# THE EFFECTS OF TEST ANXIETY ON TEST PERFORMANCE OF SOME PRIMARY SEVEN KENYAN SCHOOL CHILDREN

BY

MAURICE J. ODONDI



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## DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

Maurice J. Odondi

This thesis has been submitted for examination with my approval as University Supervisor.

Prof. F.M.M.O. Okatcha, Ph. D.

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## ABSTRACT

The main aim of this study was to investigate by means of an exploratory survey, the effects of test anxiety on test performance for some primary seven school children in Kisumu Municipality. More precisely, the performance of groups of children who report high test anxiety was compared with performance of children who report low test anxiety.

The sample of subjects used in the study consisted of 252 standard seven pupils drawn from seven primary schools within the Municipality of Kisumu. Test anxiety was measured by the Test Anxiety Scale for Children (TASC); Test performance was measured by the General Verbal Ability Test suitable for use in African schools (GVAT) together with end-term school marks.

Based mainly on Sarason's Interfering response theory, it was predicted that:

1) the correlation between test anxiety and academic performance would be negative.

2) bright high test-anxious subjects would perform better than their low test-anxious counterparts.

3) academically average high test-anxious subjects would perform better than their low test-anxious counterparts.

4) academically below-average low test-anxious

subjects would perform better than their high test anxious counterparts.

The results obtained indicated that under less evaluative test-taking conditions, test anxiety facilitates the performance of bright pupils. Highly evaluative conditions seemed to allow for interfering effects of anxiety to operate, thus, causing decrements in performance.

It was concluded that the present educational practice of laying a lot of emphasis on the importance of examinations is only beneficial to low test-anxious bright children; for this latter category of children, ways need to be found by which high test-anxious individuals can be challenged but their anxiety kept within non-interfering limits.

Anxiety did not appear to be a significant problem for low ability children. This category of children showed better performance under high ego-involving conditions than their counterparts in the low ego-involvement condition. While the level of anxiety did not seem to matter, ego-involving instructions seemed to have provided the children with positive motivation which culminated in their better performance. It was suggested that these children need more of training in test-taking and coping skills before the nature of test anxiety effects on their performance can be determined.

# CHAPTER 1

## INTRODUCTION

Academic performance is considered to be very important in many societies today. In Kenya, in particular, taking and passing evaluation hurdles such as school achievement examinations is a major concern of educators, teachers as well as parents. Test performance is seen as an important criterion for selecting children who either have to continue with onward formal education or undergo some kind of specialised training in determined manpower priority areas. The study of factors which affect test performance is, therefore, very necessary if human resource selection has to be done on the basis of test or examination performance. Although cognitive abilities are chiefly considered as being the more relevant to academic performance, more importance is now being attached to influence on performance by certain affective variables.

In the Second Pan African Conference on Cross Cultural Psychology in Nairobi, Drenth(1975) made the following observation:

> "Before making a comparative analysis of school records and(maximum performance) tests, it should be pointed out that estimates of previous school performance and maximum performance tests are not the only categories of possible predictors. There are two other possible types. First, there are personality variables, measured by means of personality tests, self-rating or observation scales. There is a vast literature and a great

> deal of empirical research to demonstrate that this category is not by any means negligible. Motivation, anxiety, interests, attitudes and values, stability and adaptation are examples of variables that have an important influence on school performance, and certainly not only with respect to children who suffer from behavioural disorders, neurotic maladjustment and organic pathologies, although they evidently play a predominant role among this group....."(p.2).

Dunn(1962) contends that valid estimates of academic performance can be obtained not only when the achievement test is valid and reliable, but also when the individual gives a true performance, that is, tries his best. He states:

> "Lack of motivation, over-anxiety in the test situation, unsuitable content of the test, and so on, can produce a poor performance...."(p.17).

It would seem, from the available literature that researchers in Kenya have paid little attention to test anxiety as a possible variable that affects school performance. This study is, therefore, an attempt to relate the effects of test anxiety to test performance for primary seven school children. For it has been noticed that children with comparable abilities; and who attend the same classes perform differently in classroom tests. This could be partly due to the fact that individual pupils react to the test situation with different amounts of anxiety. There are certain amounts of anxiety which facilitate good test performance other amount might be so excessive that performance is

actually impaired.

Several initial studies(Sarason et al.,1960 Mandler & Cowen,1958; Gaudry & Bradshaw,1970; Cox,1959,196( Spielberger,1971; Cowen et al.,1965 etc.) have delineated test anxiety as an important variable in test performance.

A substantial body of research exists that links high anxiety to the ability of students to profit from instruction. For example, Spielberger(1972) reported that more than 20% of students who were characterised as highly anxious dropped out of school because of academic failure, whereas 6% of low anxious group left school for such reasons. Similar effects on learning and instruction have also been observed in a variety of settings, ranging from traditional classroom-based enviroment to individualised instructional contexts such as programmed, computer-managed, and computer-assisted instruction(Spielberger, C.D., 1977).

Most anxiety research in education has been focussed on the interaction between anxiety and instructional methods(see Cronbach & Snow, 1977; Tobias, 1976). Research in this area has attempted to demonstrate an interaction between anxiety and instructional methods which are differentially affected by anxiety(Tobias,1976).

There are a number of rival theories that have designed and developed to explain the influence of anxiety on learning and performance. Among the theorists

are Behaviourists(Spence and Spence,1966), Neuropsychologists(Hebb,1955; Malmo,1957), and psychologists adopting a more psychoanalytic position (Sarason et al.,1960). Within an educational context, Sarason's psychoanalytic position has been found to have the greatest relevance(Sinclair,1971). Sarason's theoritical position is, therefore, utilised in this study. A short description of the theory now follows.

Sarason's Interfering Response Theory

Sarason and his colleagues(Sarason et al.,1960) developed considerable theory relating anxiety in children to achievement and other test performance. They placed emphasis on parent-child interactions in the preschool and elementary school years and evaluative aspects of the school situations. The authors explain that school situations arouse anxiety primarily because of the stimulus similarities between the parent and the teacher. This is because both the parent and the teacher are adult authority figures with powers to perform evaluative functions and to dispense rewards and punishments.

The origins of anxiety in children is said to be psychoanalytic based. It is observed that the child's behaviour in a variety of settings is constantly being evaluated by his parents. Adverse parental evaluations often evoke feelings of hostility in the child which

cannot be expressed because of the child's dependence on his parents for approval, direction and support. Instead, feelings of guilt and anxiety are aroused in which the child appears as "dependent, unaggressive and self-derogatory in test-like situations"(Sarason et al.,1960, p.15).

In a test situation, the theory says that the test-anxious child often pays more attention to his own anxiety responses than to the task. Consequently, his performance is impaired if situations contain cues which tell the child that he is being evaluated and therefore in a danger situation. The resulting anxiety interferes with adequate perception of external events and with task performance.

In general, when the characteristics of anxiety are linked to academic or evaluation situations, we speak of test anxiety. The highly test-anxious person worries about examinations and shows physiological reaction patterns that go along with worry. Worry is a cognitively demanding activity marked by self-preoccupation, self-depreciation, and concern over the consequences of poor performance.

Recent advances in test anxiety theory lays emphasis on self-preoccupation as the major element involved in the experience of test anxiety and its effects on performance(Sarason,1972; Sarason & Stoop,1978). The

mechanism through which anxiety affects performance is said to involve attention(Wine,1971). During examinations, high test-anxious individuals divide their attention between task requirements and task-irrelevant cognitive activities such as worry and self-criticism. These worry cognitions distract students from task requirements and interfere with the effective use of their time thereby contributing to performance decrements.

Since test anxiety is predominantly a worry problem, it would seem that when a test is unusually difficult or complex, strong anxious feelings are most likely aroused when the evaluational dimension is emphasised. Under neutral conditions, that is when little emphasis is placed on the evaluational dimension, the tendency to react with strong anxious feelings should be either less potent or absent.

