



# SCIENCE AND TECHNOLOGY CAREER PREFERENCE OF SENIOR SECONDARY SCHOOL STUDENTS IN RELATION TO GENDER AND STREAM OF STUDIES

<sup>1</sup>Pardeep Singh Dehal,<sup>2</sup>Shahina

<sup>1</sup>Assistant Professor,<sup>2</sup>Research Scholar

<sup>1</sup> Department of Education,

<sup>1</sup>Himachal Pradesh University, Shimla, India

**Abstract:** The main purpose of the present study was to investigate the Science and Technology career preference of senior secondary school students. The sample used for the study consisted of 160 students of senior secondary school. 80 male and 80 female students from urban and rural areas made up the 160 total students. Data were gathered using the Career Preference Record (CPR), a tool created and standardised by Vivek and Rajshree Bhargava (2001). Stratified random sampling technique was used to collect sample. Data interpretation involved the use of analysis of variance (ANOVA). Results of the findings showed that senior secondary school students differ in their Science and Technology career preference for their gender but do not differ for their Stream of Studies. Gender and Stream of Studies do not have an interaction effect on the Science and Technology career preference of senior secondary school students at 0.05 level of significance.

**Index Terms** – Science and Technology, Career Preference, Gender, Stream of Studies.

## I. INTRODUCTION

In today's rapidly evolving world, the fields of science and technology play a pivotal role in shaping the future. The choices made by young people regarding their job pathways have a tremendous impact not only on their own personal development but also on the growth and development of society in general. Recognizing the importance of understanding students' career preferences in science and technology, this research paper delves into exploring the relationship between gender, stream of studies, and the career choices of senior secondary school students. The underrepresentation of women in the domains of science and technology has long been of concern. Despite improvements in gender equality, numerous studies have shown that there is still a sizable gender gap in involvement in the STEM fields of science, technology, engineering, and mathematics (STEM). To promote inclusivity and build a varied workforce that benefit from the skills and viewpoints of all people, it is crucial to pinpoint the causes of these differences.

Furthermore, the choice of stream of studies, such as science, commerce, or arts, in senior secondary Science and Technology significantly influences career options available to students. It is crucial to investigate whether students' chosen streams impact their career preferences in science and technology. Educational institutions can better assist students' interests and goals by tailoring their outreach programmes, counselling services and curriculum by recognizing the relationship between stream selection and career choices. The objectives of this research paper are twofold: first, to examine the career preferences of senior secondary school students in the fields of science and technology, and second, to investigate the influence of gender and stream of studies on these preferences. By analyzing a diverse sample of students from different

schools, we aim to capture a comprehensive understanding of the factors shaping career choices in the science and technology domains.

This research paper contributes to the existing body of knowledge by shedding light on the career preferences of senior secondary school students in relation to gender and stream of studies. The findings will inform educational policymakers, schools, and career counsellors to develop targeted interventions and support mechanisms that promote gender equality and encourage students to pursue science and technology careers.

Rawal (1984) in his comparative study on Vocational Interest of Girls and Boys found that boys give preference to agriculture, artistic, executive, literary and scientific jobs while girls prefer social, commercial and jobs related with house hold activities. She further found that girls studying science showed more interest in agriculture, commercial and scientific jobs while the arts group preferred artistic, executive, house hold, literary and jobs related to social work.

Pradhan (1995) investigated in to vocational interest of higher secondary girl students in relation to their stream of studies of study. The study was a comparative one. It compared the vocational interest of higher secondary girl students studying in arts, science and commerce stream of studies. Significant difference was found among higher secondary girl students studying in Arts, Science and Commerce stream of studies with regard to their interest in literary, scientific, social service, artistic, constructive and home management activities. There was no significant difference among higher secondary girl students studying in arts, science and commerce stream of studies with regard to their interest in outdoor, mechanical, persuasive, clerical, administrative and teaching activities.

Nadeem (2016) conducted a study on career preferences of male and female higher secondary students: a comparative study. The present investigation intended to study the career preferences of male and female higher secondary students. The study was conducted on a sample of 200 higher secondary students (N=100 males and 100 females) studying in 12<sup>th</sup> class in various government higher secondary institutes of district Budgam. The sample was drawn on random basis. Bhargava and Bhargava's Career Preference Record were used to collect data from the selected sample. Percentage statistics were used to analyse the data collected. The investigations have revealed that there is significant difference of career preferences among adolescents with reference to sex (Male/ Female), inhibition (Rural /Urban), level of media exposure and academic streams (Arts, Commerce and Medical).

Negi (2017) conducted a study on career preferences and guidance needs of scheduled tribes college students in relation to certain demographic variables. Study was conducted on a sample of 300 college going I year students from 5 government degree colleges on the basis of convenience. Bhargava and Bhargava's Career Preference Record were used to collect data from the selected sample. Data was analysed by using statistical technique of ANOVA. The investigations have revealed that female students show significant difference in Mass Media and Journalism, Artistic & Designing, Science & Technology, Agriculture, Commerce & Management, Medical, Defence, Tourism & Hospitality Industry, Law & Order and Education as career preferences than the male students. There exists significant interaction effect between gender and area of residence on Mass Media and Journalism, Artistic & Designing, Science & Technology, Agriculture, Commerce & Management, Medical, Defence, Tourism & Hospitality Industry Law & Order and Education preferences.

