An Investigation Into the Interest Patterns of the Students in Science, Humanities and Commerce Streams at the Higher Secondary Level

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Introduction

The problem of educational guidance comes up whenever there is the question of deciding what particular field of training a particular student should undergo. This need first crops up when a student finishes the curriculum of Class VIII and he has to choose one among the seven streams of study, viz., Science, Commerce, Humanities, Agriculture, Technical, etc. It is again felt when he comes to the end of his Secondary education and has to select the field of specialisation.

There is no doubt about it that educational guidance should be given on the basis of aptitude and interest in addition to considering the achievement of the students. But unfortunately this is not practised everywhere in our country and in selecting the field of training, usually reliance is placed on the student's or his guardians, desires without making proper measurement of his aptitudes and interests, etc.

The present study aims at developing typical interest patterns for Science, Humanities and Commerce streams. It is hoped that if the norms for these streams of study can be developed, then it would be useful for the students reading in Class VIII in selecting their streams in the Higher Secondary Course and also in deciding their choice for further study in college.

The approach for identifying the typical interest pattern of the students belonging to a particular stream will be similar to the approach embodied in the Strong's Vocational Interest Blank, where the interest pattern of the individual is compared to the interest pattern of those who are successfully engaged in different occupations.

The Instrument used for measuring interest

For measuring the interests of the students, Chatterji's Non-Language Preference Record (CNPR) was used. It was developed under Indian conditions and this non-Language inventory measures interests in ten broad fields such as Fine Arts, Literary Work, Scientific, Agricultural, Technical, Medical, Crafts, Outdoor, Sports and Household Work. It is suitable for school children and the scoring method for this inventory is a simple one.

Collection of Data

After the selection of the inventory to be used, the next problem was to select the group of students upon whom the inventory was to be administered. It was decided to administer the inventory on Class XI students only because these students have been studying in that particular field for the last three years and this group might be considered to be most identical with those who would successfully complete the course.

Here, in this study the students reading in the schools at Calcutta only were considered. A list of all the Higher Secondary Schools at Calcutta was prepared and these schools were classified into several groups on the basis of area, i.e., North, Central and South. Then from each area four schools, two boys and two girls were selected at random. The inventory was then administered on all the students reading in Class XI in these 12 selected schools. Only two other schools were taken in addition to those 12 schools for the Commerce stream, as adequate number of cases was not available for this stream. There were about 628 students, 357 boys and 271 girls in the sample. There was no time limit for the inventory and most of the students finished it within 45 minutes though a few students took a little longer time.

Analysis of the Data

After obtaining the raw scores on the ten fields of interest for each of the students, the entire data were classified into two groups (a) Boys and (b) Girls, and each group was subdivided into three streams, viz., Science, Humanities and Commerce. As there were no girl students in the field of Commerce in the selected schools, all total there were five groups.

Now, the means and standard deviations of each of the ten fields were separately calculated for each of the five groups. The difference between the mean values of the boys and the girls groups (i.e., boy's Science and girl's Science, boy's Humanities and girl's Humanities) were tested for significance and the obtained Critical Ratios are presented in Table 1 along with the means and standard deviations.

It can be seen from Table 1 that for the girl's Science and boy's Science groups the mean values were significantly different at the 1% level for the fields of interest like Literary Work, Scientific, Medical, Agricultural, Crafts, Outdoor and Sports,

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TABLE 1

Showing the means, standard deviations and Critical Ratios for testing the significance of the differences between the mean values for the boy's and girl's groups in Humanities and Science streams

Fields	Science					Humanities				
No. of items.	Boys (N=180)		Girls(N=87)		Critical Ratio	Boys (N=67)		Girls (N=184)		Critical Ratio
	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
Fincs Arts (88)	18.36	8.39	20.40	9.06	1.76	27.45	10.28	36.18	12.46	5.63**
Literary Work (73)	26.74	6.86	30.93	9.48	3.68**	31.27	9.37	32.88	7.28	1.28
Scientific (90)	39.08	14.08	49.45	10.76	6.65**	29.57	14.88	28.77	13.32	0.39
Medical (91)	34.89	16.34	46.93	20.11	4.87**	30.46	18.56	32.88	13.08	0.98
Agricultural (80)	25.27	7.05	22.05	5.20	4.18**	27.39	6.79	27.54	5.68	0.16
Technical (78)	29.44	9.09	28.97	9.38	0.39	22.00	9.26	17.55	7.08	3.56**
Crafts (76)	22.02	7.36	18.31	10.16	3.71**	19.51	8.09	16.92	4.03	1.88
Outdoor (90)	22.21	12.14	15.51	12.51	6.70**	28.45	14.73	31.29	14.09	1.37
Sports (94)	24.28	11.78	17.45	11.91	6.83**	31.78	12.74	32.41	10.91	0.36
Household Work (84)	14.50	7.98	16.47	7.86	1.97*	20.92	7.30	29.04	5.21	8.29*