There is considerable evidence that the performance of high scorers in the Test Anxiety Scale for Children (TASC) on complex tasks is deleteriously affected by evaluational stressors(Sarason,1972). The less complex, less demanding the task, the weaker this effect is. An example of an evaluational stressor is achievement-orienting instructions that either inform subjects that some kind of evaluation of their perfromance will be made or provide some other rationale for the importance of performing well.

Test Anxiety Theory

According to Sarason et al.(1960), test anxiety is the anxiety aroused in a person who is in a test or test-like situation. An individual who is required to perform a task and is to be evaluated against some standard, internally conceived or externally imposed, is in a test situation.

Testing is a very crucial exercise in many societies today. Important decisions on individuals' future lives and careers are increasingly being made on the basis of their performance in major examinations, interviews, etc. Sarason and his colleagues made the following observation:

> ".....the level of test performance is one of the most important determinants of the lives of members of our society. We are a test-taking and a test-conscious culture."(Sarason et al.,1960,p.8).

Many individuals, undoubtedly, find themselves having to nurse strong anxious feelings in situations where an important examination appears to be difficult. Such feeling may be accompanied by self-evaluative responses which are irrelevant to the task at hand; the general performance might turn out to be below the capacity of the individual.

Test anxiety effects on academic performance has attracted the attention of a number of researchers and thinkers. Most educational psychologist who adopt

a more psychoanalytic position, have placed emphasis on self-preoccupation as the major element involved in the experience of test anxiety and its effects on test performance(see Sarason,1972; Sarason & Stoops,1978). In detailed reviews of related test anxiety literature, Wine(1971) gives anxiety effects an interpretation in terms of the cognitive-attentional view of performance decrements. Further reviews by Houston(1977) and Morris & Engle(1981) add that when students become preoccupied with their own self-evaluation and with the cognitive possibilities involved in the situation, performance suffers because of the misdirection of attention away from the task at hand.

An effort to understand the nature of test anxiety effects on test performance would certainly involve identifying the most important characteristics of anxiety. In his discussion of the concept of anxiety, Freud(1948) stated that anxiety has three characteristics: i) it is dependent upon a previous experience(traumatic), ii) it is determined by relation to some object, presumably in the immediate situation, and iii) anxious reactions are accompanied by physiological symptons such as heart pulpitation, nausea, disturbances in respiration, sweating, muscular tension, tremor or vertigo.

Another theorist by the named Sullivan(1948) explained that anxiety is due to "discrepancies within

the self-system", that is, it originates in response to some internal stimuli. He emphasised the idea that these "discrepancies in the self-system" are brought about by faulty social development in the early years of life and he stressed, in particular, the role of parents and authority figures.

Mowrer(1950) also produced a theory of anxiety that cited two 'outstanding' characteristics of anxiety. These were that 1) anxiety consists of a readiness for impending traumatic stimuli and 2) since this state of tension is unpleasant, it motivates the individual to escape from the danger situation. Mowrer, thus, agrees with Freud(1948) that anxiety is basically anticipatory and that it is based on some form of learning; he does not, however, tie himself down to stressing some prototypical event such as the birth trauma. Mowrer also hints at the problem of 'neurotic' and 'objective' anxiety by merely saying that experienced anxiety is not always proportional to the objective danger and, thus, irrational anxieties can be felt. But how can anxious feelings grow strong without some kind of stimulus which triggers it off?

The distinction between fear and anxiety should throw some light into the matter. Freud(1936) states that that fear is synonymus with 'objective anxiety'. He, however, explains that this objective anxiety is more

complex than fear, incorporating in addition, a sense of helplessness and general malaise. Objective anxiety, he adds, results from some source of danger in the external enviromont and usually based on a substantial history of learning about that danger. Anxiety which he makes reference to as 'neurotic anxiety' has no source in the external world, but like fear, is a tension of an anonymous kind. This point of reaction to threat is also invoked by Ausbel, Schiff and Goldman (1953), when they say that anxiety is an acquired reaction-sensitivity causing individual suffering from impaired self-esteem to over-react with fear to any anticipated adjustive situation that contains a further threat to self-esteem.

Mowrer's conception of anxiety is extremely useful for it allows one to link up the clinical, biological view of anxiety with the views taken by other psychologists. In a typical experimental study, high and low scorers in an anxiety scale are compared in their behaviour under conditions of induced stress - the assumption often being made that the "natural" anxiety aroused in the stress situation will add directly to the individual's own anxiety as measured by the scale, artificially creating an increased "anxiety differential" between high and low scorers. The psychological meaningfulness of this procedure is questionable and

many writers, including Mowrer himself, have emphasised the importance of distinguishing between situational (stressed) and personal(psychometrically assessed) anxiety.

In a general sense, all anxiety is at the same time both situational and personal - it must be experienced by an individual, and there is almost invariably some sort of stimulus, however seemingly inadequate, to trigger it off. There is, thus, no question of induced stress "adding to" the existing anxiety of high scorers; it is simply that high scorers tend to react to stress with feelings of anxiety while, low scorers do not or do to a lesser extent.

From the foregoing discussion, it would seem that anxiety is a biologically expedient mechanism which, to become effectively adaptive, demands some form of early learning; this learning transforms anxiety from a concomitant to an anticipatory reaction. It is also evident that there is a close relationship between guilt, the imposition of authority and the readiness with which anxiety is aroused subsequently. The degree of readiness for arousal is probably the most important concept being considered in the present study, since, it relates neurotic and even psychotic anxieties to normal anxiety in the sense that the latter is proportional to the threat stimulus, and when this is removed, anxiety

disappears. Finally, specific or situational anxieties merely refer to the effectiveness of certain stimuli as threats with certain individuals; specific anxieties, that is, are not psychologically different reactions.

The construct of test anxiety was first introduced by Mandler and Sarason(1952). Mandler and Sarason considered test anxiety to be a learned "drive" which results in responses of two types: 1) responses which are relevant to task completion, and 2) task-irrelevant responses which interfere with task completion. These latter responses according to Mandler and Sarason, included, "feelings of inadequacy, helplessness, heightened somatic reaction, anticipations of punishment, or loss of status and esteem, and attempts at leaving the situation test"(Mandler and Sarason,1952,p.166). Mandler and Sarason consequently defined test anxiety with an anxiety scale. Mandler and Cowen(1958) then developed a scale for high school students known as Test Anxiety Scale(TAS). Later, Sarason et al.(196 constructed the Test Anxiety Scale for Children(TASC) WHICH is suitable for primary school children.

Sarason(1972) partially revised test anxiety theory, choosing no longer to discussing test anxiety in terms of "motivational levels and levels of situationally-induced drive"(p.387), but to think of test anxiety theory in more simple and direct terms relating to attention and the uses of information or cues.

Hypotheses

The theory of anxiety that guides this particular study mainly combines the elements of ideas of Sarason et al.(1960), Mandler and Sarason(1952) and Sarason(1972). Anxiety is conceived as a hypothetical construct mediating between certain stimuli and various specifiable responses.

In a test situation, anxiety acts to elicit two types of responses: 1) task-relevant responses which may be observed in increase in effort, concentration and procedural strategies previously found to reduce anxiety and 2) task-irrelevant responses that may interfere with performance and which include "feelings of inadequacy, helplessness, heightened somatic reaction, anticipations of punishment, loss of status or self-esteem, and attempts at leaving the test situation"(Mandler and Sarason,1952,p.166).

A subject responding to a test situation with a lot of anxiety would be expected to attend to and utilise information or cues provided by the test enviroment to complete a test. This will obviously depend on his intellectual capacity. A high ability subject who reports high anxiety in a test situation may naturally succeed in completing the given task with the help of his anxiety. However, a low ability high test-anxious counterpart may fail to manipulate the available hints or cues because of limited ability; he may, therefore, concede his attention to task-irrelevant responses and consequentl fail to complete the test successfully.

In sum, it would seem that test anxiety tends to facilitate the performance of more able children but interferes with the performance of the less able.

Low test-anxious children, on the other hand, may be less concerned about test situation with the cognitive possibilities involved, thus, paying less attention to events in the test enviroment. This, of course, does not mean that this category of children totally declines to make use of any hints or cues provided by the test situation. It simply means that their state of readiness is minimal.

