CHAPTER VIII

CONCLUSION

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8.5 Summary

The main description of the Hindi tests of the DAT battery has been presented in earlier chapters. The inquiry began with the statement of the need of such an investigation for proper utilisation of the student talent in our country. A proper assessment on the potential of our young citizens is essential not only for the development of a proper guidance system and adequate implementation of our various educational policies especially those framed for secondary school system, but also for the overall development of the personality of the pupil.

The goal of this investigation was to develop Differential Aptitude Test battery in Hindi for use in India. The investigator attempted this difficult task with limited resources at his disposal. He hoped to provide the future researchers with a suitable base on which to add further studies.

The Battery consists of 8 tests, of which 4 are non-verbal. These have been already in use. The investigator

collected empirical data to show that these tests are suitable for the purpose of prediction in our conditions. These tests, atleast two of them, Abstract Reasoning and Space Relations, consist of shapes and drawings which are essentially used in so called culture-fair tests, such as Cattell's tests and Raven's Progressive Matrices. In the other two, Numerical Ability and Clerical Speed and Accuracy, the main content is in form of figures and letters. In the fifth viz, Mechanical Reasoning, the main content is in the Form of pictures of some equipments and activities. In the latter the investigator replaced two items, after proper item analysis. This made the test more comprehensible to our pupils, thus increasing their reliability.

Efforts were made to develop afresh the other three tests, viz, Verbal Reasoning, Language Usage-spelling and Language Usage-grammar. These are entirely verbal tests in English. All items in these tests were, therefore, replaced by suitable items in Hindi for a more general use in our country. The original tests in English are used in an insignificant number of some English schools, where they would continue to be used even after the Hindi tests are available. For all other schools, there are practically no verbal tests in the Differential Aptitude Test battery. Each test is either used singly or the battery with only 5 tests. It is obvious, that in such cases a proper assessment of the aptitude profile can not be

made.

The format of the Hindi tests is same as of their English counterparts on which the former are based. This was in accordance with our policy of minimum changes in the battery. This was to ensure cross-cultural comparisons. It was also clear that the present investigation would be a revision of the Differential Aptitude Test battery. It was not intended to prepare a battery of new tests.

As these three verbal tests were prepared anew, they had to undergo all the processes that are necessary for construction of new tests including item preparation, selection and analysis. This item analysis finding was presented in chapter III.

Chapter IV, V, VI, and VII presented the further logical steps to justify their practical use. These steps include the study of characteristics of the tests, and their reliability and validity. Several points posed by the findings in reliability and validity studies were discussed at relevant places. It was shown for instances, that the reliability of most of the tests, was quite high to justify the trust, the user would have in the tests. Even for Mechanical Reasoning and Space Relations, it was shown, the obtained reliabilities (0.75 and 0.70 respectively) were not very inadequate. They, however, would probably require further investigations before the tests are published. Even as they were, the reliabilities obtained were as much as, if not higher than some of the tests being

used in India, including the Differential Tests by Verma. The low reliabilities in these two cases might be due to the low variability of the sample on these tests, and also probably to infamiliarity of our students to such abilities.

8.2 Important findings

1. Hindi vs. English.--An interesting finding of the present investigation was the fact that Language Usage-spelling test is highly correlated with various academic subjects where general intelligence is a factor, while the other Language test LU-grammar-was not found to be correlated with any degree of certainty with any of the usual academic subjects. This finding is contrary to the one in the U.S.A. where it is the grammar test which is highly correlated with subjects (just as intelligence test) and the spelling test only very slightly. The spelling test is more or less a measure of achievement, and the score in grammar is the indication of general intelligence. It is just the opposite in the present findings.

