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## Study of faculty and gender difference in research aptitude

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### Abstract

Present study aimed to find out the aptitude of post graduate students towards research. In addition, objectives of the study were to compare the aptitude of post graduate students towards research. Total 250 subjects; out of them 50 subjects from each faculty namely education, engineering, management, physical education, and sciences students were included in the present study. 20 students from each faculty were female subject. Simple random sampling method was employed for the selection of sample in the present study. The data was collected with the help of Aptitude Scale towards Research (Sood and Sharma, 2012) from the students of different post graduate study center of the Haryana state. Descriptive and comparative (ANOVA) was employed to draw conclusion. Results of the present study showed that the science and physical education faculty were higher in aptitude as compare to that of education, engineering, and management.

**Keywords:** Research, aptitude, general, aspect, usefulness, and personal

### Introduction

Research is the primarily academic primary field of higher education. The Universities concentrates on the research. Higher education highlights the research activities to achieve the academic excellence by promoting research. The Universities ranking at national and global level depends on research activities and research achievements such as publication, grants received patent, copy rights etc. Channelizing the research activities in education system is the responsibilities of Universities (Yadav and Menon, 1978) [6]. Many (Dauphinee, Schau, & Stevens, 1997) [2] surveys have been conducted to measure students' aptitudes towards research. There is an urgent need for high quality research to provide a scientific basis for Physical education and sports; however, relatively little is known about Post Graduate student's aptitudes towards research. This questionnaire study documents the aptitudes and stated Post-Graduate students towards undertaking research.

Students studding in postgraduate level, typically inclined towards research-related courses with positive aptitudes and feelings. These poor aptitudes have been documented in numerous studies for several years in relation to courses in research (Adams & Holcomb, 1986) [1]. One of the main problems of these negative aptitudes might be that they may have found to serve as obstacles to learning (Wise, 1985) [5]. These negative attitudes are associated with deficient performance in such courses (Elmore, & Lewis, 1991) [3]. Aptitudes are, in fact, mediators between past performance and future achievement (Meece, Wigfield, & Eccles, 1990) [4]. One of the major goals of the higher education system is to multiply knowledge, skills and various aspects of human potential in the country. The higher education system is unique in performing this function. While other system uses knowledge and skills, the higher education system multiplies these for the use of various institutions and organizations. Multiplication of talents through excellent education contributes to all three aspects-research, teaching and application. Out of the three aspects, research is of utmost significance.

As apart from any other species, humans have complex language structures and the written word to share information from one person to another. Educated societies with well structured, permanent means of communicating information have huge evolutionary advantage. Higher education plays a significant role in the development of nation. It helps the members of the society to get lives, to develop well and to improve the strength of the nation.

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There is pursuit of truth and excellence in man and only the higher education can direct the right path of it. Quality in higher education can be understood at two levels. At the first level, quality may be conceived in terms of four main elements, namely, relevance of the system to the society in which it functions, and three main goals of the higher education system-multiplication of skills and knowledge, producing excellence in research and related areas, and making impact on or influencing several systems.

Keeping above facts in mind the researcher felt an urgent need for high quality research to provide a scientific basis for Physical education and sports. However, relatively little is known about Post Graduate student's aptitudes towards research. This questionnaire study documents the aptitudes and stated Post-Graduate students towards undertaking research.

## Material and Method

### Sample Selection

Total 250 subjects, out of them 50 subjects from each faculty

Name of Item	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

### Statistical Analysis & Interpretation

The row data was tabulated for further statistical treatment, hence the descriptive statistics (measure of central tendency, dispersion, skewness, and kurtosis) and inferential statistics

was selected as sample for the present study. Simple random sampling method was employed for the selection of sample in the present study. The data was collected with the help of Aptitude Scale towards Research from the students of different post graduate study center of the Haryana state. General Aspects of Research and Research Process, Usefulness of Research in Professional Career, Relevance of Research in personal-Social Life, Difficulties in Research and Research Anxiety were studied in the present study. Aptitude Scale towards Research was used as tools in the study. Aptitude towards research scale developed by Dr. Vishal Sood and Prof. Y. K. Sharma was administered to assess the research aptitude of post graduate students. The items were based on General aspects of research, usefulness of research, relevance of research, research anxiety etc. the scale comprises 42 items including 26 positive and 16 negative items which are to be rated on five-point rating scale.

