

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**Abstract:** *In the present study, an attempt has been made to compare coordinative ability and personality profiles. The main purpose of the study was to measure the coordinative ability and personality profile of Navodaya Vidyalaya and Govt. school girl's students and the differences of the students to find out the status in the district of Nadia under the state of West Bengal. The present study was conducted to observe the coordinative abilities and personality profile of Navodaya Vidyalaya and Govt. school's girl's students. The subject of the present study was taken from Nadia WB (India), and Jawahar Navodaya Vidyalaya, Nadia, WB (India). A total of fifty (50) female students were selected for the present study. Age was ranged between 14 to 16 years. A medicine ball test was taken the measure orientation ability, differentiation ability was measured by backward medicine ball throw test, reaction ability was measured by scale drop test and personality profile was measured by Cattle 16 pf questionnaire. To collect information for the present study following tools are used measuring tape, cones, markers, and white dust prouder, for field marking. Chair, table, scale for reaction time, and 16 pf questionnaire for personality test to collect data. She concludes that the girls of Govt. school had better performance in orientation ability, differentiation ability, and personality factor. She also observed in the case of reaction abilities the girls of Navodaya Vidyalaya are quite better than Govt. school's girl's students.*

**Keywords:** Fitness, Coordination skills, Psychological factor, Personality Profile, Performance.

## I. INTRODUCTION

The terms "fitness" and "performance" refer to the two opposite sides of the same coin (Bepari, 2016). Optimizing an engine is akin to enhancing the human body's physical fitness. It empowers us to operate at our maximum capacity. Fitness can be defined as a state that assists us in appearing more appealing, feeling more pleasant, and performing at our utmost (Sing et al., 2008). The advantages of maintaining elevated levels of fitness for the retention and restoration of cognitive abilities in elderly individuals have been extensively studied since 1970 (Dustman et al., 1994; Petruzzello et al., 1997; Colcombe & Kramer, 2003; Kramer & Erickson, 2007). As an illustration, there is a documented connection between cardiovascular fitness and one's performance in assessments of cognitive adaptability, fluid intelligence, or automatic processing (Dustman et al., 1994). Fitness, on the other hand, is a multifaceted concept encompassing not just the physical aspects like cardiovascular fitness and muscular strength but also motor fitness, which is measured by factors like flexibility, speed, balance, and precise coordination. Thus, studies involving animals have unveiled distinct connections between brain metabolism and physical and motor fitness (Black et al., 1990; Anderson et al., 1994).

"Cardiovascular fitness, as a component of physical fitness, is recognized for its connection with enhanced executive control functions, including the allocation of attentional resources, assessment of conflicting information, and quicker stimulus processing (Hillman et al., 2006, 2008). A meta-analysis found that when cardiovascular fitness and muscular strength were combined, this effect was even more pronounced (Colcombe & Kramer, 2003). Coordination skills are

essential for athletic performance, primarily governed by the motor control process. Athletes rely on their coordination skills to acquire and refine technical abilities during training. These coordination skills influence the pace and precision of skill acquisition, as they involve stabilizing and applying sports techniques, distinct from the technical skills required for various motor tasks (Fomenko, 2014). Determining the ideal age for motor skill acquisition presents challenges. The most favorable conditions for learning tend to exist during early adulthood, but lifelong receptiveness to motor skill acquisition persists, provided there are frequent practice repetitions and proper motivation, depending on the complexity of the task. A comprehensive assessment of seven coordinative motor skills was conducted using 14 different indicators. This evaluation utilized sports-specific motor tests developed by various experts (Kerketta & Singh, 2017; Armando & Rahman, 2020)

Seven distinct coordinative skills recognized, which encompass (1) Orientation Ability, (2) Differentiation Ability, (3) Coupling Ability, (4) Adaptation Ability, (5) Rhythm Ability, (6) Balance Ability, and (7) Reaction Ability. These coordinative skills hold significant importance in the acquisition, ongoing enhancement, and adaptation of sports techniques during extended periods of training. The degree of one's motor learning ability is substantially influenced by the level of their coordinative skills (Singh, 1991).