* indicates significant at the 5% level.
** indicates significant at the 1% level.

whereas for the two corresponding Humanities groups these differences in the mean values were significant only for the three fields of interest, viz., Fine Arts, Technical and Household Work.

The average score obtained by the girl's Science group in the Scientific scale was higher than that of the boy's Science group. This may be due to the fact that most of the boy's prefer and they do take up Science because they think that this course of study would help them most to build up their career. Training in the field of Science holds a much better prospect for jobs in our country than the one in the field of Humanities at present. Due to this reason the boy's Science group is quite heterogenous in nature so far as interests are concerned. In the girl's group generally those who are really interested in Science go for the Science stream because in their case the need for job hunting is not so acute.

In the field of Medicine, the girl's Science group again on the average had scored higher than the boy's group. This may be due to the fact that the girl's in general have a tendency for nursing the sick and this innate tendency may be responsible for the higher average score for them in the Medical scale.

In the field of Sports, the Humanities groups scored high in comparison to the science groups. This may be due to the fact that generally many of the students reading in the Science stream are serious students, which is an artifact of the selection procedure at this level and relatively less serious students are allocated to the Humanities stream. This fact seems to explain the relatively higher extra-curricular interests in these two groups.

After analysing the means and the standard deviations for each of the five groups separately, the combined means and the standard deviations for Science (i.e., both boy's and girl's Science groups) as well as for the Humanities groups were calculated. As there was no girl's Commerce group, such combination was not possible for the Commerce stream. As before the means were tested for significance and the corresponding critical ratios are presented in Table 2 along with the corresponding means and standard deviations.

TABLE 2

Showing the means, standard deviations and the critical ratios for testing the significance of the differences between the mean values for the three streams of study

Fields	Science (N=167)		Humanities (N=251)		Commerce (N=110)		Critical Ratio		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Sc × Hum.	Sc. × Com.	Hum. × Com.
Fine Arts	19.03	8.61	33.85	11.75	26.03	14.24	16.20**	4.80**	5.04**
Literary Work	29.12	7.71	32.45	7.86	29.76	8.12	4.83**	1.72	2.92**
Scientific	42.46	12.70	28.98	13.75	28.82	14.28	11.83**	8.9u**	0.01
Medical	38.81	12.73	32.24	14.65	31.42	14.22	5.43**	5.35**	0.51
Agricultural	24.21	6.51	28.86	19.59	27.38	6.91	3.58**	4.12**	0.34
Technical	29.29	7.79	18.73	7.76	24.27	9.44	15.19**	4.74**	5.33**
Crafts	21.01	8.41	17.61	5.42	21.34	6.83	5.31**	0.54	5.11**
Outdoor	20.02	11.95	30.53	14.26	30.24	14.20	9.06**	6.64**	1.50
Sports	22.05	11.59	32.44	11.29	33.00	12.02	10.39**	8.41**	0.41
Household Work	15.14	11.26	26.96	5.83	21.14	7.53	15.41**	6.12**	7.19**

** indicates significant at the 1% level.

It can be seen from Table 2 that the averages of the scores for the Science and the Humanities groups differ significantly at the 1% level for all the fields of interest. For Science and Commerce groups the corresponding averages were significantly different for all the fields except in the two scales, viz., Literary Work and Crafts. While comparing the averages of the Humanities and Commerce groups it was observed that for the fields of Fine Arts, Literary Work, Technical and Household Work the corresponding values were significantly different. Hence, it can be concluded that the averages of the scores obtained by the students in these three streams were different (significantly) for most of the fields.

Interest Profiles for the Three Streams

Profile is one of the most popular techniques of summarising the results of multiple measurements and at the same time it gives a graphical representation of the results. When typical profiles for different groups are isolated then the individual's scores can be matched with each of them and the individual can be classified in that group where his scores match most.

As the maximum possible scores were different for different fields of interest in CNPR, the mean values were adjusted such that for all the fields the maximum value becomes 100. These mean values were then plotted against the ten fields for each of the five groups mentioned above. These points were then joined to get the typical profile for the group. Two more profiles were obtained by using the mean values of the combined Science and combined Humanities groups.

