

PART II
SELECTED DOCUMENTS

THE AIMS AND EFFECTS OF EXAMINATIONS

Summary of Papers

D.M. McIntosh: Examinations, notes the purpose of examinations and sets out both their strengths and weaknesses. An appeal is made for a sense of proportion to be maintained and it is suggested that a variety of assessment methods be employed to gain a true picture of an individual's ability or attainment. These methods are teachers' assessments, external tests of the objective type and essay type examinations to measure other aspects of ability and achievement not measured by the objective test.

D.S. Anderson: The Social Context of Examinations, places examinations in context and traces their development from the Book of Judges and Imperial China. He finds that defects in examinations lead to an excess of rote learning, distortions in curricula and teaching and psychological distress. Examinations are judged to be out of line with the aims of education and society, but they may be used as instruments of social engineering to redress the balance. A number of radical suggestions are made to highlight the bad effects of examinations and stimulate the reader to consider ways and means of developing an examination system which will be beneficial for education and society as well as for the candidate.

L.S. Skurnik: The Effects of Examinations, lists both good and bad effects of examinations upon pupils, teachers, school systems and nations as a whole. He suggests that the effects of examinations can be dramatic and lasting and argues that many of the criticisms directed at examinations are misdirected since it is the misuse of examination results that is at the heart of the controversy. Examinations are faulted because they are on occasion inadequately constructed, seldom evaluated after the event and are required to serve too many purposes beyond those for which they are intended. Their effectiveness as quality control devices is outlined.

R.O.W. Fletcher: Purpose, Scope and Structure of Public Examinations Councils in the Third World, considers the role and organization of examinations and the organizations that administer them. Examinations are perceived as a significant part of the educational and social environment and should therefore be designed and used in the most constructive ways possible to enhance the dignity of the individual and help fulfill the human ideal of "equality and not identity." There should be a greater cultural identity between the education and social system with the examination system which is employed.

EXAMINATIONS

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Examinations have a determining influence on careers, and accordingly they arouse emotional attitudes: they have been referred to both as "the central nervous system of education" and as "a millstone round the necks of the schools." Such reactions arise partly because examination results are used without sufficient thought to their validity and partly because many examinations are not constructed with clearly defined objectives. Despite the early researches which revealed the extent of the unreliability of examination marks, only recently have steps been taken to produce the improvements which are so necessary in any system of large-scale examining. For example, the pass/fail examination is a weak measuring instrument because all measurements of human ability are approximate and to use an examination to distinguish between a pupil who scores 50 and is awarded a "pass" and another who scores 49 and is awarded a "fail" assumes a degree of accuracy which is beyond the resources of a written examination.

A very large subjective element enters all aspects of examinations. The selection of questions involves the sampling of sections of a syllabus on which the examinee is tested: the sampling depends entirely on the views of the examiner. Pupils have sat examinations in which they have "spotted" certain questions and, accordingly, found the examination easy, whereas others have had the experience in which much of their hard work has gone for naught because the sample has been drawn from areas of the syllabus on which they had not concentrated their attention. A subjective element is also involved in the allocation of marks. For example, a group of teachers or students when given no guidance will award a wide variety of marks to an arithmetic question in which the pupil takes down one figure wrongly but works the sum out correctly: the different marks indicate different value judgements.

Examinations have a wide range of purposes. The following are the most common:

- (a) attainment : standards and objectives must be clearly defined and the examinees should be given some indication of the standards which they are expected to attain.
- (b) diagnosis : such tests or examinations attempt to find out what the pupil does not know. For example, a diagnostic test in arithmetic may show that a pupil has a specific weakness: many young children have difficulty with zeros and when such weaknesses are revealed by a specially constructed test they can be corrected.
- (c) prediction : most of the examinations at the end of secondary school are used to predict the success with which a pupil will engage in a course of higher education. Many such examinations have not been specially constructed for this

'objective, and it is merely assumed that they have this value although investigations have shown that the relationship between success in higher education and secondary school examination results is not high.

- (d) motivation : the knowledge that a specific standard has to be achieved by a certain time gives purpose to teaching and to learning. Teachers interested in their pupils who are attempting to gain admission to university will strive hard to ensure that the pupils gain the necessary entrance qualifications, and the pupils for their part have a clearly defined goal which channels their energies.
- (e) selection : selecting a number of pupils for a particular course of study, where the purpose of the examination is to ensure that pupils who are chosen have the ability and the knowledge which will enable them to undertake a particular further course of study. When a restricted number of candidates have to be selected from a group, it is assumed that the examination can make the fine distinction between the candidates at the border line.
- (f) a teaching instrument : too often, once the examination marks are issued, no further work is done on what has been written. On the other hand, examinations or tests of some nature should be a regular feature of classroom work. These need not be formal examinations but tests to check whether the learning experiences created by the teacher have been effective. In all teaching situations, the teachers should have clearly defined objectives. Following the exposure of the taught to a learning experience the teacher must attempt to assess the success with which the objectives have been achieved. The assessment will have two purposes: first, to ensure that the learning experience is effective, and secondly, to gain some insight into the ability and attainments of the taught.

One of the weaknesses of examinations is that they tend to be used for a wide variety of purposes. Examinations at the end of secondary school courses are used for entrance qualifications to a large variety of professions, which select these examinations merely because they are available. It has often been suggested that different professions should set their own examinations, but this would place the schools in an impossible situation whereby they would require to prepare students for a very wide variety of examinations. National external examinations such as the GCE in England and the SCE in Scotland are used for entrance qualifications for many courses in higher education and while they were originally intended for university entrance they now are used by a multiplicity of institutions providing higher education: it is doubtful whether they can have a high predictive value for all institutions.

An examination should test the objectives of a specified course of study, and these objectives should be clearly defined. In the case of schools, teachers should create the learning experiences which enable pupils to attain the stated objectives and the examination should provide a measure of the effectiveness of the learning experience. The knowledge of facts is essential in any course, but too many examinations rely heavily on memorisation. In an examination on statistics or mathematics pupils are allowed to use mathematical tables, but there seems no good reason why they

should not also be allowed any books which they use in the classroom. The memorisation of a formula is of little importance in life outside the school: it is the ability to use the formula which is of real significance.

