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Mathematical aptitude of prospective students in B.Ed., educational institutions in Puducherry region

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ABSTRACT

The present study has been carried out to examine mathematical aptitude of prospective B.Ed., students. Normative survey method was adopted on a sample of 320 B.Ed., Teacher Trainees from three colleges of education in Puducherry region using simple random sampling technique. To measure mathematical aptitude, the aptitude scale developed by George K. Bennett, Harold G. Seashore and Alexander G. Weisman was used. The study revealed that there exists significant difference in mathematical aptitude of prospective B.Ed., students with respect to Gender, Locality, Type of management, and Type of college. Post hoc Tukey test reveals students studying in Co-ed B.Ed., college performed better than other boys and girls college.

INTRODUCTION

The vital role which mathematics plays in education is derived from the cultural, utilitarian and interdisciplinary values which the subject seeks to inculcate in the learner. Mathematics education is to a nation what protein is to a young human organism. It is a vital tool for understanding and application of science of technology. Mathematical aptitude on the other hand is the capacity to use or manipulate numbers effectively in clerical administrative, scientific and other areas of application of numbers. It is the ability to understand and work with numbers with ideas related to numbers. This role of mathematics and aptitude which in turn forms a link between student's mathematical ability and achievement in mathematics.

To be successful in mathematics involves the aptitude to appreciate one's existing state of knowledge, construct on it, progress it, and we can make changes or decisions in the face of conflicts. In order to achieve this requires abstracting, problem solving, inventing (Romberg, 1983). These are the basic cognitive operations that students should develop and apply it in their learning of mathematics in order to achieve better.

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NEED AND SIGNIFICANCE OF THE STUDY

Mathematics is the gateway and key to all sciences. Mathematics occupied its important place since from the earliest times and it is the only subject which merits this distinction. Undeniably, students from the very beginning of their education start with language and numerical skills. The importance for teaching and learning mathematics is multiple. Truly the application of mathematics can be used as a tool in various educational fields and also in our society. The above statement is followed by the argument that studying of mathematics makes oneself discipline of thought and logical reasoning. Starting from the elementary concepts of addition, multiplication, subtraction and division school level mathematics prepares the preliminary ground for higher level studies in the same subject. This mathematical knowledge when combined with aptitude really prepares as individual to meet the challenges ahead of them in the field of education. Every individual is expected to have this aptitude in them in order to achieve in their career advancement. The present study intends to discover the levels of mathematical aptitude of B.Ed., students. The present study has great significance, relevance, importance and utility for both parents and teachers because this will encourage them to come forward to understand their children's higher achievement in their mathematical aptitude.

STATEMENT OF THE PROBLEM

The problem of the present investigation is stated as "Mathematical aptitude of prospective students in B.Ed., educational institutions in Puducherry region".

OBJECTIVES

The present study has the following objectives:

1. To study the Mathematical aptitude of B.Ed., students in Puducherry region.
2. To check whether there exists significant difference in their Mathematical aptitude with respect to their Gender, Locality, type of Management, type of school.

HYPOTHESES

1. There exists significant difference in their Mathematical aptitude with respect to their Gender, Locality, type of Management, type of school.

DESIGN OF THE STUDY

Normative survey method was employed by the investigator for the present study

METHODOLOGY

The sample for the present study consisted of 320 B.Ed., students from the colleges of education in Puducherry region. Students were randomly selected from the schools as the sample for the study.

DESCRIPTION OF THE SCALE USED

The aptitude scale developed by George K. Bennett, Harold G. Seashore and Alexander G. Weisman (1993) was first published in 1947 and has gone a number of revisions. The fifth revision was made in 1993. The investigator limited to only two dimensions namely numerical ability and abstract reasoning.