It is observed from the profiles plotted with the mean values of the ten interest fields for the boy's groups belonging to Science, Humanities and Commerce streams, that for the Humanities and Commerce groups the mean values gave more or less similar pattern but that of the Science group varied widely from that.

It is clear from the profiles of different groups and the results of t-tests for testing the significance of the differences between the means of the interest scores, that the obtained group profiles were not identical and that the degree of difference between each pair of profiles admitted wide variations.

The next step was to compare the patterns of the profiles. It may be noted that the corresponding mean values of the two groups may differ significantly yet the patterns i.e., the shapes of the profiles may be similar because the two profiles may maintain almost the same amount of difference in all the mean values for all the scales. So, some index which can express the similarity of the shapes of the profiles, is to be obtained to provide better understanding of the existing relationships.

In a study by Helmstadter (2) it is demonstrated on the basis of empirical data that all the available indices used to test the pattern similarity are equally good. Hence, for this study the product-moment correlation between the two sets of mean

values for all the pair of groups were obtained and these values are presented in Table 3.

TABLE 3

Showing the product-moment correlation between the mean values for the different groups

Pair of Groups	Product—Moment r
Boy's Science + Boy's Commerce	0.56
Boy's Science + Boy's Humanities	0.45
Boy's Commerce + Boy's Humanities	0.95**
Boy's Science + Girl's Science	0.91**
Boy's Science + Girl's Humanities	0.05
Boy's Commerce + Girl's Humanities	0.57
Boy's Commerce + Girl's Science	0.34
Boy's Humanities + Girl's Science	0.34
Boy's Humanities + Girl's Humanities	0.68*
Girl's Science + Girl's Humanities	0.13
Science (Combined) + Humanities (Combined)	0.09
Science (Combined) + Commerce	0.43
Humanities (Combined) + Commerce	0.71**

* indicates significant at the 5% level.

** indicates significant at the 1 % level.

It can be seen from Table 3 that the degree of correlation was highest between the boy's Commerce and the boy's Humanities group, and this was significant at the 1% level. The correlations obtained between the mean values for the boy's Science and girl's Science groups and also between the mean values of the combined Humanities and Commerce groups were significant at the 1% level. The lowest correlation had been obtained between the boy's Science and the girl's Humanities groups which indicated that these two groups differed widely with respect to their interest pattern.

It may be said that the obtained correlation coefficient between different pairs of groups were in the expected direction. It is only but natural for the boy's Science group and the girl's Science groups to have similarities in their interest pattern, because they had been studying the same subject for several years. The lowest correlation had been obtained between the boy's Science and girl's Humanities groups and it was expected as these students studied entirely different subjects which might help in developing their interests in a different direction. It may be mentioned in this connection that the observed pattern of interests for these five groups and the obtained differences in between the groups are in the logical and expected direction and hence, it speaks for the validity of the instrument used for measuring interest.

Summary & Conclusion

This study has attempted to develop norms of different interests for the students studying at the Higher Secondary level in three different streams of study and to isolate the typical interest patterns for these groups.

Information regarding interests help a great deal in finding out the suitable course of study to be taken up by the students. The important role played by interest has been recognised recently. If information on both aptitudes and interests is considered together then it would be possible to give a better and realistic guidance to the students regarding the selection of suitable stream of study.

The Chatterji's Non-Language Preference Record was administered on 628 students reading in 14 different Higher Secondary schools at Calcutta. The typical interest pattern of the students studying at the Class XI level will serve as the reference point with which the interests of the students studying in Class VIII can be matched and provided the ability required for success in the field is present, the student may be advised to take that course of study whose typical pattern of interest is most close to that of his own. This approach is similar to that used by Strong in his inventory, where the interest pattern of an individual is compared with those who are successfully occupied in different occupations.

On the basis of the statistical analysis of the data it was observed that the interest patterns for all the groups were not identical and the pairwise comparison indicated that there was wide variation between the groups in this respect. There was much similarity between the interest patterns of the Commerce and Humanities groups but the Science groups were much different from both the Commerce and the Humanities group as far as interests are concerned.

It can be said that these similarities and dissimilarities among the interest patterns for different groups could provide adequate aid in a guidance situation. Moreover, by using the Higher Secondary total marks obtained by these students as the criterion, three new scales* of interest in Humanities, Commerce and Science streams of study are being developed and these scales would soon be available for use soon.

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