Objectives have been classified by Bloom in his widely known work "Taxonomy of Educational Objectives"* and it is possible to analyse examinations showing the percentage of each category which have been tested by the examinations. The categories are:

- (a) information
- (b) understanding
- (c) application
- (d) analysis
- (e) synthesis
- (f) evaluation

These are in what is known as a hierarchical order: each category cannot be carried out without skill in the previous categories, for example, understanding is not possible without information and, similarly, application cannot be carried out without information and, similarly, application cannot be carried out without information and understanding.

Too great reliance is often placed on examination marks: as has been indicated the pass/fail examination provides an example of an assumption of the accuracy which it is assumed examinations possess. Much research has been conducted to show the unreliability of examination marks. Pupils sitting similar examinations at intervals often show a degree of unreliability which is difficult to understand. The lack of consistency in examination marks may be due to three factors:

- (a) the unreliability of the marking: research has shown that the same examiner can award different marks to the same pupils after an interval of time. In one investigation 14 examiners were asked to re-mark 15 history scripts some 12 to 19 months after the first time, having kept no record of their previous marks. The examiners awarded not only numerical marks but also the verdict of failure or pass or credit. It was found that in 92 cases out of 210 the individual examiners gave a different verdict on the second occasion from the verdict awarded on the first occasion.
- (b) the unreliability of the examination: questions in any examination can deal with only a sample of the syllabus which has been studied. If the sample is not representative of the syllabus as a whole the examinees may not do themselves justice. When a teacher can make an accurate forecast of the type of question likely to appear in an examination, his pupils will probably gain marks unrepresentative of their ability. To give consistent results an examination should be of the same order of difficulty to all examinees of comparable ability.

*

Bloom, B.S. (ed): Taxonomy of Educational Objectives, Handbook 1: Cognitive Domain, David McKay & Co., Inc., New York, 1956.

- (c) the unreliability of the examinee: few individuals can consistently reach the same standard in any activity: all have their good and bad days. Some are more consistent than others and it is for this reason that a decision on a pupil's future should not be based on the result of a single examination. Ill health, or nervous tension, may also cause an examinee to do badly in an examination.

One technique which has been successfully developed to overcome the unreliability of examinations is the objective test. "The Battle of Bannockburn was fought in - 1413 1143 1314 1134 - underline the correct answer." Questions of this type have only one correct answer and thus the mark is likely to be the same no matter who corrects the paper. A large number of such questions make up a test and therefore a much wider sample of the syllabus can be studied. Such tests have some obvious disadvantages in that they cannot test a pupil's ability to select data and arrange it in an orderly and logical order. The construction of such tests also is a much more laborious and time consuming operation than an essay type of examination.

The most important factor in determining success or failure in examinations is motivation. Where pupils have a strong desire to succeed they are more likely to do well: where they have little interest in the result the standard achieved will be low. Care has to be taken, however, to make sure that there is no over-anxiety on the part of the examinees, otherwise they become upset and do themselves less than justice. One of the causes of uneven performance by examinees is the undue proportion of an examination dependent on memorisation: too many examinations cannot be answered without remembering information. For example, the following question is typical of some examinations - "How many balls of $1\frac{3}{4}$ " radius can be made from 539 cubic inches of metal?" Examinees may be capable of answering this question, but cannot remember the formula for the volume of a sphere. Outside the examination room, anyone who had forgotten such a formula would simply turn to a book for the answer. The present explosion of knowledge makes memorisation more and more unprofitable since much information becomes rapidly out of date. To find out how to use facts is much more important than remembering them, and examinations should reflect this change in emphasis.

It cannot be too strongly emphasised that all assessment of human ability is approximate, hence the more reliable and valid information about an individual which can be ingathered, the more any assessment is likely to give a true measure of the individual's ability or attainment. The result of a single examination should never be used as a means of assessment. Three components ought to be used:

- (a) teachers' assessments : the pupil's record over a number of years will give a rating which should be fairly reliable. Teachers standards, however, vary according to the teacher's experience, hence some form of external measure is necessary to scale the assessments on a uniform standard.
- (b) external tests of objective type : these give a reliable measure of a pupil's ability in a clearly defined syllabus.
- (c) essay type examinations : these measure other aspects of achievement and ability than those generally measured by the objective test.

Examinations are not the same thing as the day of judgement: and they are certainly not the Alpha and Omega of education, nevertheless some form of assessment is essential if teaching is to be effective and the potential ability of individuals is to be developed: the ruler is unlikely to be discarded because it cannot measure to 1/1000th of an inch.

THE SOCIAL CONTEXT OF EXAMINATIONS

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In countries with differentiated occupational structures examinations are a link between school and society. The purpose of this paper is to discuss ways in which the societal uses to which external examinations are put frustrate educational objectives. In the final section I shall have a little to say about possibilities for a reconciliation. First, however, it will be of use to review briefly the several functions which examinations serve.

I

Within schools tests are used as an incentive to get children to work. The extent to which teachers in traditional schools rely on examinations to motivate their pupils may be gauged from the extent of the opposition when abolition is opposed. Informal testing, which can be conducted in a variety of ways, can also provide useful feed-back to learner and teacher and help diagnose strengths and weaknesses. Unfortunately the vast amount of information which is available from formal testing is rarely used to assist pupils improve their learning, but only for classification. Grades are used to regulate the progress of pupils from one stage of a subject to the next, from one class to the next and to successive institutions.

In some places the collective results are used as a means of assessing teachers; for example as evidence for promotion. Schools too are judged by the examination performance of their pupils at external examinations, and some of the more prestigious independent schools advertise by discreet reference to results. The implied claim that good examination results are attributable to the quality of teaching in a school is of dubious validity. Recent sociological studies by Coleman in USA, Douglas in Britain and Keeves in Australia of the relative contributions of home environment and of schooling indicate that the former contributes most to the outcome. (1) Further evidence is the failure of performance-contracting in USA where private educational agencies, using the latest teaching techniques, contracted to produce specified gains on standardized tests. The contractors are going out of business. (2) It seems very possible therefore that the good results of particular schools are more a function of input than of differences in teaching. Later we shall note that examination results are only moderately accurate in predicting the future performance of an individual.