Fitness is not solely reliant on performance; numerous factors play crucial roles in performance, including psychological aspects, ergogenic elements, and endogenous factors. Among these, psychological factors stand out as particularly significant (Feltz et al., 1979; Gould et al., 1981). Sports psychology is the field of sports science dedicated to comprehending these psychological and mental elements. In today's context, achieving peak sports performance necessitates a deep understanding of sports psychology (Highlen & Bennett, 1979; Mahoney & Avener, 1977). Psychological factors such as motivation, arousal, anxiety, and concentration have a considerable impact on performance. Various personality theories offer diverse interpretations of the term "personality trait," shaped by their theoretical stances (Raglin, 2001; Bahar & Hansell, 2000). The term "personality trait" relates to specific situations. As per Allport's perspective, Personality represents the active arrangement within an individual of the psychological systems that dictate their distinct adaptation to the surrounding environment.

Among the seven coordinative abilities, the current study investigates to compares the selected coordinative abilities like orientation ability, differentiation ability and reaction ability under the skill-related performance component and also compare Personality Trait in Navodaya Vidyalaya and govt. school's girls students in Nadia, West Bengal (India).

## II. MATERIALS AND METHOD

**Participants:** A total of 50 girls students (Navodaya Vidyalaya = 25, Govt. school = 25) aged between 14 to 17 years were recruited in 2019 from Rabindra Vidyapith, Shantipur, Nadia and Jawahar Navodaya Vidyalaya, Kalyani, Nadia at West Bengal, India. Only girls Students, who did not have any contraindications to the practice of physical activity and who did not have any known orthopaedical, neurological, or cardiovascular diseases were considered eligible and included in the study. After hearing the explanation of the study protocol, parents or legal guardians provided written consent. Every student gave verbal assurance for participation, and they could withdraw from the study at any moment without any consequence. The students did not receive any academic credit or benefit from their participation in the study.

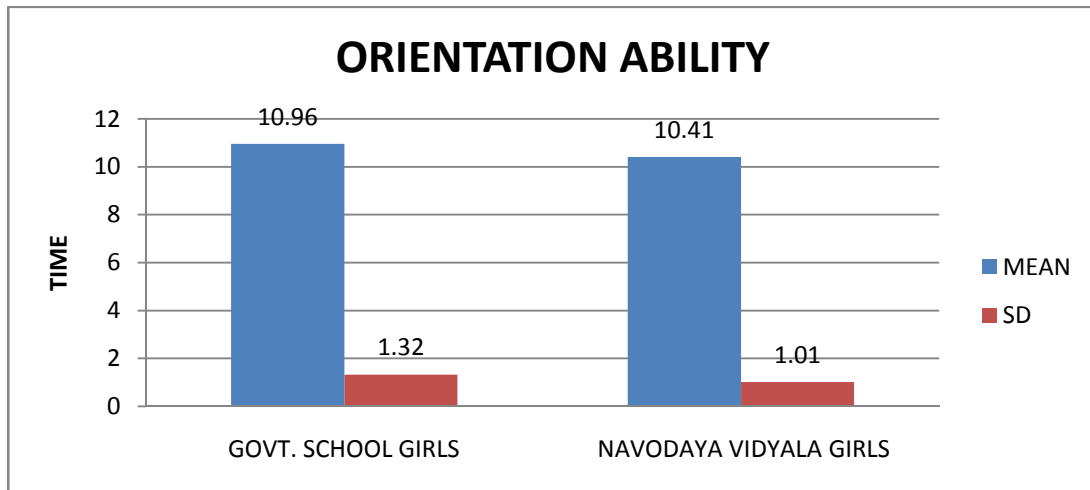
**Procedures:** The data were collected between May 2019 and July 2019, during curricular classes of PE. The data were collected by the researcher and assisted by three others experts, which were preventively instructed about all procedures and protocol instructions. Selected Coordinative Abilities (Orientation Ability, Differentiation Ability, and Reaction Ability) and Personality trait test were assessed followed. Standing height was measured with a stadiometer to the closest 1 cm, Weight was evaluated using a balance scale (Dr. Trust USA model 513) to the nearest 0.1 kg. These Personality traits were assessed following the guidelines provided by the Cattle's 16 PF Questionnaire. the differentiation ability measured by through backward medicine ball test, Orientation ability measured by Medicine ball touch, Reaction ability measured by bass stick test. Statistical analysis Data were collected an unidentified and stratified by girls. Mean and standard deviation were calculated for all variables and used to describe the data. The significance level was set at 0.05. t test was used to detected significant difference between the groups.