The author has attempted to offer a possible explanation for this phenomenon. This explanation lies in the very nature of two languages, Hindi and English, the former having phoneti alphabets and the later non-phonetic ones. Every word is written in Hindi language (and practically in all Indian languages) as it is spoken, while it is not so in English. In Hindi, therefore, the spelling is written correct (provided

it is spoken correctly) if the student hears well and has grasped the various sound symbols correctly. In this comprehension of sound symbols, a factor of intelligence comes into active play. Thus, it seems that more intelligent a student is, more is his comprehension power, his ability to learn the sound symbols and his capacity to translate sound into written symbols. It is the opposite with the grammar test. Grammar is conscientiously learnt. There are instances where persons would write correct spelling but a wrong grammar. The performance in grammar and ability to recognise grammatical errors is an indication, probably of the academic achievement.

This basic character of the Indian languages has led to another unusual situation. The fact that a child from the childhood writes as the word is spoken, has led several teachers conciously or unconciously, not to exercise that much emphasis on correct teaching of Hindi words. The correct writing of Hindi words is taken for granted. In English language, the position is entirely different. There the spelling of each word has to be learnt by rote, and, therefore, a great emphasis is laid on teaching correct spelling. Ability to write correct spelling and to recognize errors in it are essentially an indication of academic achievement.

2. Urban vs. Rural children.-- Another finding of great importance which emerges out of the present investigation is the superiority, at least the equality, of rural students,

in performance in various aptitude tests. Actually in two cases-Mechanical Reasoning and Numerical Ability-most of the significant corrections were obtained in the rural schools. In other cases, an equal or a sizable number of good coefficients were obtained from rural schools. This might be due to the sampling or the unique characteristics of Delhi rural region but the fact remains that our rural boys are not all backward and are atleast as intelligent, if not more, than their urban brethern. These findings become more interesting when we note that the high validity coefficients are in the areas generally recognized as scientific, e.g. Mechanical Reasoning, Numerical, Spelling etc. All significant correlations of Mechanical Reasoning with Science subjects are found in rural schools.✓

It would not be unusual to expect highly talented students from our rural society, for we see that most of our great men, in science, arts or in political sphere have come out of rural areas. If we recognize such presence of talen in rural areas, it would be very relevant to question the validity of using English as a compulsory paper. It is a paradox, and still the fact that a student who may have high scores in various subjects is declared a failure merely because he fails to secure minimum pass marks in English. The Vice-chancellor of an University recently expressed his displeasure at this phenomenon which closes the doors of progress for many of our potential

talents.[1]

It would seem that there was an unnecessary digression from the main theme of the subject matter, but the writer wishes to emphasize that an elaborate discussion on this point was necessary in the interest of the youths of the nation. He further feels that the tests would fail in their purpose if they are not supplemented by adequate steps to give full expression to the potential talents.

8.3 Inferences from validity studies

To come back to the main theme of our discussion the chief and useful findings of the present investigation are in the area of validity dealt with in Chapter VII. From the various tables presented in the chapter, it is observed that the Verbal Reasoning, Numerical Ability and Language Usage-spelling tests correlate very highly with most of the usual academic subjects, and probably are measures of general intelligence. Mechanical Reasoning and Space Relations have low correlations probably because, as in studies in U.S.A.,[2] they do not have an adequate criteria in school courses. Perhaps when they would be correlated with occupational success their showing would also be impressive. It is surprising that Abstract Reasoning does not correlate very well in the present

1. From an address to the Senate by R.S.Dinkar, of Bhagalpur University, on 20th Nov. 1964, quoted in Dharamayug, Bombay, of 27th Dec. 1964, p. 13.
2. G.K.Bennett et al, Manual, p. 38.

investigation, though this measures certainly an ability important as an aspect of general intelligence. It should ordinarily have an adequate validity coefficient with some school subjects. It may be, however, that the test is probably too difficult for class IX and administration or other classes may establish this test as one of the best indicators of general intelligence.

Another important observation indicated by the present investigation is the divergence in the internal assessment, from steneotyped examination, from school to school. The fact that class IX annual examinations are held by individual schools and not by the Central Board, may also be responsible for this. The fact cannot be denied, however, that there is divergence in marking, as apparent from wide range of correlations from seperate schools. Again the probable reasons may be widely different standards of teaching, different emphases, different ways of marking etc. Mehta has rightly observed "the arrangement of periods, training and qualifications of teachers, and syllabus, textbooks, teaching methods and attitudes towards a subject and some other such efforts might be involved here."[1] Harris suggests the following factors as sources of variation of reader reliability (1) experience of reader, (2) training, (3) length of response to be read, (4) specificity of the grading, (5) extent to which the question is structured, (6) essay topic being marked,

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1. P.Mehta, A Study of Intelligence of Rajasthani Children, P. 80.