Test anxiety may be aroused by ego-involving instructions (Sarason et al.,1952), or by extremely difficult tests having important ego-related consequences (Nicholson,1958). Since most classroom tests or examinations are often censored in terms of level of difficulty, test anxiety would be aroused only by some other situational factors in operation at the time of test-taking. One of the aims of the present study is to examine the effects of ego-involvement on the performance of subjects in the various test anxiety levels.

On the basis of all the above theoritical considerations, the following hypotheses were proposed for testing with Kisumu Municipality primary seven school children:

1) For the entire sample of children, the correlation between test anxiety and test performance would be negative.

2) a. Under conditions of low ego-involvement, upper ability high test-anxious subjects would perform better than medium or low test-anxious subjects.

b. Under conditions of high ego-involvement, there would be no difference in performance between all test anxiety groups of upper ability subjects.

3) a. Under conditions of low ego-involvement, middle ability low and medium test-anxious subjects would perform better than high test-anxious subjects.

b. Under conditions of high ego-involvement, low and medium test-anxious subjects would perform better than high test-anxious subjects.

4) a. Under conditions of low ego-involvement, there would be no difference in performance between all test anxiety groups of low ability subjects.

b. Under conditions of high ego-involvement, low ability low and medium test-anxious subjects would perform better than high test-anxious subjects.

## Significance of The Study

Examinations and test situations constitute an important if not a crucial moment in the process of learning. Factors which intervene to make them exert either negative or positive influence upon human

learning must, therefore, be given serious attention.

Anxiety is one of these factors. Hypothetically we have argued that it has a negative influonce upon learning in general and examination or test performance in particular. Consequently, bright pupils may have their educational progress impeded due to anxiety. Similarly, less bright students may appear to be doing better in their learning tasks than their equally bright ones simply because they are not afflicted by the problem of anxiety.

The consequences are obvious: societies with school systems in which examinations or test situations have anxiety as a predominant experiential ingredient will not be able to establish an effective man-power-placement policy. The results may be that the right skills are given to the wrong people, the right people are planted in the wrong places and the right places utilised for wrong skills.

Developing countries are, no doubt, hard-pressed to make the best use of their (rather scarce) skilled human recources. Any academic efforts that can help to increase the reliability of human resource selection techniques should be more than welcome. This study seeks to find a honourable place within this general effort.

Should the investigation confirm the hypotheses that initiated it, much more light will be thrown on the nature, educational function and relevance of

national examinations like CPE, EACE etc. In addition, it provide a theoritical basis for research efforts aimed at removing the deliterious effects of anxiety and stress from examination situations. With the negative intervention of these variables suppressed, our national economy will, doubtlessly, benefit from an efficient manpower selection procedure and technique.

# CHAPTER TWO

## REVIEW OF RELATED LITERATURE

### Introduction

The purpose of this review of literature is to provide some understanding of the nature of test anxiety influence on test performance. It also provides a basis upon which the main hypotheses tested in the study were generated.

Pioneering work by Sarason et al.(1960) attributed the development of anxiety in children to parent-child interactions in the preschool and elementary school years and evaluative aspects of the school situation. To follow is a review of a number of studies relating test anxiety to test performance.

### Test Anxiety and Intellectual Ability

A number of past studies support the conclusion that intellectual ability is a strong predictor of academic achievement (Phillips and Bannon,1968; Gaudry and Fitzgerald,1971; Barton et al.,1972 etc.). The mental ability of a child can predict his achievement in almost all areas of school work. Any attempt to relate test anxiety to test performance cannot, therefore, ignore the relationship between test anxiety and mental ability.

Test anxiety is found to be inversely related to performance in tests of mental ability. Studies carried out with older subjects(other than elementary school children) indicate that there is a negative relationship between test anxiety and intelligence. Gaudry and Fitzgerald (1971) administered the TASC together with the Australian Council for Educational Research Intermediate Test D, a measure of intelligence, to twelve Grade Seven secondary schools in Australia. They found that while high anxiety was associated with slightly higher performance for the most intelligent children, it was associated with lower performance for all other levels except for the centre group.

Kanekar et al.(1976) administered the Taylor Manifest Anxiety Scale and the Raven Standard Progressive Matrices to 229 female 10th graders to test the hypothesis that there would be a positive correlation between anxiety and academic performance for more intelligent students and a negative correlation for less intelligent students. The findings did not support the hypotheses.

Taking a slightly different approach with respect to the anxiety measure instrument, Deffenbacher(1977) investigated the relationship of the Worry and Emotionality Scale(see Morris and Liebert,1967) to performance on the Miller Analogies Test. He found state test anxiety, emotionality and worry to be

inversely related to performance on the Miller Analogies Test ( a measure of intelligence).

With elementary school children, Sarason et al. (1960) found a negative correlation between test anxiety and intelligence. The bulk of cases contributing to the negative correlation was within the intellectual average range(IQ's 90 - 110). These researchers also report that the negative correlation was found for college students who apparently were of above average IQ. They, thus, concluded that it would seem unreasonable to attribute test anxiety among the college students to their IQ.

According to Sarason(1972), what distinguishes the high test-anxious individuals are 1) the manner in which he attends to the events in his enviroment, and 2) how he interprets and utilises the information provided by these events. Presumably it is here that intelligence plays a part in determining the total influence of anxious feelings on performance in test situations. It is also suggested elsewhere(see Sarason et al.,1960) that there could be some relation between intelligence and sensitivity to danger.

Test Anxiety, Ego-involvement and Test Performance

It would seem that the nature of a test or the kind of emphasis laid on the importance of a test are probably the important factor contributing to poor performance.

Sarason et al.(1952) compaired high anxious and low anxious subjects (using an earlier version of the TASC as the criterion) performing the Digit Symbol under "expected/not expected to finish" instructions. They found that under "expected" conditions, the high anxious subjects did worse while the low anxious did better. The results for the under "not expected" were to the opposite of those for under "expected" conditions. In the second part of the experiment, ego-involving instructions were compaired with non-ego, and the high anxious group suffered a decrement in performance under ego conditions. Two conclusions were drawn from these data: 1) subjects in whom anxiety is provoked are distracted by the awareness of anxious feelings. That is to say, they have two things to deal with: the task and their anxiety. Consequently, the task is, generally speaking, the one to suffer. 2) The anxiety scale samples subject's likely response in a variety of situations but there is no guarantee, using scale scores only, that the experimental situation is one such as to arouse anxiety in the subject. It is not that the high anxious carry about bundles of "free-floating" anxiety with them but that they are more ready to respond with anxiety to what appears to be a threatening situation.

Mandler and Sarason(1952) showed that reports of

failure to subjects (whether objectively or not) impaired the high anxious while it did not affect the low anxious in terms of performance. Past experience on the task, while it was beneficial to all subjects, was significantly more so for the high anxious. Both these conditions may be regarded as anxiety stimulating and anxiety reducing respectively.

A test ought to be of anxiety-arousing nature for interference in performance to be observed. Significant correlations were found between anxiety and tests of intelligence by Zweibelson(1956), but the relationship was a direct function of the formality of the test.

Nicholson(1958), instead of giving ego-involving instructions, tested the hypothesis that interference is a function of test difficulty. He found that under task oriented conditions, there were no differences between high anxious and low anxious at either easy or hard tasks. But under ego conditions, the low anxious group were considerably better, especially at easy tasks, high anxious subjects were conspicously worse. Nicholson's findings are quite predictable from Sarason's theory. It can be concluded from his findings that "high scorers" on the anxiety scale are not necessarily in a continual state of tension, but in a readiness state which can be aroused by the appropriate stimulus, for example a

challenging task, ego-involving instructions or some threat to the subject's self-esteem. Lekarczyk and Hill(1969) also found improved performance by high anxious elementary school children on verbal learning tasks under less evaluative conditions but poorer performance when failure and evaluative aspects of the testing situation became predominant. In cases where test anxiety is found to be positively related to performance, it has been held that the "interference effect" of anxiety is facilitating such as when an anxiety response like cautiousness is relevant to the kind of response required in the situation(Ruebush,1960; Waite,1960). Cautiousness may be a technique adopted by the anxious person to reduce anxiety.