**III. RESULT AND DISCUSSION**

**Table-1. Mean, SD and “t” value of Orientation Ability between the Govt. School Girls and the Navodaya Vidyalaya Girls**

	Govt. School Girls	Navodaya Vidyalaya Girls	“t” value	Remarks
MEAN	10.96	10.41	1.68	Not significant
SD	1.32	1.01		

ΔDf = 48 \*t value set at 0.05 level



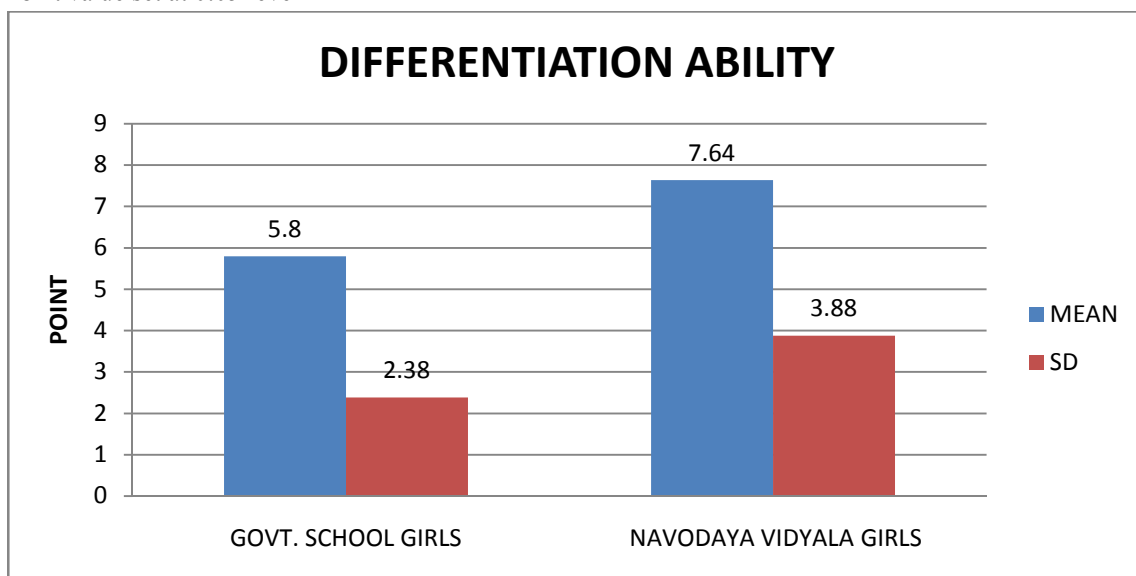
**Fig. 1 Comparison of Orientation ability between two groups**

From the Table No-2, it was observed that the mean, standard deviation and “t” value of under 15-16 years Govt. School Girls versus Navodaya Vidyalaya Girls of Orientation ability were  $10.96 \pm 1.32$ ,  $10.41 \pm 1.01$  and 1.68 respectively. Which was not significant at 0.05 level because the calculate value (1.68) is less than table value (2.01)

**Table No. 2. Mean, SD and t value of Differentiation Ability between the Govt. School Girls and the Navodaya Vidyalaya Girls**

	Govt. School Girls	Navodaya Vidyalaya Girls	t	Remarks
MEAN	5.80	7.64	2.02	Significant
SD	2.38	3.88		