The most obvious social use of examinations is to maintain standards or determine a minimum standard necessary for the performance of a task. The test for a motor driving licence is an example. Motor authorities deem it necessary that before a driver is safe to go on the roads he should know the highway code, and be able to demonstrate elementary skill driving in traffic, parking, etc. The test is not used to limit the number of licensed drivers, but solely as a means of quantity control. Tests for admission to the skilled trades and the professions serve a similar function of ensuring that the applicant possesses the minimum skill necessary for his avocation. There is no doubt that the most valid examinations of capability are those which are direct tests of the relevant skills: actually driving the motor car rather than knowing the theory of driving for example. Examinations for admission to the higher public service and to the professions tend, however, to be indirect. The tests might contain a great deal of theory, or even completely unrelated subjects. Up until the Second World War admission to the upper echelons of

the British Colonial Service required a mastery of the classics, with emphasis on form rather than content. The connection with the requirements of the task is obscure, unless the self-discipline needed to master Latin and Greek developed in the learner those stern moral qualities necessary for the efficient administration of a tropical empire.

The second major social use of examinations is for selection and manpower direction. Where there is an excess of qualified applicants examinations not only determine the minimum standard but also an order-of-merit list from the top of which the requisite number is chosen. This is a situation which bedevils admissions to universities and the prestigious professional occupations. It is not a new problem however. The Book of Judges tells how Gideon used a vocational selection test to produce a manageable strike-force from an excess of keen parisans:

"And the Lord said unto Gideon, 'the people are yet too many; bring them down unto the water, and I will try them for thee there . . . every one that lapped of the water with his tongue, as a dog lapped, him shalt thou set by himself; likewise every one that boweth down upon his knees to drink.' ..And the Lord said unto Gideon,' by the three hundred men that lapped will I save you.' "

In modern industrialized societies and in societies which are converting to this model, educational qualifications are the major means by which parents seek to enhance the life-chances of their children. Democratization of education is removing the rigidity in social structure which under feudalism and in newly established societies was maintained from one generation to the next. For a place at the top the possession of skill is becoming more important than the inheritance of position or capital. The pressure on schools and universities is enormous and examinations are used not just to control quality but to limit the numbers who get into the academic stream of secondary education. There is a further limitation on the number who get to college and university and who graduate into the most desired jobs.

Although the intensity of the competition is new the use of formal examinations as an instrument of social engineering has a long history. For 1500 years Imperial China conducted competitive entry into the bureaucracy using formal tests of learning in a classical, literary and moralistic curriculum. (3) In recent times the number of candidates was as high as two million but the number gaining admission to the upper classes was very small indeed. The Chinese were responsible for introducing mass, written, simultaneous examinations; techniques which were not adopted in the west until the nineteenth century. Initially the Chinese examinations were direct, the candidates being tested in skills relevant to the administrative role to which they aspired. Gradually the practical components were dropped in favour of asking the candidate to describe the skills and later still the test became examinations of literacy and classical knowledge. As a means of administering a social competition they worked. The handful selected from the multitude of applicants had sufficient wit and intelligence to carry out their administrative tasks with acceptable efficiency. The system is an example of what sociologists call "sponsored mobility." The existing social order is secured and the position of the elite is maintained, while the administrative strata is replenished with a sprinkling of children from the lower orders who have been specially socialized in elite values.

Educational theory must be related to the social and economic realities

of the times. Universal schooling has helped raise expectations beyond the capacity of society to satisfy them. There has to be some restraint. In 1930s it was "if we are all educated, who will sweep the streets?" Again this is not a modern phenomenon. In the sixteenth century Richard Mulcaster wrote:

"There must be a 'restraint', and all may not pass on to learning who throng thitherward, by cause of the inconveniences which may ensue by want of preferment for such a multitude and by defeating other trades of their necessarie travellours. Our next labour therefore must be how to handle this restraint, that the tide overflow not the common with too great a spring of bookish people, if ye crie, 'come who will' or ring out 'all in'. (4).

Modern societies prescribe "all in" for primary and secondary schooling and beyond that it is increasingly "come who will." Examinations are the tool of social restraint, and as such carry a tremendous burden as universal schooling pushes up ever increasing waves of educated, able and ambitious children. Examination results determine the occupation, status and income of an individual for the rest of his life. Those parents already well-placed urge their children to greater efforts lest they lose their place in the hierarchy. Even Ivan Illich cannot envisage a society free of examinations. Like Mulcaster, Illich acknowledges that although large numbers may aspire to high prestige and well paid occupations, everyone cannot be allowed to. There will have to be tests of preparedness, for example, to limit the number who can be permitted to become nuclear physicists.

Alongside their functional role examinations have ritual significance. In any society, traditional or industrial, young people are initiated into adult roles by tests of competence with which is associated a good deal of anxiety and perhaps some suffering. The interest generated not only in the candidate, but in friends, relatives and mere acquaintances as the results are published is like the excitement of a tribal initiation ceremony. Within a college or university, examinations constitute a 'rite de passage' symbolizing progress to higher status and inducing in the survivors a greater sense of cohesion and belonging. I mention this aspect because it helps explain the resistance of examinations to attempts at reform, despite long-standing evidence of the damage they do to education. Those of us who survived and have achieved positions of some eminence in the world of education or administration are inclined to have a certain emotional investment in the means which led to our success.

So far we have discussed the two sets of uses of examinations. In education they provide an incentive for pupils to learn, they can be a means for feeding back the results of learning and they are used to regulate the progress of students through successive stages of school. Their societal functions are to help maintain standards, to preserve social structure and to prepare individuals for roles in that structure. Now we need to look at their effect on education.

II

The two essential defects of examinations are that they do not test the right things and that they have become ends in themselves - the tail that wags the educational dog. All the incentives are for teachers to teach for the

examination. Pupils and parents want good marks and if possible the 'scholarship' which is awarded to those with very top marks; the headmaster wants good results to enhance the prestige of his school; and the teacher with the best examination record is the one who will be promoted.