It would seem from the foregoing review, that ego-involving instructions, test difficulty or the formal nature of a test are important situational factors likely to induce strong anxious feelings in a test situation. A question raised, however, is whether test anxiety effects are important in classroom achievement tests.

## Test Anxiety and Achievement Tests

The effects of test anxiety on performance in achievement tests have been examined by several researchers. Sarnoff et al.(1958) found the correlation between the Test Anxiety Scale for Children(TASC) and

the 11+ examination (a public school examination usually taken by elementary school children in Britain) was zero. The authors wondered how it is possible for anyone to be extremely anxious and extremely effective in the task which has aroused his anxiety.

Sarason et al.(1960) also present data which indicate the correlation between test anxiety and achievement tests to be negative, and tend to become more negative with increasing grade level in the elementary school.

Lunnerburg(1964) gave three anxiety scales: the Test Anxiety Scale for Children(TASC), the Children Manifest Anxiety Scale(CMAS) and the General Anxiety Scale for Children(GASC) to 213 boys and girls in Grades four, five and six. The scores on these scales were then correlated with reading and arithmetic achievement scores obtained from the Metropolitan Test Battery. For the total group, the correlation between the anxiety and achievement measures for each grade were all negative (range -0.18 to -0.32) and statistically significant, indicating that high anxiety was associated with poorer achievement in reading and arithmetic. Lunnerburg observed three things: 1) the negative correlations tended to larger for girls than for boys, 2) the negative correlations tended to become stronger with increasing grade level, and 3) the negative correlation

between TASC scores and both achievement measures tended to be larger than was the case for the other two anxiety scales.

Another study by Stevenson and Odom(1965) carried out in Minneapolis, tested 318 children of Grades four and six. Correlations were obtained for boys and girls at both grade levels between the TASC and scores on the five sub-tests of the Iowa Tests of Basic Skills. All twenty correlations were negative, ranging from -0.11 to -0.40, and fifteen of the twenty correlations were significant. There was no tendency, however, for the negative relationship to be any stronger for Grade Six pupils than for Grade Four pupils, nor was this relationship any stronger for girls than for boys.

More evidence is provided by Cowen et al.(1965) for 394 Grade Three pupils in Rochester, New York. For two separate groups of Grade Three pupils, they computed correlations between between CMAS scores and various achievement measures, including Grade Point Average at the end of the school year and five Science Research Associates(SRA) tests: Reading Comprehension, Vocabulary, Arithmetic Reasoning, Computation and Concepts. Of the ten correlations involving SRA scores, all were negative ranging from -0.06 to 0.30. The correlations between CMAS scores and GPA for the two groups were -0.29 and -0.30 respectively. Even at an

early stage of schooling , these results indicate a consistent tendency for high anxiety to be associated with poor performance.

Frost(1968) presented a study in which the correlation between measures of anxiety and educational achievement was sought for 310 eleven-year-old London pupils. Frost's anxiety measures consisted of items from the Manifest Anxiety Scale(MAS), the CMAS, the GASC and the TASC which were arbitrarily assigned to two different anxiety scales: a "School Anxiety" scale and a "General Anxiety" scale. For both boys and girls, these two anxiety measures were negatively correlated with four performance measures: Vocabulary, Reading Comprehension, Mechanical Arithmetic and Problem Arithmetic.

The inverse relationship between test anxiety and achievement test performance seems to occur with most elementary school children. There is also some indication that this relationship becomes stronger with increasing grade level. Some conclusions made by El-Abd(1973, p. 81) after investigating the sources of school indiscipline in Ugandan secondary schools, point at the inadequacy of training given to pupils at the primary school as responsible for the development of pupils' anxiety. He makes a general remark about the educational system in general: 1) Over-dependence,

which occurs as a result of 'spoon-feeding', rote-learning and repressive discipline promotes the development of anxiety in the primary school; 2) The passing of certificate examinations has become the exclusive preoccupation, and rote-learning methods and 'cramming' are favoured by teachers.

Summary

The studies reviewed tend to suggest that in Intelligence Tests, high anxiety is associated with slightly better performance for bright pupils than for the less bright. Some of the studies do not support this conclusion.

In Achievement Tests, anxiety is almost invariably shown to be inversely related to performance by most of the studies. The inverse relationship is also shown to be stronger for girls than for boys, and also to be stroger with increasing grade level.

It is also apparent from the literature that the interfering effects of anxiety on performance occur in conditions that may put pressure on the subjects taking the test. Test difficulty, ego-involving instructions and other anxiety-arousing situational factors are cited as some of the conditions that allow for interfering effects of anxiety.

The most notable feature of the studies reviewed is the fact that all the conclusions were drawn from

observations made on either Europian, American or Australian subjects whose socio-cultural backgrounds are undoubtedly different from the Kenyan background.

In view of the seemingly inconclusive evidence on the nature of anxiety influence on learning and performance for the non-Kenyan subjects mentioned, this study was designed to investigate the effects of test anxiety on test performance for some Kisumu Municipality primary seven school children.

## CHAPTER THREE

## METHOD

Subjects for this study were obtained from seven primary school within Kisumu Municipality. All the seven schools were fully government maintained, co-educational and located at places not more than six kilometers from Kisumu Town Centre.

A list containing names of primary schools was obtained from the Kisumu Municipal Education Office. According to the list provided, primary schools in that area were categorised into three types: high cost schools(formally European, well equipped and staffed), middle cost schools(formally Asian, moderately well equipped and staffed), and low cost schools(formerly African, least well equipped and staffed). A maximum of nine schools were to be included in the study since funds available could not support a larger number. A stratified random sampling technique was adopted to select the nine schools. From the list provided by the Kisumu Municipal Education Office, names of schools in the high cost category were written down in a small piece of paper. Three schools were, then, picked at random. The same procedure was used to select three schools from each of the other remaining two categ-

ories of schools.

The final process of selecting the required schools was also influenced by the fact that head-teachers had to agree to research being conducted in their schools. Whether or not agreement to participate introduced a bias into the sample was, of course, impossible to estimate. During a personal tour of the nine chosen schools, the researcher explained to the head-teachers the nature of research activities to be conducted in their schools. Two head-teachers objected to the research being conducted in their schools because they could not arrange a suitable timetable. The final sample, therefore, consisted of seven schools: two high cost schools, three middle cost schools and two low cost schools. The following schools were chosen:

| School | Category | Boys | Girls |
|---|---|---|---|
| Xaverian | High Cost | 17 | 14 |
| Aga Khan | High Cost | 18 | 8 |
| Arina | Middle Cost | 24 | 15 |
| Kibuye | Middle Cost | 36 | 11 |
| Lake | Middle Cost | 27 | 16 |
| Pandpieri | Low Cost | 23 | 12 |
| Nanga | Low Cost | 23 | 8 |

There were altogether 252 children(170 boys and 82 girls) obtained from intact Standard Seven classes in each school. The subjects had an average age of 15 years and were a mixture of both African and Asian children.

Primary school children in Standard Seven other than secondary school students were selected for the study because of the following reasons:

1. Test anxiety , it was suspected, would have more significant effects, if any, on the academic performance of primary seven children since these children were candidates for an important examination: the Certificate of Primary Education(CPE). This examination, in Kenya, is the sole criteria for selecting children for onward education to the secondary school. The CPE terminates the formal education of a large majority of primary school children.
2. Most primary schools are day institutions, and all the subjects for the study would very likely come from the same geographical surrounding with presumably, similar home factors.
3. The test anxiety measure instrument used in the study required children who commute daily between their homes and school.
4. For the convenience of the researcher, most

primary schools can be found within a short distance from each other. This requirement made travelling costs minimal.