ΔDf = 48 \*t value set at 0.05 level



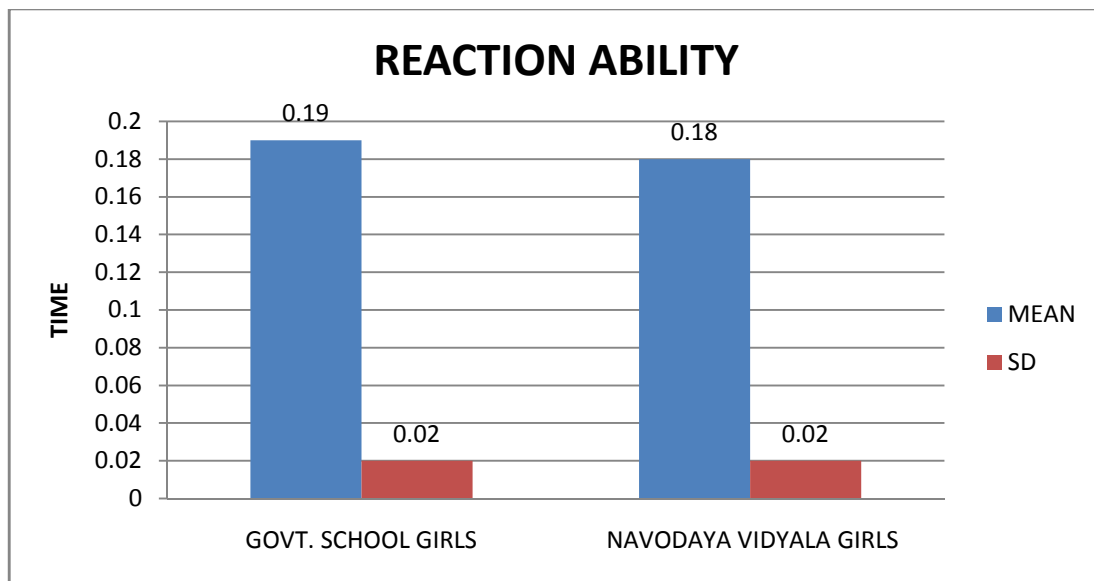
**Fig. 2 Comparison of Differentiation ability of two groups**

From the Table No. 3 it was observed that the mean, standard deviation and “t” value of under 15-16 years Govt. School Girls versus Navodaya Vidyalaya Girls of differentiation were  $5.80 \pm 2.38$ ,  $7.64 \pm 3.88$  and 2.02 respectively. Which was significant at 0.05 level because the calculate value (2.02) is more than table value (2.02).

**Table No. 3. Mean, SD and t value of Reaction Ability between the Govt. School Girls and the Navodaya Vidyalaya Girls:**

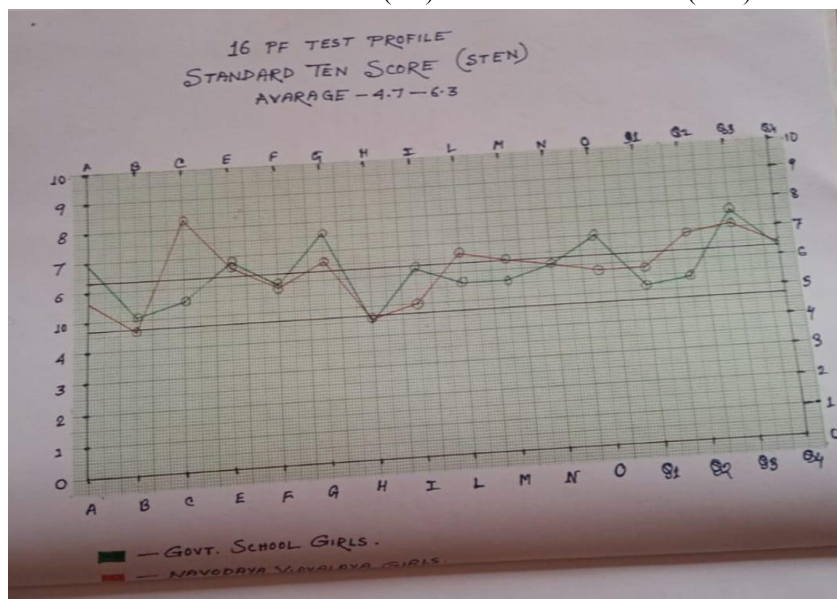
	Govt. School Girls	Navodaya Vidyalaya Girls	t	Remarks
MEAN	0.19	0.18	0.98	Not significant
SD	0.02	0.02		