Since exams test what they can test best, that is, categorical knowledge, rote learning is favoured. Using their commonsense students study past examination papers for clues about the content and orientation of a course of study. These papers and a knowledge of what is amenable to a three-hour examination help determine what should be studied and what parts of a course may safely be neglected. Other clues are found in the timing of examinations and rate of progress of the lecture-course. A noticeable speeding up in the third term is taken as a good indication that some topics have to be covered because they are 'on the paper'. Strategies vary with the individual, with the subject and with the skill of the examiner. Such variations affect not only the amount of work a student does but also his willingness and freedom to engage in intellectual work, whether or not it is considered examinable. Since examination questions are a sample of the complete course and all topics cannot be covered in three hours there is a strong temptation to take a punt by concentrating on topics which will be covered and concentrate on these. Furthermore, there can be a positive anti-intellectual incentive. In 'The Advancement of Spencer Button', Brian James describes how a teacher responds to the incentive of an external exam:

"That class had never realized before what "English" really meant. They could practically repeat the whole of "The Merchant of Venice" by heart. The very word "character" set them ticking off "traits" to the number of sixty for Shylock and twenty for old Gobbo. They could draw maps and charts and graphs of the very innermost soul of Antonio, and they could reckon to the last grain the very weight of Bassanio's love for Portia. All the parts of the play were taken to pieces and laid out for inspection; then they could put the parts together again with no parts left over. They dug out every figure of speech and examined it under a microscope. They knew every allusion, and had opinions about the Elizabethan use of every word in that play. They knew Shakespeare's mind - far better than he did himself - when he wrote that play. They worked through all the past papers in which "The Merchant of Venice" had appeared, and wrote reams and reams upon them, and then re-wrote their answers, and filled books with model answers, and imitated them. They certainly knew "The Merchant of Venice" and they longed for the time when they could tell Shakespeare, and all who peddled him, to go to hell and stay there.

" They got an entirely new slant on poetry, too, and found things in Wordsworth that would surely have greatly surprised that simple poet.

" When the examination results were published eventually, Spencer reaped a rich reward. Of the thirty-four boys in 3C, 33 got A's in English....." (5).

As an incentive to learning examinations are not highly efficient. There

is no question about the threat of a test causing students to work. The trouble is that traditional written examinations seem to deal best with that part of the curriculum that will be forgotten first. Anyone who doubts this should try retesting after three months. Modern psychology has demonstrated that the quality of learning is related to intrinsic motivation. Plato put it simply that enforced learning will not stay in the mind.

Finally there can be undesirable behaviourable consequences from competitive examinations. One of these is psychological stress, which in extreme cases can lead to suicide. A certain amount of anxiety is a stimulus to effort; beyond a certain level, however, and still well short of psychological break-down, anxiety becomes counter-productive and actually inhibits useful learning. There is also an effect on human relations in the class. Generally as pressure increases there is a break-up of group activity and even anti-social behaviour such as the keeping of information from competitors. In one case with which I am familiar the students realized that only a fixed proportion would be passed; that is they were competing against each other, not just against a standard. The response of some students was to seek out the weaker brethren and encourage them not to drop out so the proportion of failures would be maintained.

As the nature of professional work changes competitive examinations may even be dysfunctional. There are clear trends for professional services to be provided by teams rather than individuals; for example, group practices in medicine and law, and team-teaching in education. In science and technology problems are being solved by groups rather than one brilliant individual. Yet in education at secondary school or university the emphasis is on individual effort, and this is reinforced by competitive examinations, the prospect of which destroys any incentive for pupils to collaborate in learning and problem-solving.

III

It should be obvious from the first part of this paper that, short of a spiritual revolution, society will continue to sift and select individuals for the more desired places in the social order. If one sort of test is abolished another will take its place. What then can be done to make examinations more consistent with the aims of education? Three possibilities are to abolish competitive examinations altogether, or to devise tests which insulate the learning process in schools from the pressures of the social market place, or to so construct examinations that they induce exactly those learning behaviours that the educationalist has specified.

The elimination of competitive tests is not as unrealistic as it may first sound. A distinction must be made between a competition in which an individual pits himself against a standard and an interpersonal competition for a limited number of places in a quota. In the second case all candidates may be of an adequate standard but only a few are chosen. Given that there will always be occupations and courses where access must be limited, cannot the prize be awarded other than by more stringent testing of performance on the qualifying examination?

The means must of course be socially acceptable. In times past access to higher education has been restricted to a wealthy elite; today in most countries children of the better-off retain an advantage in the competition for places but there are some signs of reaction. There are even a few instances

of preference being given to those starting from behind scratch in the qualifications race. The point is that discrimination which less than a generation ago would have been considered outrageous is now becoming socially acceptable in the name of equality of opportunity. The effect is to mute a little the effects of competitive entry. A second method is to institute an additional hurdle, not an academic one. A common example, which has operated in a number of countries, is the preference given to ex-servicemen. More recent and constructive are the programmes where preference is given to young students who have worked in voluntary programmes, or to mature applicants. Such schemes will not alter the levels of academic performance too much one way or the other. They do have the virtue of diversifying the range of life experiences represented in the intake. This could well be an advantage in the public-service professions like medicine and law.

Placing additional obstacles on the path may lessen the one-to-one connection between what goes on in school and the prize of admission to the professions, but the competition remains, except in the unlikely event of the surplus of qualified applicants being deterred by those obstacles. There remains another means which in theory eliminates all inter-personal competition. If there is an excess of applicants who have met the qualifying tests, select the required number by lot. The ancient Chinese allocated the final positions in their system according to a ballot. More recently Australia found a lottery to be a more or less socially acceptable means of determining a negative award - conscription for military service - and educational planners in at least two European countries are considering the method for admission of qualified students to university.

The second possibility for protecting schools is to construct tests which are not related to particular syllabuses. The best known examples are the Scholastic Aptitude Tests devised by the Educational Testing Service and which form the main means of regulating transition from secondary school to college in the USA. The tests are sometimes supplemented by reports from the candidates' school and by interview. Research reports give these tests about the same predictive validity as is common for the descriptive examinations used in most Commonwealth countries. Secondary schools in the United States are certainly freer of the examination pressures which dominate elsewhere, and this must be in part due to entrance tests which are not related to particular curricula. On the other hand a far larger proportion of the U.S. age group goes to college and much of the competitive pressure is displaced onto higher education.

In Australia, concern with examination pressures and the desire of some universities to experiment with new admission methods led to the Tertiary Education Entrance Project. (6) The series comprises up to nine hours of testing premised on the assumption that there are basic concepts common to a number of subjects and that achievement in these can be tested without demanding specific knowledge of the minutiae of a topic. Trial runs have been carried out for three years using several versions of the tests. Preliminary results are that university performance is not predicted as well by TEEP as by external examinations of the descriptive sort or by internal school tests. Work is in hand on a short version of TEEP which could be used in conjunction with school reports as a means of determining university admission. This result needs to be viewed in the context of the predictive values of various types of tests. The consensus of literally thousands of studies made in Commonwealth countries and in the USA is that the best predictors are achievement tests similar in nature to the criterion test of academic performance. Tests of general ability or of developed ability do not do quite as well, but are better than tests of specific ability. Tests of attributes of

personality or of motivation, and ratings from interviews are least effective. Because all the different sorts of predictors are inter-correlated the gain obtained from multiple predictors is small and rarely worth the effort of adding anything to achievement tests. (7) And even the best predictors do not consistently account for much more than one quarter of the variance in the criterion. These results apply to the relation between tests taken only one year apart. Predictions are weaker for longer periods. It is easy to verify how little the classification based on examination results corresponds to the contributions made by individuals in later life.