### **OBJECTIVES OF THE STUDY**

- 1) To study the effect of gender on Science and Technology career preference.
- 2) To study the effect of Stream of Studies on Science and Technology career preference.
- 3) To study the interaction effect of gender and Stream of Studies on Science and Technology career preference.

### **HYPOTHESES OF THE STUDY**

- 1) There exists no significant effect of gender on Science and Technology career preference.
- 2) There exists no significant effect of Stream of Studies on Science and Technology career preference.
- 3) There exists no interaction effect of gender and Stream of Studies on Science and Technology career preference.

**METHOD:** For conducting the present investigation, Survey technique under 'Descriptive Method' of research was used.

### **DELIMITATIONS OF THE STUDY**

The study was delimited to the students studying in 10+1 and 10+2 classes in Govt. Senior Secondary Schools of Himachal Pradesh affiliated by Himachal Pradesh Board of School Education, Dharamshala.

**SAMPLE:** The sample of the present study consists of 160 adolescent male and female students studying in classes 10+1 and 10+2 drawn from government senior secondary schools of Himachal Pradesh affiliated with the Himachal Pradesh Board of Education, Dharamshala. The stratified random sampling technique was used to choose the sample, which comprises 80 male and 80 female students who live in urban and rural areas, respectively.

**VARIABLES:** Science and Technology career preference was regarded as the dependent variable. Gender and Stream of Studies were treated as independent variables.

**TOOL:** Career Preference Record (CPR) developed and standardized by Vivek Bhargava & Rajshree Bhargava (2001) has been used for data collection.

**STATISTICAL TECHNIQUE USED:** Analysis of variance (ANOVA) was used to study the Science and Technology career preference of senior secondary school students of Himachal Pradesh.

#### ANALYSIS AND INTERPRETATION OF DATA

The statistical technique of analysis of variance (2x2) factorial design with two levels of gender, namely male and female, and two types of Stream of Studies, namely Science and Arts, was applied to study the main effects of type of gender and Stream of Studies of sampled senior secondary school students on Science and Technology career preferences.

**Table: 1 Mean and Standard Deviation of Science and Technology Preferences of Students w.r.t. their Gender and Stream of Studies**

Variable	Categories	N	Mean	S.D.
Gender	Male	80	9.75	4.17
	Female	80	7.475	4.25
Stream of Studies	Science	80	9.00	4.49
	Arts	80	8.23	4.19

The summary of the results of the main effects of gender and Stream of Studies along with their interactional effects on Science and Technology career preference of senior secondary school students is given in table 2.

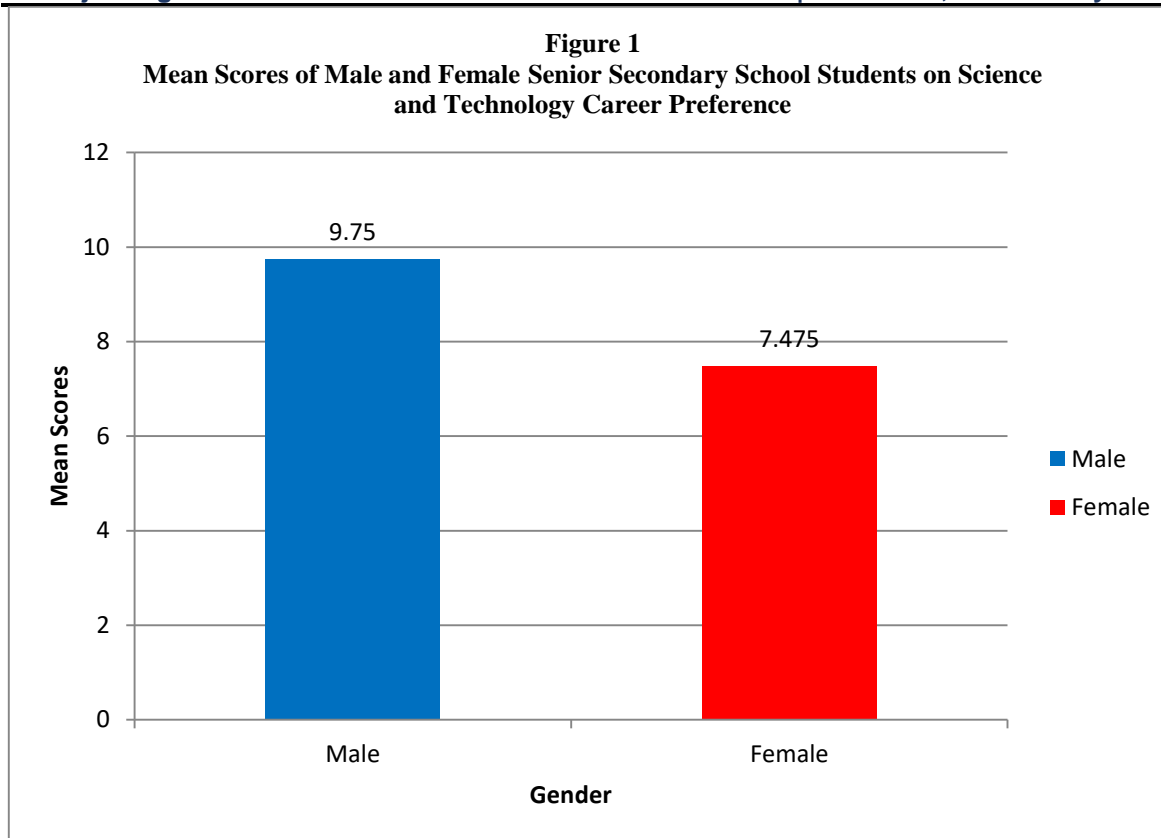
**Table: 2 Summary Table of Analysis of Variance of senior secondary school students on Science and Technology career preferences**

