

# Aptitude Tests for University Admissions in Sri Lanka

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A news report published in the "*Ceylon News*" last year stated that the Ministry of Higher Education was studying the question whether an aptitude test should be held to pick students to the Universities. If it was decided that an aptitude test was necessary, the report said, it would be given to students who had qualified for entry to the universities on the results of the GCE A-Level examination. Gamini Gunawardana, now attached to the Graduate School of Business, University of Chicago, in this paper considers some issues related to the appropriateness of such tests in Sri Lanka, the type of tests that may be considered, and some precautions to be taken in planning, designing, and administering these tests. He also discusses some of the experiences of scholastic aptitude tests in countries such as the U.S.A. which are of immediate relevance to Sri Lanka, since a local expert committee was studying this question.

Certain techniques for forecasting educational achievement were tried in Sri Lanka some time ago, at least in two settings. Until upto the early sixties students qualifying in Science at the University Entrance Examination were subjected to an interview before chan-

nelling them to the various branches of Science. These interviews were intended to seek out information on a student's intelligence, personality, special abilities, and attitudes — all of which are considered components of aptitude. Aptitude tests of written form, pattern-

ed after the Graduate Management Admission Test (GMAT in U.S.A.), were also given around 1971 to students seeking admission to the Master's Degree programmes in Management at Vidyodaya. This author was associated with the latter project.

The concept of aptitude testing has been studied and researched for over thirty years in the United States as well as in many other countries. Problem areas still exist; but much has been clarified. The significant developments have been in the understanding of the basic nature of aptitude and its components, measuring aptitude with tests, and the validity of linking the test scores to future educational achievement.

The definition of Aptitude that has survived the test of time is the early (1934) definition given in Warren's *Dictionary of Psychology*. Warren defines aptitude as "a condition or set of characteristics regarded as symptomatic of an individual's ability to acquire with training some (usually specified) knowledge, skill, or set of responses such as the ability to speak a language, to produce music, etc". This definition is comprehensive and is consistent with the thinking of the present-day experts. It should be noted that aptitude is differentiated from skill. Skill is the ability to perform some task at a given time. Aptitude is the ability to acquire skill under appropriate conditions. In terms of our setting, this means that we are concerned with an individual's ability to acquire knowledge and skills demanded for specific curricula at the university and not his knowledge of any specific subject matter. Many early aptitude tests which did not recognize this fact have met with failure. Students who qualify at the GCE A-Level would be assumed to have the basic knowledge in the relevant subjects. This exam, however, does not measure explicitly the ability to successfully acquire the knowledge and skills of any particular university curriculum within the student's field of study, e.g. Engineering, Electronics, Pure Scientific Research, Applied Sciences or Science Teaching within the broad Physical Science area. In the past, it was not impossible for a student who had the aptitude to be an excellent Physicist to enter the university for Engineering mainly because he had very good A-Level results. Similarly, some students

who were very keen to study Engineering, and probably had the aptitude to do well in such a programme of study, ended up studying Physical Sciences and eventually becoming Science teachers, much against their wishes. It could well be that such cases were few and that by and large the admissions policy based on A-Level results alone was successful. This is an area for detailed analysis by the committee studying the introduction of aptitude tests.

If such an analysis reveals that a significant number of students who were admitted to specific programmes on their A-Level results did not perform satisfactorily, some form of aptitude testing would be helpful in the future to redirect such students to alternative programmes. A careful analysis of the type of tests that should be conducted, and the feasibility of successfully preparing, testing, conducting and validating these tests is, of course, essential before making a decision in favour of aptitude tests. The rest of the paper will focus on some of these considerations.

Research has still not been able to clarify the nature of aptitude. In the absence of a clear knowledge of what it is, it is often referred to as a "condition" or "a set of characteristics". The characteristics that comprise aptitude are recognized to be intelligence, interest, personality, special abilities and attitude. Perhaps it was for this reason that interviews were once chosen as the means of testing aptitude. Interviews, if conducted systematically, provide a good setting to estimate some, but not all, of these characteristics. This method, however, suffers from many limitations, the main ones being the personal biases and the non-uniformities inherent in it, especially when conducted by people who have not had training in interviewing techniques. Also, interviews yield impressions and not accurate test scores which could be later used for validation. In most countries, interviews are now not used in testing educational aptitude although the technique is common in personnel selection. The alternative preferred is some form of written group test which attempts to test two of the characteristics: intelligence and special ability. Some tests, such as the well-known Stanford-Binet test, at-