An alternative to generalized achievement tests as a means of freeing schools from the pressures of external examinations is to give schools the responsibility of conducting the exams internally. Where results must be comparable, adjustments may be made using information from moderating tests. In New Zealand, where the method has been used for many years, liaison officers keep the schools informed of their relative standards, and an external examination is available for those who fail to gain accreditation and wish to persist with their application. (8)

However, shifting the burden onto the schools does not necessarily solve the problem because the social competition remains. In Queensland the Radford reforms led to abolition of the external examination at the end of the sixth form. Higher educational authorities, still needing to administer the competition for places, seized on the results from internal tests conducted at the end of each semester in the final two years. Students now cram for four examinations instead of one! Nonetheless, the potential for more precise testing of educational objectives exists in the new system; and if a moderating external test is introduced which can also be used as a second chance by those who fail their school tests, then teaching in school will be less constrained.

The third approach is to construct examinations which test exactly those attributes which have been specified in the curriculum objectives. This means using direct examinations. The effects of competition are not avoided. They are capitalized on by using the pressure which examinations exert on the method and content of schooling. If exams wag the educational dog then let it be the right dog. The extreme form of this view is that we will never alter teaching until we have altered examinations. They are instruments of reform.

It is generally appreciated that direct testing is more valid than indirect and that, providing reliability is maintained, predictions are more accurate. What is sometimes not understood is that under competitive pressure direct tests induce learning behaviour which is closer to educational objectives, while indirect tests produce the opposite effect. Indirect tests are used because they are easier to measure; they are also usually easier to teach. So, when the pressure is on the teacher and his students find it easier to concentrate their efforts, not on the objectives of the course but on those capacities which the examiner assumes will indicate attainment of the objectives, the greater the pressure the greater the shift real objectives.

The trick is to devise an examination in which only those who have been properly educated can do well. This may be a straightforward enough task if the aim is to produce a competent car-driver, or a warrior who keeps his eyes about him when lapping from a brook. In education, the task is much more challenging and I am not convinced that the Spencer Buttons are yet defeated. (Despite a great deal of discussion there is very little research evidence about the effects which different sorts of examinations have on students' learning.) The recent surge forward in the theory and practice of the

curriculum opens new possibilities for the construction of tests which embody precise educational objectives. It should be noted, however, that many of the techniques for direct testing are more suited to internal examining. Even where direct testing proves to be effective many of the consequences of competition remain. In the foreseeable future there will be more able applicants than there are places at the top. The course of true education in schools will gain an extra degree of protection from the social market-place if examinations are released from some of the burden of allocating prized places.

FOOTNOTES

1. James S. Coleman, et al, Equality of Educational Opportunity, U.S. Govt. Printing Office, 1966; J.W.B. Douglas, The Home and the School, MacGibbon and Kee, 1964; John Keeves, Home Environment and School Performance, Australian Council of Educational Research, 1972.
2. H.J. Eysenck. "Performance Contracting: the Theory that Failed", Times Educational Supplement, 19th February, 1973
3. Ssu-Yu Teng. "Chinese Influence on the Western Examination System", Harvard Journal of Asiatic Studies, Vol. 7. 1943.
4. From positions, ch. xxxvii, 1581, quoted by Norman Morris, "A Historian's View of Examinations" in Stephen Wiseman (ed), Examinations and English Education, Manchester University Press, 1961.
5. Brian James. The Advancement of Spencer Button
6. TEEP tests have been constructed by the Australian Council for Educational Research at the request of the Commonwealth Government. Evaluation is carried out by those universities using the series. A summary of the main research reported from the Australian Capital Territory, Queensland, Tasmania and Western Australia on the relationship between TEEP series A, matriculation and university performance is contained in Tertiary Education Entrance Project, Department of Education and Science, Canberra, 1971.
7. The correlation coefficient is a greatly over-used and sometimes abused statistic in the evaluation of entrance examinations. It compresses into one cypher information from the entire range of the distributions. The Admissions Officer is usually interested only in discriminating between potential success and failure among candidates in the region of the cut-off point for admission. He can be seriously misled if, for example, the nature of the relationship varies from linearity at the extremes. In the first instance it is better to compare proportions who pass and who fail on the criterion either side of the cut-off, as determined by the various predictors.
8. G.W. Parkyn. Success and Failure at the University: Vol 1 - Academic Performance and the Entrance Standard, New Zealand Council for Educational Research, 1959.

THE EFFECTS OF EXAMINATIONS

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National examinations can produce a considerable effect, both good and bad, upon a nation, its teachers and its pupils. It should be helpful to summarize both the advantages and dangers of such examinations and for this we can turn to the classic summary of arguments contained in a British report published in 1911 and which is still relevant today.

- "(1) The good effects of examinations on the pupils are
- (a) that they make him work up to time by requiring him to reach a stated degree of knowledge by a fixed date;
 - (b) that they incite him to get his knowledge into reproducible form and to lessen the risk of vagueness;
 - (c) that they make him work at parts of a study which, though important, may be uninteresting or repugnant to him personally;
 - (d) that they train the power of getting up a subject for a definite purpose, even though it may not appear necessary to remember it afterwards - a training which is useful for parts of the professional duty of the lawyer, the administrator, the journalist, and the man of business;
 - (e) that in some cases they encourage a certain steadiness of work over a long period of time; and
 - (f) that they enable the pupil to measure his real attainment (i) by the standard required by outside examiners, (ii) by comparison with the attainments of his fellow pupils, and (iii) by comparison with the attainments of his contemporaries in other schools.