### Scoring

(ANOVA) was employed on collected data to draw meaningful conclusion.

### Results and Data Interpretation

**Table 1:** Showing the characteristics of Research aptitude and its variables amongst the faculties

Variable	Faculty					ANOVA	
	Education	Engineering	Management	Physical Education	Science	F, df	p-value
	Mean ± SE	Mean ± SE	Mean ± SE	Mean ± SE	Mean ± SE		
I	40.32±1.32 <sup>b</sup>	39.04±1.13 <sup>b</sup>	40.22±1.24 <sup>b</sup>	45.20±0.87 <sup>a</sup>	46.96±0.89 <sup>a</sup>	10.47, 4	<i>p</i> <0.05
II	16.38±0.52	15.66±0.48	21.14±1.08	22.86±0.89	21.94±0.85	1.68, 4	NS
III	19.68±0.82 <sup>b</sup>	18.36±0.83 <sup>b</sup>	24.30±1.20 <sup>a</sup>	25.10±1.04 <sup>a</sup>	25.50±0.87 <sup>a</sup>	11.85, 4	<i>p</i> <0.05
IV	29.00±0.92 <sup>c</sup>	26.88±0.70 <sup>c</sup>	31.74±0.99 <sup>b</sup>	32.94±0.79 <sup>b</sup>	34.62±0.88 <sup>a</sup>	12.99, 4	<i>p</i> <0.05
RA	105.38±3.06 <sup>c</sup>	99.94±2.67 <sup>c</sup>	126.02±2.82 <sup>b</sup>	129.10±3.05 <sup>a</sup>	129.02±2.82 <sup>a</sup>	15.92, 4	<i>p</i> <0.05

Means having similar superscripted alphabets are not statistically significantly different from each other at *p*<0.05 (Based on Duncan's multiple-range test). I: General Aspects of Research and Research Process. II: Usefulness of Research in Professional Career. III: Relevance of Research in personal-Social Life: IV: Difficulties in Research and Research Anxiety were studied in the present study. RA: Research Aptitude

### Comparison of general aspect of research and research process between the faculties

Result of study clearly showed that the general aspect of research and research process of Science and physical education faculties students is significantly (*p*<0.05) higher than that of management, education, and engineering students amongst the studied groups (table 1).

### Comparison of usefulness of research in professional carrier as a function of faculties

The usefulness of research in professional carrier of physical education and science students were highest (22.86 and 21.94 respectively) and engineering students were lowest (15.66) amongst the studied groups. The inferential analysis (ANOVA) revealed statistically (*p*>0.05) insignificant difference amongst the studied groups.

### Comparison of relevance of research in personal and social life as a function of faculties

The relevance of research in personal and social life of science and physical education students are higher (25.50 & 25.10) than that of education, engineering students amongst the studied groups. The inferential analysis (ANOVA) revealed statistically (*p*<0.05) significant difference amongst the studied groups. Science, and physical education faculties showing significantly better than that of education, and engineering faculties (table 1).

### Comparison of difficulties in research and anxiety as a function of faculties

The difficulties in research and anxiety of science students were highest (34.62) amongst the studied groups. The physical education and management students are significantly (*p*<0.05) higher than that of education and engineering students but significantly lower than science students. The inferential analysis (ANOVA) revealed statistically (*p* < 0.05) significant difference amongst the studied groups (detail see table 1).