Source of variations	Sum of squares	df	Mean squares	'F' ratio
Gender	207.025	1	207.025	11.656*
Stream of Studies	24.025	1	24.025	1.353
Gender x Stream of Studies	4.225	1	4.225	.238
Error variance	2770.700	156	17.761	
Total	14874.000	160		

#### MAIN EFFECTS

- Main Effects of Gender:** Table 2 shows that at the 0.05 level of significance, the computed value of the "F" ratio for the main effects of gender on senior secondary school students' preferences for Science and Technology career preference is 11.656 for df 1 and 156, which is higher than the "F" table value of 3.90. Hence the hypothesis 'There will be no significant effect of gender on Science and Technology career preference' was rejected. Thus it is interpreted that male and female senior secondary school students differ significantly.

Further, it is also evident from the Table 1, that students belonging to Male category exhibited higher mean score (9.75) on Science and Technology preference than the students of Female category (7.475). Thus, it is concluded that Male senior secondary school students prefer Science and Technology more as career preferences than Female students.



- 2) **Main Effects of Stream of Studies:** Table 2 shows that at the 0.05 level of significance, the computed value of the "F" ratio for the main effects of Stream of Studies on senior secondary school students' preferences for Science and Technology career preference is 1.353 for df 1 and 156, which is lower than the "F" table value of 3.90. Hence the hypothesis 'There will be no significant effect of Stream of Studies on Science and Technology career preference' was not rejected. Thus it is interpreted that urban and rural senior secondary school students do not differ significantly and prefers almost equal level of Science and Technology and career preferences.

#### **INTERACTION EFFECTS**

**Interaction Effects of Gender and Stream of Studies:** Table 2 shows that at the 0.05 level of significance, the computed value of the "F" ratio for the interaction Effects of Gender and Stream of Studies on senior secondary school students' preferences for Science and Technology career preference is .239 for df 1 and 156, which is lower than the "F" table value of 3.90. Hence the hypothesis 'There will be no interaction effect of gender and Stream of Studies on Science and Technology career preference' was not rejected. Thus it is interpreted that gender and Stream of Studies do not affect the Science and Technology career preferences of senior secondary school students.

#### **SUMMARY**

Based on the analysis and interpretation of the data the researcher concluded that the major findings of the study are as follows:

- 1) There was significant effect of gender on Science and Technology career preference.
- 2) There was no significant effect of Stream of Studies on Science and Technology career preference.
- 3) There was no interaction effect of gender and Stream of Studies on Science and Technology career preference.

Results of the findings showed that senior secondary school students differ in their Science and Technology career preference for their gender but do not differ for their Stream of Studies. Gender and Stream of Studies do not have an interaction effect on the Science and Technology career preference of senior secondary school students at 0.05 level of significance.

#### **EDUCATIONAL IMPLICATIONS**

- (1) Educational institutions should work to create a welcoming environment that motivates and supports male and female students who are interested in pursuing careers in these sectors. This may entail putting in place outreach campaigns, mentoring programmes, and scholarships for underrepresented genders.
- (2) It becomes essential for educational institutions to give students the chance to investigate Science and Technology outside of their designated streams. This can be accomplished by exposing students to STEM opportunities and applications through elective courses, extracurricular pursuits, workshops, or guest lectures. Students can make educated career decisions based on their interests and aptitudes rather than being limited by their initial stream of studies by increasing their exposure to Science and Technology.

**REFERENCES**

- Nadeem, S. (2016). Career Preferences of Male and Female Higher Secondary Students: A Comparative Study. *International Journal of Scientific Research and Science and Technology*, 4(2), 2321-7545. <http://ijsae.in>
- Negi, K. (2017). *Career preferences and guidance needs of scheduled tribes college students in relation to certain demographic variables*. [Ph.D. Thesis. Department of Science and Technology, Himachal Pradesh University, Shimla].135.
- Pradhan, N. (1995). Vocational Interest of Higher Secondary Girl Students in Relation to Their Stream of Studies of Study. *The Progress of Education*, LXX (4), 78-80.
- Rawal, V.R. (1984). A Comparative Study of Vocational Interest of Girls and Boys. *Journal of Education and Psychology*, 41, 33-35.