tempts to measure general intelligence. In our situation, however, we are concerned with the student's ability to perform academically. His ability to reason at a high level, using abstractions can be very different from the kind of intelligence that he would need to conduct his affairs in everyday life. This fact is taken into account in many other educational aptitude tests such as the Scholastic Aptitude Test (SAT) sponsored by the (American) College Entrance Examination Board and conducted by the Educational Testing Service (ETS). SAT is composed of two parts: mathematical and verbal. Separate part scores and an average score are made available. The Graduate Record Examination (GRE) is another form of test which has a general part much like the SAT and special tests in several subject areas (the student choose one). The Graduate Management Admissions Test (GMAT) used by graduate business programmes is also similar to SAT. Universities then use these scores during their admissions process. Two points must, however, be highlighted. First, the SAT score considered as acceptable differs among the large number of universities in the USA. Second, the SAT score is only one factor taken into consideration in making admission decisions. College Board and Educational Testing Service sources claim that SAT test scores are a good predictor of later academic achievement in the university, especially in the first year at the university. They, however, agree that high school grades (equivalent to our A-Level results) alone could also be used as a predictor. The key point they make is that these two taken together are the best predictor of all. Although the claims of the reliability of SAT as a predictor of university achievement are highly disputed at the present time (more about this later in this paper), there are some points worthy of consideration by Sri Lankan authorities. The most important of these is not to set up a scheme which would consider scores of an aptitude test alone as the criterion for university admission or curriculum selection. There is general consensus, even in the USA, that information about a student's past achievement is

essential to predict his future accomplishments. Therefore, in Sri Lanka too, any newly designed scheme should consider both the aptitude test scores and information on previous achievement. Unless monitoring studies validating the admissions later reveal so, it would be impossible to claim that a student who has good A-Level scores is not suitable for a university curriculum of his choice if he fails to do well at the aptitude test.

The claim that aptitude tests measure potential for success at the university is highly questionable. Recently, the controversy has resurfaced probably in a scale greater than ever before, especially after the Nairn-Ralph Nader study and the Slack-Porter study. Both these, published in 1980, are extensive studies covering almost all the major points of concern over these tests. The Nairn study claims that tests like SAT and LS-AT (for Law School admissions) are not good predictors of success in the university. They show that there is a high correlation between the SAT scores and the parental income of the students. This, taken together with the results of the Astin study of 1971 which showed that there was no correlation between the university first year grades and parental income, raises serious questions about the usefulness of SAT. The Nairn study claims that as a predictor of academic success the high school grades were 'about twice as good as SAT scores' and that addition of SAT scores to high school grades improved the prediction process only by 3 to 5 percent. The study also shows that the tests were biased against lower income students and that "tutoring" can improve students' performance on tests thus giving an unfair advantage to wealthier applicants. The Slack-Porter study confirms most of the above points.

For education planners in Sri Lanka considering aptitude tests, these recent studies should indicate several areas of concern. I do not plan to suggest that the U.S. type of test is the one we must use; nor that these exact problems would arise in Sri Lanka. My effort is to point out how difficult it is, even in the U.S.A. with a history of 30 years of research on aptitude tests, to design and conduct aptitude tests that would serve the intended purpose. It should also be pointed out that the effects

of an improper scheme of aptitude testing would affect the students in Sri Lanka much more than a similar scheme in the U.S.A. would affect their students. In the U.S.A. there are hundreds of universities and a student who fails to enter a prestigious university due to his relatively lower aptitude test scores could, in most cases, find another less prestigious university. This is not the case in Sri Lanka where one standard would be applied across the board and where only limited space exists in the universities. There is also the dangerous possibility of hastily introducing an aptitude testing scheme in Sri Lanka. An aptitude testing scheme needs much preparation in terms of test battery preparation and reliability testing scheme in Sri Lanka. An aptitude testing scheme needs much preparation in terms of test battery preparation and reliability testing. Any system that would be installed without giving careful consideration to these stages would almost certainly end up with some kinds of biases, if not the same biases now suspected in the U.S. tests. A bias in the Sri Lanka test, say against students from lower-income families or certain racial or geographical groups would defeat the basic purpose behind these tests and would create serious social and political problems too. Furthermore, lower scores in aptitude tests have been shown to make individuals lose self-esteem and we would not want our younger generation, or part of it, unnecessarily to feel so. It is also not uncommon in certain societies to see attempts at using such scores, quite unscientifically of course, to argue that certain races/groups are inferior in intelligence. This too is not something we want in Sri Lanka. There is thus clearly every reason to avoid introducing tests with possible biases. It might be interesting to recall at this point that the Vidyodaya M.B.A. admissions aptitude test suffered from most of these deficiencies. It was hastily planned; was patterned blindly after the GMAT (then ATGSB); and was not tested for its reliability. The result was that it could not be claimed as a serious predictor of subsequent performance. Fortunately, however, the test scores were not given a significant weightage. Academic achievement, and career achievements and goals were considered more important. Some of these were measured by an interview.

Summarizing this paper: it is not intended to discourage the introduction of aptitude tests in Sri Lanka or to undermine the serious thinking that is going on in Sri Lanka on the need to seek better university admissions policies. It only points out some of the possible problems that could arise. The author feels that the major initial effort would be to ascertain whether the best aptitude test, formulated according to Sri Lankan needs, would in fact improve the admissions procedure. If this is not clear, it would be better to abandon the idea and make some other improvements in the A-Level and/or university first year education. If, however, an aptitude test seems essential it must be prepared carefully and tested extensively against possible problems and biases. Introducing a test for a few years in parallel with the present procedure, as an experimental study, appears to be the wisest. In any case, an aptitude test must be considered only as a part of the evaluation scheme together with information on past achievement.

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