Description of Instruments

Two main variables were studied. These were: Test Anxiety and Academic Performance. Suitable measures for each of these variables could not be obtained due to limitations in time and finance. However, certain measures for the variables under study were identified following joint efforts made by both the researcher and S.K. Dali of the department of Educational Psychology. The two test instruments used to collect data in this study were: Test Anxiety Scale for Children(TASC) and General Verbal Ability Test suitable for "African" Schools by El-Abd(1973). The decision to make use of these tests was influenced by the following reasons:

1. The TASC is applicable in almost any cultural setting where the school system is in operation since the questionnaire items contained in it only make reference to school situations. The General Verbal Ability Test was constructed and validated in both Kenya and Uganda. These reasons testify to the suitability for use of these tests.

2. These tests were easy to administer and cheap to

reproduce into many copies.

3. No other better alternatives for test instruments were available.

A brief description of these test instruments now follows:

(i) Test Anxiety Scale for Children(TASC)

The TASC was developed by Sarason et al.(1960). It is a questionnaire form that contains a sample of questions that ask the child about his or her feelings about tests and tesing situations. The scale comprises of 30 question items to which a child must respond to with either a "yes" or a "no". A "yes" response is scored with a mark and a "no" is scored with no mark. The total score was taken as the number of correct answers. A child who scored high was characterised as having high test anxiety and a child scoring low as having low test anxiety. The following is a sample of the items in the TASC questionnaire:

"Do you worry a lot while you are taking a test?"

"Do you think you worry more about school than do other children?"

"Do you worry a lot before you take a test?"

"When you are taking a test, does the hand you write with shake a little bit?"

(ii) General Verbal Ability Test suitable for "African" Schools(GVAT)

This test was developed by El-Abd(1973). It is supposed to measure a child's general reasoning abilities. The general purpose of the test is to provide teachers with a quick estimate of the general mental ability level of the school child. It was designed and validated for Primary Seven children and Secondary One students. Other purposes of applying this test include:

1. To group children in a way that facilitates individual help from the teacher.
2. To classify children for group work.
3. To determine the comparative mental level of different classes or schools for administrative purposes.

The GVAT was considered a suitable measure of the comparative mental level of the Kenyan children in this study since it was designed, constructed and validated in both Kenya and Uganda. The author of the GVAT argued that typically existing tests of mental capacity applied in Africa tend to penalise testees for whom the European language of the items is not the mother tongue. For example, the Kenyan child's verbal concepts were not formed in the English language and the testee cannot be completely

familiar with verbal implications of items relating to history, heritage and literature not his own.

The GVAT consists of two parallel forms: Form A and Form B. Each form has 65 items in the following areas:

- direction items
- vocabulary items
- "always has" items
- letter series items
- mixed sentences
- analogies
- rearranging words in alphabetical order or sentences in meaningful order
- sentence completion
- number series
- anagrams
- classification
- mathematical operations
- word opposites
- figure production.

The following is the general format of the test, showing the items used for practice:

Anagrams:

(a) Make three different words using only letters from the following word: ELEPHANT. The answer could be hat, ant, neat, pale,

than etc.

(b) Now try this example. Make three different words using only letters from the word FATHER.

_____, _____, _____.

Directions:

(a) If the sky is above you and the ground is below make a cross "X" in the bracket, if not make a tick " " ( ). The answer is ( X ).

(b) Now try this example. If the mother is younger than her daughter make "T" in the bracket, if not make "F" ( ).

Always has items:

(a) A book always has _____. a table, pages, a school, picture, bookcase. The answer is 'pages'. Write 'pages' in the blank space shown above.

(b) Now try this example. A cow always has _____. field, grass, farmer, milk, four legs.

Analogies:

(a) Finger is to hand as toe is to _____. The correct answer is 'foot'. So you will write 'foot' in the blank space.

(b) Now try this example. Man is to woman as boy is to _____.

Classification:

Underline the word or symbol which does not belong with the rest:

(a) Nairobi, Kenya, Tanzania, Egypt. The correct answer is 'Nairobi'.

(b) 17, 28, 23, 9, 20.

Rearrangement of words:

Rearrange the following words to make a sentence:

(a) is Masaka eighty miles Kampala from

_____

(b) their mothers care children for

Word Comprehension:

Underline the word in brackets which has the same or almost the same meaning as the given word.

(a) prevent ( event, allow, hinder, let).

(b) try (tend, do, act, attempt).

Letter Series:

The alphabet is as follows:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z.

Complete the following sequences of letters:

(a) A, B, C, ___, ___.

(b) GG, HH, II, ____, ____.

(c) Z, Y, X, ___, ___.

Arithmetical Operations:

Put the necessary signs (+, −, , x) to make the two sides equal:

| | left side | = | right side | | left side | = | right side |
|---|---|---|---|---|---|---|---|
| (a) | 5 8 | = | 40 | | 56 6 | = | 40 10 |
| (b) | 12 3 | = | 72 2 | | $\frac{2\ 1}{2}$ | = | $\frac{1}{2}$ 1 |

The test was scored by giving a mark for each question answered correctly. If two answers were given for any one item, that item was counted wrong. If an examinee failed to place the correct answer in the required place, the one mark awarded for that particular item was divided by two. When an examinee used an irregular method in giving the correct answer to an item, that item was scored correct but with the corresponding mark divided by two. The total for a child on each form of the GVAT was taken to be the sum of all marks obtained for each item.

Reliability of the GVAT Test

Reliability can be measured in terms of test-retest, by applying the test to a group of children and obtaining the relationship between the two sets of scores; or in terms of the split-half technique, such as by obtaining scores on odd items and even items and then correlating the two sets of scores, or in terms of equivalency by applying two equivalent forms of the test to the same

group of children. In this study, reliability was checked by taking the correlation between the individuals' total scores on the odd items and their total scores on the even items. The Spearman Rank Correlation (see Hopkins and Glass, 1978, p.117) formula was used for the GVAT Form B scores. Using seven classes, each with about thirty pupils from the same school, the split-half reliability ranged from 0.62 to 0.88 with a mean of 0.82.

Terminal Marks

At the end of the month of July, 1982, each school sent to the investigator a list containing names and scores for each pupil in end-term examinations. All the marks were out of 100 for each of the three core subjects, namely, Mathematics, English & Composition and General Subjects.

Research Design and Procedure

Intact primary seven streams from each selected school were used. Where there was more than one class seven stream, only one stream was chosen at random. The GVAT Form B was administered to each class in the following way. Practice items(see section on test instruments) were given to the children. They were then taught by the investigator methods of answering questions in the test. Some children were picked at random to demonstrate if they understood how to answer questions

on the practice items. After about 20 minutes when the investigator was satisfied most children knew how to answer, test papers of GVAT Form B were distributed. Five minutes were allowed for reading the instructions. The children were advised to ask any questions before they could start the test. The time allowed for completing the test was 45 minutes.

One day after the GVAT Form B had been given to each class, the TASC questionnaire was administered. The investigator read aloud all instructions and questionnaire items to which a pupil was to respond by putting a ring round a "yes" or a "no". The following instructions were read aloud to the class:

"I am going to be asking you some questions - questions different from the usual school questions for these are about how you feel and so have no right or wrong answers. First I shall hand out the answer sheets and then I shall tell you more about the questions.....

Write your name at the top of the first page, both your first and last names..... Also write a B if you are a boy or a G if you are a girl.

As I said before, I am going to ask you some questions. No one but myself will see your answers to these questions, not your headteacher

or your parents. These questions are different from other questions that you are asked in school. These questions are different because there are no right or wrong answers. You are to listen to each question and then put a circle around either a "yes" or a "no". These questions are about how you think and feel, and therefore, they have no right or wrong answers. People feel and think differently. The person sitting next to you might put a circle around "yes" and you may put a circle around "no". For example, if I ask you this question: "Do you like to play football?", some of you would put a circle around "yes" and some of you would put it around "no". Your answer depends on how you think and feel. These questions are about how you think and feel about school, and about a lot of other things. Remember, listen carefully to each question and answer it "yes" or "no" by deciding how you feel and think. If you don't understand a question, ask me about it.

Now let us start by everybody putting their finger on Number 1. Here is the first question. Number 1. "Do you worry when the teacher says that she is going to ask you questions to find out how much you know?"

