CHAPTER II

Statement of the problem & review of related studies

Interest has been a major concern of educators at least since the impact of John Dewey was first widely felt, but this concern has not always been accompanied by clear thinking. In fact, the literature on interests has been self-contradictory and confusing in a number of respects. For example, some writers have claimed that interests are so fleeting and unreliable that they merit little attention, and some studies have seemed to support this position by reporting considerable change of interests over time. At the same time, other writers have claimed that interests are stable enough to provide a basis for education and guidance, and research has been reported which supports this position. Similarly, some writers have written of interest as a determinant of success, second only in importance to intelligence; while others have produced evidence which does not substantiate this claim. Again, the origins of interest have been variously traced to aptitudes, personality traits and experience, with conflicting implications for education and for guidance.

It is a pertinent question to a wise counsellor whether guidance should have to depend only upon the interest or ability or on the both of the individual. There is a popular belief that educational guidance has to depend mainly on the interest of the individual.
In fact interest has probably received considerable attention during recent times in educational guidance programme. This is really a very crucial point. Do the predominant abilities and the predominant interests of the same individual point the same way? If abilities point one way and 'interests' another, it would be difficult for us to come to a final decision unless we know which of these two should be judged more reliable and powerful. This is the problem selected for investigation with special reference to achievement in physical science.

**Issues of the present investigation**

The main issues are chalked out as follows:

(i) To ascertain the relation between mental ability and scholastic achievement in science.

(ii) To study the relation between interest and achievement in science.

(iii) To determine whether abilities and interests of corresponding type are highly correlated with one another.

(iv) To indicate how far aptitudes and interests are dependable in an educational guidance programme.

(v) To estimate the relative importance of ability, interest and aptitude in predicting academic success (with special reference to physical science).
Analysis of related studies

A good many empirical studies (Darley & Haganah, 1955, PP 103-133; Gobetz, 1964) have found modest relations of interest to personality tests, but clinicians and counsellors have not found these studies very illuminating because the personality scores themselves reveal little about stresses within the personality. A broader study (Anne Roe & Siegelman, 1964) suggests that interpersonal stresses in the home make or break early sex-role identification and that this in turn is often expressed in the eventual vocational choice.

Conclusions about personality trends in groups are well illustrated by these comments on medical students (E. Kelly in Gee & Cowles, 1957, PP 185-196).

As a group, the medical students at the University of Michigan reveal remarkably little interest in the welfare of human beings. Such persons are not scientific minded in the sense that they want to discover new truths; their concern is rather the application of science toward the goal of increasing production .......... Another characteristic of medical students is reflected by their relatively high score on the Aviator scale .......... The one thing they have in common is maleness and a lack of interest in anything cultural. Kelly's data illustrate that interest scores shed
some light on the role the person is likely to perform within his profession. Among other criteria, sociometric ratings were obtained from the students' peers, indicating (1) his social relationships, likelihood of becoming a hospital administrator, and personal acceptability as a colleague, and (2) his likelihood of entering some public service role such as medical-school teaching, willingness to sacrifice high income. Strong scores were used as predictors of these criteria. For Kelly's 112 cases, the strong Mortician key predicted the social relationship rating (r = 0.30), and Mathematician and Chemist had negative correlations of -0.29 with the rating. The highest correlations with the rating on service orientation were carpenter, 0.44 and sales Manager, -0.42. Other scales having positive correlations between 0.30 and 0.39, were Industrial Arts teacher, Math-Science Teacher, Physicist, and Dentists; Advertising Man, CPA, and the strong keys for sales occupations had negative correlations. There are many pathways to success in medicine or any other profession; vocational self understanding is not complete when the person is fitted into a broad occupational category.

Information on personality correlates of interest scores comes from a study of 100 Air force officers assessed by many techniques (Block & Peterson, 1955; Darley & Haganah, 1955, PP. 128-129). Clinical Psychologists rated each man on an adjective check list. A tabulation was made of the characteris-
tics relatively common among men high on each strong scale. It was found that the following descriptions tended to fit those with high Mathematician scores, for example: concerned with philosophical problems, introspective, lacking in social poise, lacking confidence in own ability, self-abasing, and not aggressive, not socially ascendant.