(7) heterogeneity of the population of candidates, and (8) familiarity of marker with student.[1] He has also referred to works of Starch and Elliott, who "uncovered an amazing lack of agreement among teachers in grading essay-type test papers in a variety of high school subjects."[2]

8.4 Concluding remarks

The present investigation does not include the study of norms. The norms for such a study which would be used in about one third area of the country, should necessarily be based on seperate regions, and on different kinds of homogeneous groups-occupational or regional. A general normative study, the investigator feels may not be useful. However, it is agreed that publication of norms, on one or more groups is essential before the tests are published for operational use. The joint committee of various professional organisations in U.S.A. have suggested that "norms should be published at the time of release of the test for operational use,"[3] and that "local norms are important for many users of tests than published norms. In such cases the manual should suggest appropriate emphasis on local norms."[4] Norms have relevance only for the groups on which they are based and a general application is not only unprofessional but

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1. C.W.Harris, Encyclopeadia of Educational Research, p. 1504.
2. ibid., p. 1502.
3. American Psychological Association, "Technical Recommendations for Psychological tests and Diagnostic Techniques," Clause F.5
4. ibid., Clause F.4.

may be even hazardous. Seashore has cautioned against use of so-called 'general' norms and have suggested that, "undocumented, people-in general norms should not be presented because there is no cogent reason for collecting, publishing or using them."[1] In their excellent article, Seashore and Ricks have criticised the use of so many general norms, most of which are based on specified samples or are more "hodge podge handy data," and have suggested the use of norms on groups, which should be specified.

It is the desire of the investigator to follow this work and use these tests on various occupational and academic and regional groups. He would like to report further reliability and validity studies, and to carry on the normative study on them, which would then be relevant and comparable. This is the subject matter of an independent study and could not adequately be incorporated in the limited framework of the present investigation. The present study has limited itself to the preparation of tests and to establish their relevance and usefulness for our purposes, supported by appropriate psychometric findings. To quote Mehta, "such an investigation can never be final. It seeks to stimulate questions and to focus attention...The investigator hopes that the present study would stimulate further work along similar and more systematic

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1.H.G.Seashore and J.H.Ricks,Jr., "Norms must be relevant," Test Service Bulletin, The Psychological Corporation,New York, No. 39.

lines."[1]

The present investigation will be followed by further relevant studies and continuous efforts to improve the tests. The investigator believes, however, that the main purpose of these tests, to help in educational guidance, would be adequately met by this revision. Guidance here is taken in broad sense: the process which helps one to understand himself and others, and gives one an opportunity to give expression to one's potentialities. "Guidance is coming to be regarded as that inseparable aspect of the educational process that is peculiarly concerned with helping individuals, discover their needs, assess their potentialities, develop their life purposes, formulate plans for action in the service of these purposes, and proceed to their realisation."[2] It is hoped that the present study would provide an important tool for such self-discovery and thus would help the individual and the nation.

It would be appropriate to close the chapter with the quotation of Dewey, the great experimentalist in education. For him,

> "... The purpose of performing an experiment is that other people need not experiment; at least need not experiment so much, may have something definite and positive to go by... There is a difference between working out and testing a new truth, or a new method, and applying it on a wide scale, making it available for the mass of men, making it commercial."[3]

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1. Mehta, op. cit., p. 7.
2. G.M.Whipple, quoted in Udai Pareek, "Introducing Guidance Service in Indian Secondary School," Jour. of Educational and Guidance, Vol. I, no. 4, (Oct. 1954), pp. 25-33.
3. quoted in M.S.Dworkin, Dewey on Educational Selections, p.90.