

C
H
A
P
T
E
R

O N E

INTRODUCTION

- BRIEF SURVEY OF TESTING MOVEMENT

Introduction

Thousands read science but very few have the scientific bent of mind. Even among that very few, very rarely one comes across a student of that scientific brilliance who gives evidence of becoming a real scientific worker. This is true of all our student population. Hence the need for inculcating in the minds of the students a keenness of perception, sharpness of wit necessary for scientific analysis and acquisition of objectivity which forms the foundation of all real scientific thought and work.

The present trend, accordingly, in our country is towards giving a scientific and technical bias to education. A leap forward in science education could best be achieved when an all-out effort is made for the attainment of satisfactory progress, by revitalising our teaching techniques and instruction, material and by putting it on modern lines.

And yet, that may not be enough, however good the instruction material and instruction be, it is not worth its use if pupils do not have a receptive frame of mind which depends to a large extent on their abilities and interests.

Along with a study of these, a probe into the interests and aptitudes of students is quite essential which will help us to spot out those precocious children endowed with the potential abilities that are symptomatic of future possibilities. It may also help in effecting an improvement of the general standard of attainment of an average student.

For an accurate assessment of these abilities of individual pupils of every grade, it is essential that we equip ourselves with adequately systematised data and 'guidance' or 'measurement' tools. It is in this sphere that standardisation of the tools plays an important role.

For the present field of investigation the topic "Construction and Standardisation of an Aptitude Test for Class IX is chosen. This class is specially chosen because it is a stage where general grounding is imparted in the various subjects. It is a preparatory class for the pupils to choose their electives and optionals at the next higher class. A study of the aptitudes at this level will be of considerable help in the proper selection of pupils for the science groups.

Very little work is done with regard to aptitude testing in our country. It is a domain which remains still unexplored

in our educational field.

Objectives

The objectives of taking up this work are -

- (i) to study the scientific aptitudes in children of Class IX (through a study of the extent of their possessing the abilities listed out, and
- (ii) to analyse the factors comprising a "Scientific Aptitude."

A Brief Survey of the Testing Movement

The early Chinese, around 200 B.C., are credited with having used tests in the selection of their civil servants.¹ It can also be said that Socrates 400 years before Christ used oral achievement testing.² The philosopher quizzed his listeners to provide a basis upon which the individual's knowledge and understanding could be clarified, strengthened and broadened.

Next came the written examinations which were of a more recent origin. They soon became popular and began to be widely used. But people had their own misgivings about the system because of its glaring defects. A new scientific

¹Micheels, W.J. & Karnes, M.R., Measuring Educational Achievement (New York: McGraw-Hill Book Co., 1950), p.12.

²Ibid., p.13.

approach towards education was felt necessary as these defects became more significant. As a result of which, the 'objective testing' movement was born and slowly began to gain momentum. In fact, many educators, psychologists, mathematicians and others made important contributions for the development of new concepts and techniques of testing.

The Two Aspects of the Testing Movement

The testing movement, as understood today, has followed two distinct lines of growth.¹ One line of development has come about through the work of psychologists interested in the measurement of intelligence. The other line is interested in the measurement of educational achievement.

A Word about Mental Testing

The first attempt in mental testing in the U.S.A. was done by Mckeen Cattell² who was influenced by Galton's work on individual differences. The famous Binet-Simon tests of intelligence were published in France in 1905. They were revised by Binet in 1908, 1911, 1913. The Stanford Revision of Binet-Simon Test was done in 1916 by L.Terman. Again with the help of Merrill, Terman revised them in 1937. According

¹Murray, Lee J. and Dorris May Lee. A Guide to Measurement in Secondary Schools, 1938, p.8.

²Ibid., p.9.

to Henry A. Murray¹, " The currently favoured scholastic aptitude tests and in the Weschler-Belluve with its ten sub-tests and one alternate vocabulary test, to-day speak of practicability and validity in the field of intelligence testing. Terman and Merrill published forms L & M of the Stanford-Binet Test. These tests improved on the construction of the former edition and offered two comparable forms. The latest revision (1960) combines the best tests of the 1937 revision into a single form L-M and brings the standardization upto-date. In all parts of the world there have been other versions taken directly from the Binet test or one of the Terman revisions.

More Recent Trends

Evolution of general mental tests since 1911 has taken two directions. On the one hand, individual tests have been increasingly designed to allow illuminating observation as a supplement to the accurate over-all score. While the Binet items reveal considerable diagnostic information, they were not chosen for this purpose. The highest development of tests for observation and diagnosis are the popular WESCHLER SCALES.

¹Ibid.

²Stern, G.G., Stein, H.I. and Bloom, B.S. Methods in Personality Assessment, Glencoe, Ill. The Free Press, 1956, p.9.

Whereas this trend led to more elaborate mental tests and gave great responsibility to the observer, the other line of evolution was towards simpler and more mechanical tests. Procedures which could be applied to large number of people at once and score routinely, were first demanded for military purposes. In one of the major achievements of practical psychology, a group including Terman, Yerkes and Bingham assembled a test whose final version became famous as Army Alpha. Alpha tested ability to follow direction, simple reasoning, arithmetic and information. It was a practical test, easily administered and highly useful to the Army.

Since 1920, there have been changes in test design. For example, whereas, the early tests were highly speeded, time limits are generous in recent American tests. The content of to-day's general mental tests is not, however, greatly different from that of Army Alpha. They are more efficient and have better norms but they are not different in kind. The introduction of specialized tests such as the TMC has been the most important innovation in group testing since the 1920's. Recent research has increased the variety of things, the psychologist finds it important to measure. Though specialized tests are being used more and more in guidance, chemical work, educational and industrial selection, they are nearly always supplementary to general mental tests

derived from Binet's work.

From this, it should not be assumed that other lines of approach before and after Binet had no merit, merely because they failed to attain comparable prominence. Early workers explored many leads which appear to have been unduly neglected (Peterson, 1925). Binet himself made use of ink blots to study imaginative and perceptual processes, but this technique fell into obscurity from which it emerged only because Rorschach independently revived the procedure 20 years later. In his monograph "The experimental study of Intelligence", Binet described the application of ink blot and Imagery tests to his daughters arriving at qualitative description of the way their intelligence functioned which read as if taken from the most modern results of projective techniques. The possibilities of improved impressionistic procedures, which psychologists today are examining were neglected while Binet's psychometric strategy of summarising all intelligence in a single score was adopted.