Some research with interest measures extends our knowledge about creativity. Helson (1966) studied college senior girls known to the faculty for creative achievements in art, science etc. The creative girls were much more likely than others to recall their childhood satisfactions which came from creative writing, reading, putting on shows etc. So strong was the relation \(r = 0.58\) that Helson made all her further comparisons within the group reporting such childhood interests. Comparing the creative girls with noncreatives who also had had artistic childhood interests, she found to creatives a bit higher on strong group keys.

Similar findings come from a retrospective study of male engineers well into their careers (S. Klein & Owens 1965). The criterion (information on patents and research leadership) was predicted with validities 0.25 to 0.30 by a test of mechanical ingenuity given to the men in college ten years before. He is to give several solutions; a quantity score was not as predictive as one that took quality into account. What is relevant in this
Chapter is that adding scores from a life-history questionnaire to the test score produced a multiple correlation of 0.41 in one group, 0.69 in a second. The questionnaire shows the more productive men to have been more interested in science as children.

Interest patterns are not to be called good or bad. Contemporary psychological writing appears to assume that the ideal person is confident, interested in social contacts, and effective as a leader. Anne Roe (1952), however, points out that many distinguished, effective, apparently contented physical and biological scientists are not socially oriented. Eminent and effective psychologists, on the other hand, typically are concerned with having good relationships with others. This leads Roe to question whether Psychologists, merely because their own personalities call for an active relationship with others, write a similar relationship into their definition of "adjustment". Conversely, if physical scientists were to define the healthy personality after studying all the data available to psychologists, their ideal might place little emphasis on warm friendships and ability to lead, and a great deal of emphasis on responsibility, freedom from suggestibility, and independence of group opinion. This argument is supported by the findings that clinical Psychologists' ratings of "soundness" of personality depend strongly upon warmth in interpersonal relations.
In this discussion we have confined attention to the interpretation of personality from the usual inventory scores. It is possible to use interest inventories more directly, as disguised personality measures.

Previous studies were also held on the lines such as interest, aptitude, intelligence, achievement etc. Their correlations had been made out. As for an example, "correlations of interest with grades in related fields are generally below 0.30, so interest tests add only a small amount to academic prediction"\(^1\). "The investigation was intended to find out some interest pattern that would correspond to particular streams of study in the diversified schools in India. A tool to measure the development of interests of boys of secondary school in Calcutta was designed on the basis of strong's interest measurement technique, with some modifications. The most important outcome, according to the investigator, was the re-establishment of the fact that interest measurement was an effective way of educational guidance in the younger boys group. The study revealed that boy's interests were remarkably stable from Class VIII onwards"\(^2\). Another, investigation aimed at studying the relationship between intelligence, interest and achievement

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in science of high school students. "Intelligence was measured by the Jalota's test of mental ability and achievement was measured by taking marks obtained in the U.P. Board Examinations. Results revealed that (i) the relationship between interest and achievement in science was \( r = 0.37 \). So the results were not found to be so high that interest could be said to be the major predictor of achievement, (ii) the relationship between intelligence and achievement in science were found to be significantly positive, (iii) interest and intelligence were found to be related more with achievement than between each other, (iv) interest and intelligence were found more or less, equally correlated with achievement in science, (v) a combination of intelligence and interest was a better predictor of achievement in science than interest or intelligence alone\(^3\).

The present study has been divided in the following Chapters:

Chapter I. Gives the background of the present study.

Chapter II. Introduces the problem together with the cardinal issues and reviews the related studies there of.

Chapter III. Discusses the importance of tests in Guidance Programme.

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Chapter IV. Describes the procedure adopted for collection of data.

Chapter V. Deals with the statistical analysis of the data obtained.

Chapter VI. Summaries the results of investigation comparing them with those of other Researchers.

Chapter VII. Brings out the concluding remarks of the present study.