On the other hand, examinations may have a bad effect upon the pupil's mind (a) by setting a premium on the power of merely reproducing other people's ideas and other people's methods of presentment, thus diverting energy from the creative process; (b) by rewarding evanescent forms of knowledge; (c) by favouring a somewhat passive type of mind; (d) by giving an undue advantage to those who, in answering questions on paper, can cleverly make the best use of, perhaps, slender attainments; (e) by inducing the pupil, in his preparation for an examination, to aim rather at absorbing information imparted to him by the teacher than at forming an independent judgment upon the subjects in which he receives instruction; and (f) by stimulating the competitive (and, at its worst, a mercenary) spirit in the acquisition of knowledge.

- (2) The good effects of well-conducted examinations upon the teacher are (a) that they induce him to treat his subject thoroughly; (b) that they make him so arrange his lessons as to cover with intellectual thoroughness a prescribed course of study within appointed limits of time; (c) that they impel him to pay attention not

only to his best pupils, but also to the backward and the slower amongst those who are being prepared for the examination; and (d) that they make him acquainted with the standard which other teachers and their pupils are able to reach in the same subject in other places of education. On the other hand, the effects of examinations on the teacher are bad (a) in so far as they constrain him to watch the examiner's foibles and to note his idiosyncrasies (or the tradition of the examination) in order that he may arm his pupils with the kind of knowledge required for dealing successfully with the questions that will probably be put to them; (b) in so far as they limit the freedom of the teacher in choosing the way in which he shall treat his subject; (c) in so far as they encourage him to take upon himself work which had better be left to the largely unaided efforts of his pupils, causing him to impart information to them in too digested a form or to select for them groups of facts or aspects of the subject which each pupil should properly be left to collect or envisage for himself; (d) in so far as they predispose the teacher to overvalue among his pupils that type of mental development which secures success in examinations; (e) in so far as they make it the teacher's interest to excel in the purely examinable side of his professional work and divert his attention from those parts of education which cannot be tested by the process of examination." (1)

It is obvious that the strength and weaknesses of examinations described are not inherent to all national examinations. Some burdensome effects can be relieved by recognizing the need to use more than one examination to serve the many uses for which such results are employed. School-based tests, rankings of pupils by teachers, periodic assessments and a careful combining of marks with full regard for the statistical attributes of the scores can do much to increase effectiveness. Many of the disadvantages can also be minimized by careful control and use of the results of the assessments.

The impact of examinations upon national development is an issue upon which too little scholarship has been devoted. Although not everyone would agree, we may say, in brief, that the good effects upon a nation are:

- (a) the establishment and maintenance of educational standards;
- (b) the encouragement of learning at all levels of society;
- (c) the identification, recognition and use of talent according to merit and efficiency by scientific means;
- (d) the reduction of patronage and bribery;
- (e) the development of skills for current and future national requirements;
- (f) the development, revision and stabilization of curriculae;
- (g) the encouragement of democracy by equalizing opportunity for employment and advancement and the efficient allocation and use of national resources;
- (h) the stabilization of government and society.

On the other hand, the bad effects of examinations upon a nation may be:

- (a) the development and perpetuation of inadequate or false standards of education;
- (b) the discouragement of learning through failure experience;
- (c) the identification, recognition and use of measurable but irrelevant or wrong talents;
- (d) the increase of mediocrity and inactivity among civil servants;
- (e) the development of skills unnecessary for national development;
- (f) the development and perpetuation of irrelevant or wrong curricula;
- (g) the maintenance of inequality of opportunity by assessing and certifying achievements available to few;
- (h) the misuse of national resources;
- (i) the disintegration of government and society by replacing established traditions and practices with new ones.

Whatever else may be said about examinations, it cannot be denied that the effects of an examination system can be dramatic and lasting, for good or ill upon a nation and its citizens. Examples are legion of the chaos and confusion and, in the extreme, open combat arising over the establishment, conduct or results of some public examinations or another. In 1965 Japanese students took to arms over the use of a national examination for selection to university. The new examination was ultimately withdrawn but not before the students had caused great damage to property and riots which led to the loss of life.

Petitions, letters, strikes and boycotts are but a few of the unintended by-products of examinations held in the name of justice for all. It can be argued that many of the criticisms levelled against examinations are misdirected since it is the use of the results that is the heart of the controversy. However the examiners are seldom blameless and can often be faulted at least for failing to understand and explain the weaknesses as well as strengths of their efforts. The unfortunate truth is that examinations often fail to achieve their purpose because they are required to serve too many purposes, because they are inadequately constructed and because seldom they are too subjected to careful evaluation after the event to find out how they worked in practice.

External examinations can exert such quality control restrictions upon the classroom that teaching can become entirely a matter of preparation for the examination. The advantages of this control are:

1. Instruction becomes more uniform in different schools nominally teaching the same subject. Although a standardized curriculum is required, individual schools and teachers tend to neglect or emphasize particular topics. Examinations have the effect of forcing teachers to teach what the course planners have deemed to be important.
2. Weaknesses in the curriculum are revealed. If certain skills are not acquired as expected, the curriculum planners and the teachers can reconsider the curriculum as well as consider methods for improving teaching.

3. Schools and teachers not developing adequate standards of performance of the pupils are readily identified, and the causes can be investigated.

4. More accurate grading standards are applied which are fair for all pupils. Marks awarded to pupils at different schools represent the same degree of achievement.

5. Teachers and pupils are motivated by a rivalry based on a fair contest (examination) which applies the same rules to all competitors. Those who fail to show adequate proficiency at certain tasks are directed to restudy those aspects (provided, of course, that the marked scripts are returned to the candidates).

6. Quality control is obtained which allows the school system to 'rebuild' those pupils below standard and reject those who are hopelessly inadequate.

The main complaints against the use of examinations as quality control devices is that they discourage teachers from introducing material to their classes which is not covered by the examination. Pupils have been known to object to the introduction of such material on the grounds that their time is being wasted and their success at the examination is being put to risk. External examinations are also likely to emphasize those skills and abilities which can be more easily measured by pencil and paper exercises. Attitudes, interests, and behaviour which are less examinable under controlled conditions are likely to be neglected. Opponents of external examinations argue that the main function of examinations is to improve the educational programme. They would have examinations set at the beginning of the term so that a factual basis can be used for planning the ensuing school work. The difference between the two points of view is a matter of whether the main emphasis of educators shall be placed upon diagnosis, pupils guidance and curriculum planning or upon final achievement and certification of accomplishment. The issue is inevitably resolved by the location of the balance of power in the educational system. Where the Central Government is in charge, quality control systems are found. Where teachers are in possession of substantial power and influence, then the administrative control of examinations and their uses will be largely located in the school.