This procedure of introducing questions was repeated for several of them and the investigator continued throughout to say the number of the question before reading.

At the end of the session, the investigator collected all the answer sheets from each pupil and thanked them for their co-operation.

One day after administering TASC, the GVAT Form A was given to the pupils in the following way. A class was split into two at the median on the basis of scores obtained from the TASC. Half of those who scored below the median were drawn at random and put together with a similar half, drawn in the same way, from the group that scored above the median to form the High Ego-involvement group; the remaining pupils were then put together to form the Low Ego-involvement group. The two ego-involvement groups were separated out and seated in two different rooms. Before commencing work on GVAT Form A papers, specific instructions meant for the two separate groups, printed on the first page of the question papers, were read aloud to each group. To the High Ego-involvement group, the instructions were:

"The test before you measures your intelligence. It indicates your ability to pass the Certificate of Primary Education (CPE). The results of your performance in this test will be revealed

to your classteacher, your headmaster, and your parents".

To the Low Ego-involvement group, the instructions were:

"The purpose of this test is to find out whether the questions contained in it are too easy or too difficult for standard seven pupils. Work through the paper as fast as you can".

Each group was allowed 45 minutes to complete the test. After the testing time was over, the High ego-involvement group was told that the results of their performance would not, after all, be revealed to their classteachers, headteachers or parents. All the participants were then thanked for their cooperation.

Visits to each school were made once a day for three consecutive days, and all of them were in the morning hours.

Data Analysis

The process of data analysis was done according to the hypotheses advanced for testing.

Correlational analysis was carried out to determine the relationship between the TASC and measures of academic performance, namely, GVAT Form B and Terminal marks in Mathematics, English & Composition and General Subjects.

A two-factor analysis of variance of test anxiety by ego-involvement was performed on GVAT Form A mean scores. The distribution of TASC scores for the entire sample of 252 children indicated that a split at the median to demarcate the high test-anxious from the low test-anxious would cause as many subjects to fall on either side of the median. It was, therefore, decided that the upper 3rd constitute the high test-anxious, the middle 3rd constitute the medium test-anxious and the lower 3rd constitute the low test-anxious.

TABLE 1 : TASC LEVELS AND SCORE LIMITS

| Level | Score Limit | Number of Pupils |
|---|---|---|
| High Anxiety(HA) | 19 - 30 | 81 |
| Medium Anxiety (MA) | 13 - 18 | 99 |
| Low Anxiety(LA) | 0 - 12 | 72 |

Since the effects of test anxiety by ego-involvement were to be investigated with the intelligence factor controlled, the GVAT Form B was used to divide the entire sample of 252 children into thirds. The upper 25%, the middle 50% and the lower 25% were respectively labelled as the upper, middle and lower ability groups.

TABLE 2

ABILITY LEVELS AND GVAT SCORE LIMITS

| Level | Score Limits | Number of Subjects |
|---|---|---|
| Upper | 40.0 - 54.5 | 66 |
| Middle | 25.8 - 40.9 | 135 |
| Lower | 9.6 - 25.7 | 51 |

Finally, a two-factor analysis of variance of test anxiety (three levels) by ego-involvement (two levels) was performed on GVAT Form A mean scores for each of the three ability levels.

## CHAPTER FOUR

## RESULTS

The data collected in the study were analysed according to the hypotheses advanced for testing. The object of the study was to investigate two main things: 1) the general relationship between test anxiety as measured by the TASC and academic ability as measured by the GVAT Form B and school marks in each of the three core subjects, namely, Mathematics, English & Composition and General Subjects; 2) The effects of test anxiety by ego-involvement on performance in a single test of academic ability for different ability levels- the upper, middle and lower levels respectively. The mean mental ability score differences between: the upper and the middle ability groups ($t=3.85$, $df=200$, $p<.01$), the middle and the lower ability groups ($t=3.14$, $df=186$, $p<.01$) were significant, thus, indicating that these groups actually differed in intellectual capacity.

The results are now presented for each hypothesis stated.

### Hypothesis 1

It was predicted that the correlation between test anxiety and academic performance would be negative. The corresponding results are presented in Table 3.

TABLE 3

PEARSON'S PRODUCT MOMENT CORRELATIONS (r)

BETWEEN TEST ANXIETY AND MEASURES OF ACADEMIC PERFORMANCE

| | N | r | Significance |
|---|---|---|---|
| Mental Ability: | | | |
| GVAT Form B | 252 | -0.215. | .001* |
| Terminal Marks: | | | |
| Mathematics | 252 | -0.229 | .001* |
| English & Composition | 252 | -0.173 | .003* |
| General Subjects | 252 | -0.264 | .001* |

*Significant at $p < .05$

It can be seen from Table 3 that the correlation between test anxiety and the two measures of academic performance (Mental ability test and Terminal marks) are all negative and significant. In effect, these results show that those who express a lot of anxiety generally perform poorly in academic work as compared to children who report less anxiety. Since the anxiety measured by the TASC is predominantly a worry problem, the results strongly suggest that high test-anxious children probably suffer attentional blocks and task-irrelevant responses intrude to dominate their behaviour, thus, causing their performance to

be poor.

Hypothesis 2

This hypothesis was tested for children who fell in the upper third of the ability continuum. It stated that the high test-anxious group in the low ego-involvement condition would perform better than medium and low test-anxious groups while the low test-anxious group would perform better than medium and high test-anxious groups in the high ego-involvement condition. The GVAT Form A was the performance test. Mean scores of the different anxiety groups in GVAT Form A test are presented in Table 4.

TABLE 4

GVAT FORM A SCORES FOR LA, MA AND HA GROUPS OF SUBJECTS IN TWO CONDITIONS OF EGO-INVOLVEMENT

| | Low ego-involvement | | | High ego-involvement | | |
|---|---|---|---|---|---|---|
| Anxiety level | N | $\bar{X}$ | sd | N | $\bar{X}$ | sd |
| LA | 12 | 45.5 | 5.0 | 15 | 48.6 | 4.2 |
| MA | 18 | 45.1 | 5.6 | 12 | 45.2 | 4.6 |
| HA | 5 | 48.7 | 1.7 | 4 | 47.2 | 4.0 |

An analysis of variance(two factors with three levels each) was performed on the means in Table 4 and the results presented in Table 5.

TABLE 5

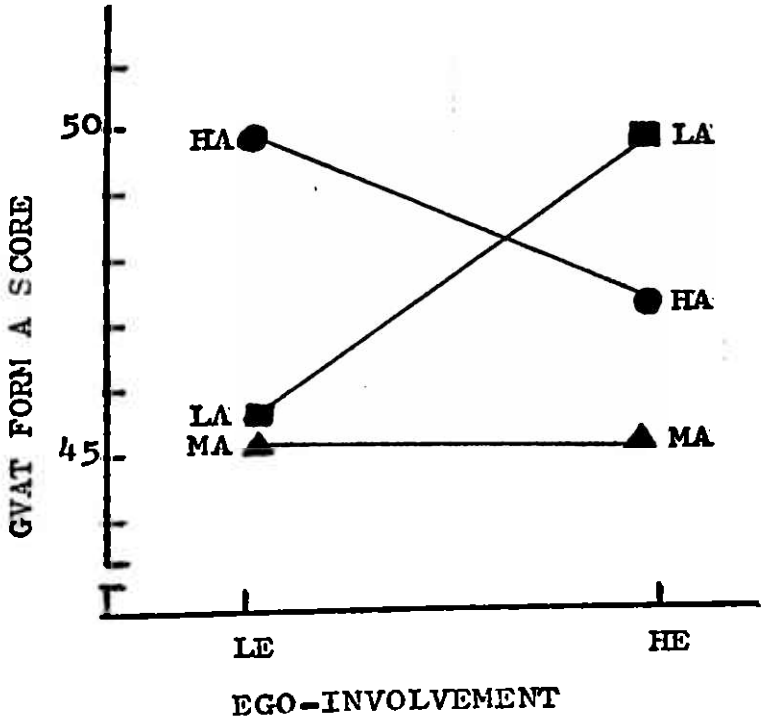
SUMMARY OF ANOVA OF TEST ANXIETY BY EGO-INVOLVEMENT ON GVAT FORM A PERFORMANCE

| Source | SS | df | MS | F | Significance |
|---|---|---|---|---|---|
| Ego-Involvement (E) | 27.47 | 1 | 27.47 | 2.8 | $p < .25$ |
| Test Anxiety(A) | 315.20 | 2 | 157.60 | 15.9 | $p < .001$ |
| Interaction (E x A) | 628.38 | 2 | 314.19 | 31.8 | $p < .001$ |
| Error | 563.98 | 61 | 9.89 | | |