### Comparison of research aptitude as a function of faculties

The research aptitude of science (129.02) & physical education (129.10) students were higher than that of

management (126.02), education (105.38), and engineering (99.94) students. Were lowest (99.94) amongst the studied groups. The inferential analysis (ANOVA) revealed statistically ( $p<0.05$ ) significant difference amongst the studied groups. Science & physical education, faculty showed significantly higher aptitud toward research than that of managemnt, education, and engineering faculties. Similarly, the managemnt faculty is significantly higher than education and engineering, but significantly lowere than the sciences and physical education faculties (details see table 1)

### Comparison of charecterstics of research aptitude as fuction of gender

**Table 2:** Showing the comparison of charecterstics of research aptitude between fenmale and male

Variable	Female	Male	ANOVA	
	Mean $\pm$ SE	Mean $\pm$ SE	f-value	p-value
I	46.32 $\pm$ 0.64	39.7 $\pm$ 0.67	46.11	$p<0.05$
II	20.84 $\pm$ 0.62	18.77 $\pm$ 0.52	6.57	$p<0.05$
III	24.86 $\pm$ 0.72	21.07 $\pm$ 0.58	16.77	$p<0.05$
IV	32.76 $\pm$ 0.57	29.89 $\pm$ 0.57	11.73	$p<0.05$
RA	124.78 $\pm$ 2.16	109.43 $\pm$ 2.07	24.74	$p<0.05$

I: General Aspects of Research and Research Process. II: Usefulness of Research in Professional Career. III: Relevance of Research in personal-Social Life: IV: Difficulties in Research and Research Anxiety were studied in the present study. RA: Research Aptitude

### Comparison of general aspect of research and research process as a function of sex

On the basis of table 1 it is clearly seen that the general aspect of research and research process of female (46.32) students were significantly ( $p<0.05$ ) higher than the male (39.70) students in the present study. The inferential analysis (ANOVA) revealed statistically ( $p<0.05$ ) significant difference between female and male. The general aspect of research and research process of female is significantly higher than male (table 2).

### Comparison of usefulness of research in professional carrier as a function of sex

The usefulness of research in professional carrier of female students were higher (20.84) than the male students (18.77) in the present study. The inferential analysis (ANOVA) revealed statistically ( $p<0.05$ ) significant difference between the studied groups. The usefulness of research in professional carrier of female is significantly higher than male (table 2).

### Comparison of relevance of research in personal and social life as a function of sex

It is seen that the relavence of research in personel and social life of female students were higher (24.86) than male students (21.07) in the present study. The inferential analysis (ANOVA) revealed statistically ( $p<0.05$ ) significant difference between the studied groups. The relavence of research in personel and social life of female is significantly higher than male (table 2).

### Comparison of difficulties in research and anxiety as a function of sex

The difficulties in research and anxiety of female students were higher (32.76) than male students (29.89) in the present study. The inferential analysis (ANOVA) revealed

statistically ( $p<0.05$ ) significant difference between the studied groups. The difficulties in research anxiety of female is significantly higher than male (table 2).

### Comparison of research aptitude as a function of sex

The research aptitude of female students were higher (124.78) than male students (109.43) in the present study. The inferential analysis (ANOVA) revealed statistically ( $p<0.05$ ) significant difference between the studied groups i.e. male and female. The research aptitude of female is significantly higher than male (details see table 2).

### Findings

In the present study, most of the students were interested in research. Based on above results it could be concluded that:

- Most of the Post-Graduate students showed better aptitude towards research.
- In General Aspect of Research and Research Process dimension of research aptitude significant difference was witnessed.
- Science, Physical Education, and management students showed higher aptitude towards research than education and engineering students.
- In other dimensions such as Usefulness of Research in Professional Career, Relevance of Research in personal and social life, and Difficulties in Research and anxiety of research aptitudes scale significant difference was witnessed among the studied groups.
- Significant difference is witnessed between Male and Female in all of the variables.

### Recommendation

1. The sample size of the study was less to reach any robust conclusion. It is recommended to spread out the study in large population.
2. This study was conducted Haryana only it should be taken out too many places
3. Importance of research should have taught to students.
4. Special provision should be given to develop research.

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