Reference:

1. Cited in Secondary School Examinations other than the G.C.E., London, HMSO, 1960.

PURPOSE SCOPE AND STRUCTURE OF PUBLIC EXAMINATIONS COUNCILS
IN THE THIRD WORLD COMMONWEALTH

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1. Purpose, Design and Functionality

"The art of sailing governs the art of shipbuilding." So did Thomas Aquinas (1) summarise and express the inter-relationship between purpose, design and functionality.

Purpose determines design, while design in turn is influenced by the requirements of function and the need to facilitate functionality. It is impossible to achieve optimum design without a thorough examination of functionality as well as of purpose.

Thus, for any consideration of the role, function and organisation of public examinations bodies, the basic pre-requisite is an examination into their purpose, structure, and functionality.

2. The Purpose of Examinations

Of fundamental importance in any discussion of public examinations systems or examinations bodies is an assessment of the purpose of examinations - as well as the effectiveness of particular examinations, and the relevance of each within the context of its role in the social complex.

It is being suggested with increasing frequency and loudness that examinations are irrelevant in the contemporary world - particularly in the Third World of today.

Such assertions are without foundation. Indeed, they indicate a lack of understanding as to what an examination really is, as well as a misconception of the notion of relevance.

A single test of short duration need not serve as a complete examination. Nor need an examination comprise a set of similar and homogeneous tests.

Tests are an inherent feature of human development. They are an integral part of growth. Mere survival is but the successful negotiation of tests. Thus, the subjection of oneself to a test is in a sense instinctive. Further, on the level of living as opposed to surviving, growth is seen to be a progression of the successful completion of sequential tests. Hence, life itself may well be regarded as one sustained examination infinite in scope and in the variety of its component tests.

The basic question, therefore, is not as to the relevance of examinations. It is in respect of the relevance of a particular examination within the context of its specific purpose and the consonance of such purpose with the requirements of the society whose interests prompted the design of the particular examination.

(1) Aquinas: III Contra Gentes

There are many aspects of examinations. However, only the more important ones will be discussed in this paper; since the purpose of this discussion is to provide the basis for an enunciation of a concept for the role and functionality of Public Examinations Councils in the contemporary Third World Commonwealth.

Attention is directed first to the property of assessment and its operation.

School examinations are usually classified into two types on the basis of their capability of assessing attainment or aptitude. There is certainly a third type - the objective of which is the evaluation of ingenuity and originality.

Basic to all of these types of examination is the feature of the recognition of potential. Thus, it would appear that the fundamental purpose of examinations is really the estimation of potential.

This is not surprising. Nor is it anything but proper. For, in so far as examinations are a social institution, they must serve the society in a variety of ways; and in the best interests of the society they should function not as valves regulating inlet and output, but as an agency of optimisation of the contributions from the individual members of the society towards the collective welfare. This they should do through selective development in any particular respect - potential being the product of aptitude and inclination.

Within such a context, the response of the individual to stress is undoubtedly worthy of assessment; and indeed is properly a subject for testing. It is certainly in the best interests of the community as it is of the individual - whose personal development is so dependent on self-knowledge - to be aware of the nature and extent of the stress factor in personal performance. To understand and subsequently to control or minimise the debilitating effects of stress is in any respect a most worthwhile aim. So also is the utilisation of the enhancement effect of stress. Moreover, of particular interest to the individual, and the society, should be the harnessing of the creative impulses that are generated by the stimulus of excitation which derives from the reaction to external stress.

3. Examinations as an Instrument of Education

The problem of the conception and formulation of a philosophy of education is circumscribed by the bounds of national philosophy; since education involves both the individual and the society, and aims to modify the natural development of each individual in respect of his potentialities and predispositions as well as within the context of the modification of the society as a whole. Thus, there has been from the earliest introduction of formal education in various societies and cultures a continuing debate as to the purpose of education and hence on the postulation of a philosophy of education that is generally acceptable - particularly against the background of its instrumentality in respect of the modification of natural development.

It is understandable and, indeed, proper that a society's concept of education is peculiar to that society; and that national philosophies of education reflect national characteristics and national aspirations. However, the quintessence of education must find accommodation in any particular national educational philosophy; and the notion of education as conceived by

John Stuart Mill (1) must surely be so regarded. His conception of education he expressed when he said "not only does it include whatever we do for ourselves and whatever is done for us by others, for the express purpose of bringing us somewhat nearer to the perfection of our nature; it does more: in its largest acceptation, it comprehends even the indirect effects produced on character and on the human faculties, by things of which the direct purposes are quite different; by laws, by forms of government, by the industrial arts, by modes of social life; nay even by physical facts not dependent on human will, by climate, soil, and local position. Whatever helps to shape the human being; to make the individual what he is, or hinder him from being what he is not - is part of his education."

Within the framework of such a concept of education, examinations are clearly identifiable as constituting a significant part of the process of education.

The notion of examinations being an inherent feature of life, as described earlier, certainly provides substantiation of the claim that examinations are an instrument of education. However, in as much as the acceptance of challenge and the subjecting of one's self to test is instinctive, in the interests of survival, the development induced by such examinations is natural; and ought probably not to be considered as deriving from education. None the less, it is precisely because of the natural inclination and instinct towards the subjection of one's self to tests, that examinations afford such a powerful means of education - that is, an instrument for the modification of natural development.

The role of examinations in the educational process extends to levels more sophisticated than confidence -building and gradual progression.

Examinations provide an effective means of developing discipline of thought and expression. They may also serve the purpose of the development of perspective. Indeed, they can provide an introduction to the development of scholarship, as well as test it.

4. The Examination Process

The nature and scope of any examination are determined by the specific purposes of the particular test.

Thus, in the formulation of public examinations, particularly school examinations, it is imperative that cognisance be taken of the cultural aspects of examinations.

For example, it is particularly important to recognise, and to understand the fullness of the society's conception of such ideas as uniqueness on the part of an individual, achievement as a measure of the realisation of potential, attainment as an index of superiority, fulfilment and its dependence on performance, competition, collaboration, and failure.

It is such notions and the related values which constitute a part of the culture that underlie the educational philosophy of the society; and determine the acceptability of educational practice within it. Consequently, those are

(1) J.S. Mill, Education

the considerations that should provide in significant measure the purpose which prompts the design of any examination system.