It can be seen from Table 5 that the effect of test anxiety on test performance is significant($p < .05$) and so is the interaction effect of test anxiety by ego-involvement($p < .05$). An inspection of the mean scores in Table 4 indicates that the performance of the HA group in the low ego-involvement condition accounts for the significant test anxiety effect. A pairwise comparison of mean scores in the low ego-involvement condition using the Tukey Method(see Hopkins & Glass, 1978, p. 358) confirms the mean score for the HA group to be highest and significant ($q=3.65$, $df=2/61$, $p < .05$).The expected superiority of the LA group over the MA and HA groups in the high ego-involvement condition is not significant, however, the LA group has the highest mean score.

FIGURE 1

TEST ANXIETY BY EGO-INVOLVEMENT INTERACTION GRAPH FOR UPPER ABILITY CHILDREN




The interaction effect detected by ANOVA test is conveniently graphed in FIGURE 1. As can be seen from the graph, in Low Ego-involvement (LE) condition, High Test-anxious (HA) children showed better performance than their less test-anxious counterparts. In contrast, in the High Ego-involvement (HE) condition, the Low Test-anxious (LA) children surpassed the HA children, the latter presenting a decrement in performance.

For this ability group of children, the results suggest that motivational bias operates in the HE condition such that test anxiety causes lower performance.

HA subjects may know the material being tested but are unable to show that knowledge due to motivational and test-taking factors. It appears the HE condition is optimizing for the LA subjects since LA subjects in the LE condition show comparatively poor performance. This observation would support the hypothesis that LA subjects have a charateristic attribute of not worrying about what is being tested, but tending to derive positive motivational benefits from ego-involving instructions.

Hypothesis 3

This hypothesis was tested for children of the middle ability group. It stated that, in HE condition, medium and low test-anxious subjects would perform better than high test-anxious subjects whereas, in the LE condition, low and medium test-anxious subjects would, similarly, perform better than their high test-anxious counterparts. Mean scores for the different anxiety groups in GVAT Form A test are presented in Table 6.

An analysis of variance was performed on the means in Table 6 and the results of the analysis presented in Table 7.

The evidence rendered by the tables of results does not support the presence of test anxiety or ego-involvement main effects as none of these effects is

TABLE 6

GVAT FORM A SCORES FOR LA, MA AND HA GROUPS OF SUBJECTS IN TWO CONDITIONS OF EGO-INVOLVEMENT

| | Low ego-involvement | | | High ego-involvement | | |
|---|---|---|---|---|---|---|
| Anxiety level | N | $\bar{X}$ | SD | N | $\bar{X}$ | SD |
| LA | 18 | 33.8 | 6.4 | 19 | 33.2 | 5.3 |
| MA | 23 | 31.9 | 6.6 | 26 | 33.2 | 6.9 |
| HA | 24 | 33.4 | 7.0 | 25 | 30.8 | 6.1 |

statistically significant. However, the test anxiety by ego-involvement interaction is significant at $p < .05$ level. As can be seen of this interaction in

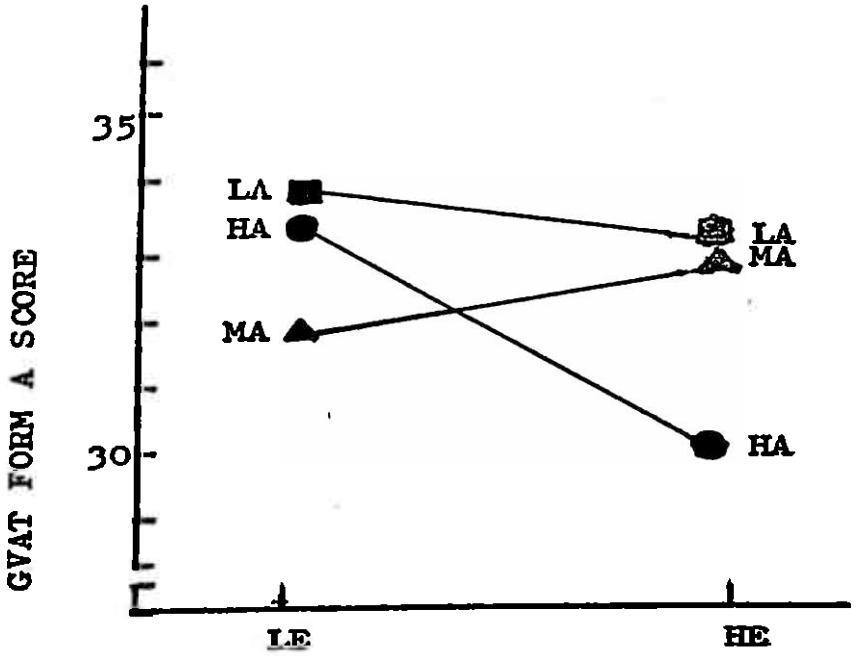
TABLE 7

SUMMARY OF ANOVA OF TEST ANXIETY BY EGO-INVOLVEMENT ON GVAT FORM A PERFORMANCE

| Source | SS | df | MS | F | Significance |
|---|---|---|---|---|---|
| Ego-Involvement (E) | 127.96 | 1 | 127.96 | 3.0 | $p < .25$ |
| Test Anxiety (A) | 733.29 | 2 | 366.65 | 8.8 | $p < .10$ |
| Interaction (E x A) | 4528.18 | 2 | 2264.09 | 54.6 | $p < .001$ |
| Error | 5389.44 | 130 | 41.46 | | |

FIGURE 2

TEST ANXIETY BY EGO-INVOLVEMENT INTERACTION GRAPH FOR MIDDLE ABILITY CHILDREN




the graph labelled Figure 2, in LE conditions, both LA and HA subjects show slightly better performance than MA subjects. In contrast, in HE condition, both MA and LA subjects are superior to HA subjects.

The HE condition seems to cause a decrement in the perfromance of HA subjects, indicating that negative motivational bias operates in the HE condition such that test anxiety interferes with performance. The gain by MA subjects from the LE to the HE conditions is slight and could be due to chance.

Hypothesis 4

This hypothesis was tested for low ability(as measured by GVAT Form B) children. It stated that in low ego-involvement condition, there would be no difference in performance between all test anxiety groups, whereas, in high ego-involvement condition, low and medium test-anxious subjects would perform better than their high test-anxious counterparts. Mean scores for the different anxiety groups in GVAT Form A test are presented in Table 8.

TABLE 8

GVAT FORM A SCORES FOR LA, MA AND HA GROUPS OF SUBJECTS IN TWO CONDITIONS OF EGO-INVOLVEMENT

| | Low ego-involvement | | | High ego-involvement | | |
|---|---|---|---|---|---|---|
| Anxiety Level | N | $\bar{X}$ | SD | N | $\bar{X}$ | SD |
| LA | 6 | 22.9 | 8.3 | 2 | 25.0 | 5.9 |
| MA | 7 | 25.1 | 3.5 | 13 | 23.9 | 7.2 |
| HA | 8 | 22.7 | 6.1 | 15 | 26.1 | 4.5 |

An analysis of variance was performed on these means and the results presented in Table 9. Ego-involvement main effect as well as test anxiety by ego-involvement interaction were significant. Test anxiety main effect was not significant.