$\Delta Df = 48$  \*t value set at 0.05 level



**Fig: 3 Comparison of Reaction ability of two groups**

From the Table No. 3 it was observed that the mean, standard deviation and “t” value of under 15-16 years Govt. School Girls versus Navodaya Vidyalaya Girls of Reaction were  $0.19 \pm 0.02$ ,  $0.18 \pm 0.02$  and 0.98 respectively. It was not Significant at 0.05 level because the calculate value (.98) is less than table value (2.01)



**Fig: 4. The personality profile, comparison of the ten scores of 16 PF between Navodaya Vidyalaya Girls and Govt. School Girls**

**Table No. 4. The personality profile, comparison of the ten scores of 16 PF between Navodaya Vidyalaya Girls and Govt. School Girls**

		A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4
Navodaya Vidyalaya	M	5.6	4.68	8.36	6.64	5.84	6.68	4.68	5	6.64	6.32	6.12	5.84	5.88	6.92	7.16	6.44
	S	1.55	1.84	16.88	1.78	1.58	1.80	2.27	1.71	1.52	1.49	1.67	1.40	2.07	1.63	1.62	1.69
Govt. School	M	6.96	5.08	5.56	6.8	5.96	7.6	4.52	6.2	5.68	5.64	6.4	7	5.2	5.44	7.52	6.36
	S	2.01	1.53	1.76	1.91	1.79	2.06	1.08	1.91	1.46	2.25	1.89	1.87	1.44	2.14	2.08	1.96

The 16 Personality Factors indicate 16 different mental predisposition of an individual. The final score of each trait has been converted into Ten-score according to norms. Any value between 4.7-6.3 indicated the average value of the trait. Value below 4.7 indicated lower category of the trait. Similarly, value more than 6.3 indicated the person of Navodaya Vidyalaya for girls within higher category in that particular factor (C,E,G,L,Q2,Q3,Q4,) and less than that particular factor of 4.7 (B,H).

In the case of Govt. school the value was more than 6.3 indicate the person of Govt. school within higher category in that particular factor (A,G,N,O,Q3,Q4) and less than that particular factor of 4.7 (H).

Fomenko, (2014) studied on comparative analysis of physical fitness and motor coordination abilities of 16-19 years female school students and the result showed significant improvement of coordination abilities of the females school students. Andradeetal (2020) studied comparative analysis of gross motor coordination between overweight/obese and eutrophic children of 7-10 years and the result showed better coordination in overweight/obese children than others groups. Malhotra, R.K. (2020) compared low academic achievers of government and non-government school students with personality pattern and the result showed no significant difference.

The present study is very much relevant to the above studies.

#### IV. CONCLUSION

In conclusion, this study's findings offer valuable insights into the diverse coordinative abilities and personality factors among girls attending government schools and Navodaya Vidyalaya.

Firstly, government school girls demonstrated superior orientation and differentiation abilities when compared to their counterparts in Navodaya Vidyalaya. This suggests that the educational practices and learning environments in government schools may be conducive to the development of these particular skills. Conversely, Navodaya Vidyalaya girls exhibited a higher level of proficiency in reaction ability, indicating a potential emphasis on specialized training or specific activities within their educational programs. Furthermore, when examining personality factors, girls from government schools displayed stronger attributes. This could be influenced by various factors within government school settings, such as peer interactions, teaching methods, or a nurturing school environment.

These findings underscore the importance of considering the educational context when evaluating and fostering students' coordinative abilities and personality development. It is essential for educators, policymakers, and parents to recognize the nuanced strengths and areas for improvement within different educational institutions, as this knowledge can guide efforts to enhance the holistic development of young individuals in diverse learning environments. Further research may delve deeper into the underlying factors contributing to these disparities, ultimately benefiting the education system and its ability to nurture well-rounded individuals

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