DATA ANALYSIS

Table-1

Significant Difference in Mathematical aptitude of B.Ed., students with respect to Gender, Locality, Education, Exposure to Computer, possessing own computer

Variable		N	Mean	SD	't'	Sig.
Gender	Male	189	67.12	10.496	2.264	S
	Female	131	64.68	7.802		
Locality	Rural	188	64.35	8.413	4.054	s
	Urban	132	68.64	10.492		
Type of management	Private	165	65.12	9.503	1.943	S
	Govt.	155	67.19	9.512		

On comparing Mean mathematical aptitude scores significant differences are observed in all the sub variables as calculated 't' value are significant. Therefore, there exists significant difference in mathematical aptitude with respect to Gender, Locality, Type of management among B.Ed., students

Table-2
Significant Difference in Mathematical aptitude of B.Ed., students with respect to Type of college

Variable	Source of variance	Sum of squares	df	Mean squares	'F' value	Sig.
Type of college	Between Groups	529.687	2	264.843	2.940	.054
	Within Groups	28554.560	317	90.077		
	Total	29084.247	319			

The calculated F value (2.940) which is greater than the table value, hence the hypothesis is retained and concluded that there is significant difference in mathematical aptitude with respect to Type of college.

For the dimensions of mathematical aptitude that differ significantly, follow up (post hoc) test were performed to see which groups differ within the sub samples.

Table 2(a)
Post hoc analysis of mathematical aptitude with respect to the demographic variable type of college

Variable	(I) Type of Management	(J) Type of Management	Mean difference (I-J)	Std. Error	p
Mathematical aptitude	Boys	Girls	.046	1.366	.999
		Co-ed	2.653	1.223	.078
	Girls	Co-ed	2.699	1.382	.126

In careful observation of table shows test for the type of college and the variable whole mathematical aptitude, there was a significant difference between Boys College and Co-ed B.Ed., colleges. Mean values revealed that Co-ed colleges scored higher than others.

DISCUSSION

The findings of present study shows that significant difference was observed in the case of gender in over all mathematical aptitude, in the study it was found that boys are higher when compared to girls in their general mathematical aptitude. Numerous aptitudes have been related with gender differences in spatial ability and scientific reasoning which has been established by Harris (1978). Because of the inequality in the support and chance there exists difference in scientific reasoning thereby interest and practice. Rao (1995) found same level of scientific aptitude in both boys and girls and the level of boys and girls were found to be average. Students need to be trained in various mathematical skills as this falls to be the selecting criteria for their suitable careers. The present study indicates that students differ significantly with respect to locality. Similiarly Bhavsar (1970) established that students differ significantly with respect to locality. This was also supported by Agarwal (2014) stating significant difference was observed between urban and rural students. Necessary steps should be taken by the schools both in rural and urban areas to come up with good academic records thereby the students get motivated to succeed in their life. There is significant difference in type of management in Mathematical Aptitude, the null hypothesis is rejected. Similarly Agarwal (2014) established that students differ significantly with respect to type of management. Further students from government B.Ed., colleges performed better than private colleges, this may be due to more care and concern taken by the government to improve the quality of education for the uplifting the younger minds. The present study revealed that there was significant difference with reference to Type of colleges. Similiarly Manju Gehlawat (2011) found that there is significant difference in the mathematical aptitude with respect to type of colleges. It shows that boys, girls and co-Ed. school are well brought up and guided by their teachers and parents right from the beginning. Also the management are quite decent and cooperative by nature.

EDUCATIONAL IMPLICATIONS OF THE PRESENT STUDY

There is difference was observed between gender, locality in their mathematical aptitude. The government as well as educational institutions should take steps to develop their aptitudes among all the college students to bring out their mathematical aptitudes. Further, students from rural areas and from low financial status can be paid special attention by the college management in order to raise their aptitude and skill for the betterment of the

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students. Significant difference in mathematics achievement was observed among the students of varying college locations. Necessary steps should be taken by the colleges to make the students feel good about mathematics since there is a strong belief in students community in general that mathematics is a difficult subject in nature. Through the recent innovations in technology, college management has to bring forth necessary arrangements to teach mathematics through power point, through slides or through projector so as to make the students to feel learning of mathematics is enjoyable. Further colleges should also to come up with good academic records, so that students also get motivated and develop their mathematical aptitude.

CONCLUSION

Thus from the Present study it is concluded that Gender, Locality, Type of management and Type of college of B.Ed., students have influence towards mathematical aptitude.

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