5. The Spectrum of the Methodology of Examinations

Any process of examination inherently involves communication; and, indeed, the effectiveness of the examination depends entirely in the first instance on the degree of success of the communication from the examiners to the examinees. Hence, for the examination to serve its real purpose, it is essential first to ensure that there is genuine communication to the candidate. He or she must know and understand exactly what is being asked of him or her; and so should have no doubt as to the expected nature of his or her response.

To this purpose, the means of communication should ideally be such as is normal within the society. Thus, the proper use of appropriate idiomatic expression is of the utmost importance.

The medium of expression is equally important in the context of complete communication.

Consequently, the nature and style of the offering of the examination should vary with the dependence of cross cultural influences on the growth and development of the individual within the society.

As for the candidates, the examination tests their ability to communicate. Indeed, it does this more effectively than it tests potential - either by way of attainment, aptitude, or originality.

In this context, it is of particular interest to note that from the viewpoint of the society there cannot be equality among its members in respect of the ability of expression of thought and the effectiveness of communicating with others.

This aspect of examinations should, therefore, be used for specific purposes - and used consciously.

The immediate objective of school examinations is really the assessment of the degree of benefit gained by the candidate from the pursuit of the curriculum.

Accordingly, a single end-of-course test is inadequate. Moreover, while it may effectively evaluate ingenuity and originality, it provides only an approximation - and a vastly variable one at that - of the extent of attainment or the degree of aptitude; since the performances of candidates in such tests are unavoidably and unascertainably influenced by the sense of occasion and the attendant emotional stress.

Further, the real aim of education seeks to produce happy, useful, purposeful citizens - persons who are integrated into the society and who find fulfilment within the society. Their fulfilment stems from their contribution to the society as well as from the benefits they derive from their fellows and the society as a whole.

In this sense, the curriculum is to provide the means of developing the potential for good citizenship.

Thus, the fundamental question in respect of school examinations is not whether they can test this particular potential, but how best it might be assessed.

There are essentially three aspects of the potential for good citizenship. These are: social consciousness, social relationship, and the contribution to the society through a particular job-function or professional practice. The nature of the work-function depends to a very large extent on aptitude and motivation; and it is the business of the school system to provide for the identification of aptitude as well as to promote motivation.

The fundamental question, then, is how is the potential for good citizenship best assessed.

The answer lies in the purposeful selection of techniques of testing from among the various aspects of the methodology of examinations.

It is suggested here - as a general principle - that the school examinations should comprise:

- (i) an assessment, over the duration of the course, of social response;
- (ii) periodic tests, both with and without the use of reference material, to be completed in a specified and reasonably short period of time;
- (iii) a test or tests involving no specific restrictions as to time or reference material.

It must be noted that the proposed outline is offered as a general principle. For specific examinations, the structure of the examination would depend on the relative weights given to the component tests. And, it is the level of development of the candidates that would determine the appropriate weighting factors.

6. The Current Situation in respect of School Examinations in the Third World Commonwealth

There is one experience which has been shared by the nation-states of the Third World Commonwealth.

The effect of this experience is reflected in the stunning similarity of their secondary school examinations. The similarity is stunning because of the striking differences in the cultures of the societies involved. It reflects the extent of cultural dominance which derived from the imperial relationship, and which has in no significant manner left its imprint on these societies.

In areas of the Third World Commonwealth where there are no Public Examinations Councils, there is still little alternative to the examinations of such authorities as the Cambridge Examinations Syndicate and its counterparts in Britain.

However, the countries of West Africa, the Sudan, East Africa, Malaya, to a limited extent India, and more recently Cyprus and the Commonwealth Caribbean have instituted either regional or national Public Examinations Councils.

To what purpose these Councils?

The most remarkable feature of all of these Councils is their having been designed for a sub-culture within the societies they ought to serve.

In each case, the Council was initially conceived of as an agency of direct replacement for the Cambridge Examinations Syndicate. The musicians were changed. Not so the music. The theme, composition and style were maintained.

With such a conception, it is not surprising that the notion of take-over has been the same in each case. The idea was merely to substitute local examiners for expatriate ones.

Nor is it surprising that the advice given by the Cambridge Examinations Syndicate in each case has been such as it was. There are two reasons for that. The first is to be found in the context of the specific requests made of the Syndicate. The second is due to the inadequacy of the Syndicate and its experts in respect of their functionality in strange environments, and their lack of sensitivity towards the cultural parameters of education and examinations in societies different from their own.

Consequently, there is now an urgent need for new perspectives in respect of the Examinations Councils in the Third World Commonwealth. The need is for the recognition of cultural identity, the service of such identity, and the perception that on a universal basis the human ideal is that of equality and not identity.

7. Professionalism and Public Examinations

The West African Examinations Council is unique among the examinations councils of the Third World Commonwealth.

Its uniqueness is due to its concern - in addition to that for the usual secondary school examinations - with examinations for secondary school entrance, teacher training colleges, and the public services.

In these respects, it has set an example that is worth following. However, it might do more.

The challenge to be met by public examinations councils in the Third World Commonwealth includes the servicing of professionalism. For, one of the most striking needs in the countries concerned is the need to foster a genuine sense of professionalism and the establishment of acceptable norms of professional practice. The need is greatest in respect of the persons whose functions are those of the executive secretary, stenographer, engineering technician, scientific laboratory technician, and the craftsman.

8. A Concept for the Role and Functionality of Public Examinations Councils in the Third World Commonwealth

On the basis of the fundamental educational objectives, in the interests of national dignity, and towards the service of national aspirations, a concept is enunciated here for the role and functionality of Public Examinations Councils in the Third World Commonwealth.

Each Council should aim to serve its entire society.

It should do so in respect of every aspect of education which is within its competence, and which comes properly within the ambit of its authority.

It should be responsible for the conduct of all school examinations. It should cater also for professional certification where this is not clearly regulated. Further, it should be sensitive to the needs of the various professional organisations; and should, on request, service those needs.

The demands of such a role are clearly great. The problems they pose are commensurately large. However, the difficulties are not insurmountable.

Indeed, the challenge is not merely that of finding solutions to the problems. The challenge is directed towards the harnessing of the national resources, and the constructive use of the national energy.

The challenge brings with it a great opportunity - the opportunity for the assertion of national identity, total participation in the service of the nation, and a life based on dignity, mutual respect, complementarity and brotherhood.

It is in such a setting that the purpose, role, and functionality of Public Examinations Councils in the Third World Commonwealth should be seen.