A pairwise comparison of means using the Tukey

TABLE 9

SUMMARY OF ANOVA OF TEST ANXIETY BY EGO-INVOLVEMENT ON GVAT FORM A PERFORMANCE

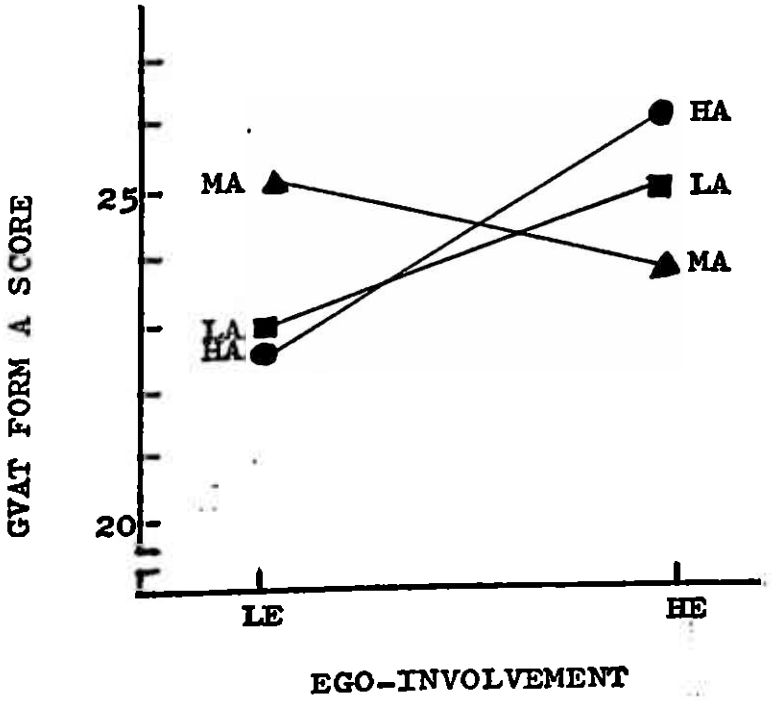
| Source | SS | df | MS | F | Significance |
|---|---|---|---|---|---|
| Ego-Involvement (E) | 219.85 | 1 | 219.85 | 6.1 | $p < .025$ |
| Test Anxiety (A) | 9.23 | 2 | 4.62 | 0.1 | NS |
| Interaction (E x A) | 1403.94 | 2 | 701.97 | 20.1 | $p < .001$ |
| Error | 1633.02 | 46 | 35.5 | | |

Method did not reveal any significant differences between any pairs of means. This, however, is not an impossible occurance. According to Hopkins and Glass (1978): "....it is possible for the omnibus F-test to be significant, but to find no statistically significant differences between pairs of means using the Tukey or some other multiple-comparison procedure" (p.360). The significant effects observed in the ANOVA table could, therefore, be differences between some sub-sets of means and other sub-sets of means, which was of no interest to the investigator.

The mean scores reported in Table 8 are graphed as in Figure 5 for easy examination of the apparent significant main and significant interaction effects detected in Table 9.

FIGURE 3

TEST ANXIETY BY EGO-INVOLVEMENT INTERACTION GRAPH FOR LOWER ABILITY CHILDREN




The pattern of interaction as illustrated in Figure 3 indicated interesting results. In the LE condition, MA subjects were shown to be superior to both LA and HA subjects who appeared to have almost tied in their mean scores. In contrast, in the HE condition, HA subjects showed better performance than both LA and MA subjects. The graph shows both LA and HA to gain in performance from the LE condition to the HE condition.

There is no evidence to suggest that the HE condition, in this study, promoted or at least allowed

for interfering effects of anxiety. In fact, it would seem that HE conditions help low ability children, irrespective of their test anxiety level, better show what they have learned and what skills they posses than LE conditions. In consequence, the ability to perform well under highly evaluative conditions could be viewed as a matter involving the need for both positive motivation and test-taking skills.

# CHAPTER FIVE

# DISCUSSION

## Introduction

The main aim of the study was to examine the effects of test anxiety on test performance. Subjects for the study consisted of 252 primary seven children drawn from seven primary schools within the Kisumu Municipality. More precisely, the study was concerned with 1) the relationship between test anxiety and academic performance in general, and 2) the combined effects of test anxiety and ego-involvement on performance in a mental ability test. The first objective involved determining the correlations between i) test anxiety scores and scores on a single test of ability, and ii) test anxiety scores and terminal progress marks in the three core subjects, namely, English & Composition, Mathematics and General Subjects. The second objective was concerned with comparing mean scores on a single classroom ability test for high, medium, and low test-anxious groups in two ego-involvement conditions. However, in a study of this nature, it is important to control for ability level. A number of past studies (e.g. Barton et al.(1972; Gaudry and Fitzgerald,1971; Phillips and Bannon,1968) provided evidence that mental ability is an important and an effective predictor of academic

performance. So, in order to observe effects of test anxiety and ego-involvement on test performance, a contributing factor such as mental ability had to be comparable for subjects in a given test anxiety or ego-involvement group. To control for the effects of mental ability therefore, the 'General Verbal Ability Test suitable for African Schools(GVAT)' Form B was administered to the subjects. Scores from this test were then used to divide subjects into three ability groups: Upper, Middle, and Lower ability groups respectively. The two-factor analysis of variance(ANOVA) of test anxiety x ego-involvement on test performance was performed for each ability level on mean scores obtained in GVAT Form A ability test. The results of all these analyses were presented in Chapter 4, and to follow is a discussion of the hypotheses and the study in its entirety.

The correlation between test anxiety and academic performance

The first hypothesis stated that test anxiety would be negatively related to test performance. According to the data, this hypothesis received considerable support. High test anxiety was found to be associated with low academic performance as measured by a mental ability test and terminal progress marks. This finding is consistent with those by Sarason et al.(1960);

Gaudry and Fitzgerald(1971), Cowen et al.(1965), Kanekar et al.(1976), and Deffenbacher(1977). According to Sarason et al.(1960), the inverse relationship between test anxiety and mental ability or intelligence can be interpreted in two ways: 1) low scores from a mental ability or achievement test might already reflect the interfering effects of anxiety, or 2) the less able or less intelligent are less able to verbalise their fears and therefore respond to most TASC questionnaire items in the affirmative, in effect, reporting high anxiety. The first interpretation by Sarason et al.(1960) appeals more than the second. The less bright children probably lack confidence in themselves and therefore, suffer feelings of inadequacy when faced with a test situation. The threat to their self-esteem intensifies because such children are usually uncertain about their chances of passing.

Feelings of inability to perform well in an examination can distract a child's attention from the task at hand and, at the same time, allow task-irrelevant responses to dominate. Stipek and Hoffman(1980) have shown that children who attribute their failure to lack of ability eventually achieve less well compared to children who interpret their failure as lack of effort made. According to these researchers, such children are more afflicted by worry cognitions. The

greatest source of their failures lies in the way in which they perceive tests or examinations. When they lack confidence in themselves, worry becomes an important source of interference to performance.

In the present study, most of the children were of average ability. The inverse relationship found therefore, accounts fairly well for the sample.

It is probably fitting at this stage to review evidence accruing to the effect that worry is the main factor that interferes with performance in intellectual tasks. In a detailed review of literature on anxiety and academic performance, Deffenbacher(1980) concludes that worry is the greatest source of interference during testing. Other studies by Spiegler and Cooley(1980), Kirkland and Hollandsworth(1980) also contend that the cognitive components of test anxiety exercises more interfering influence on test performance than emotional components.

Spiegler and Cooley(1980) reported that when subjects were provided with both cognitive and emotional treatments, a combination of the two did not produce more effective treatment than just the cognitive component alone. They, further, add that the absence of additive effect suggests that, at least, for self-report measures, it may be most important to focus treatment on cognitive coping skills. This also supports the

view of Morris and Liebert(1969; 1970) that cognitive components are the most important in the test anxiety reaction.

The results clearly show that test anxiety is inversely related to test performance. There is an eminent difficulty in attempting to interpret this kind of relationship. Correlations alone cannot be prima facie evidence for causation. The negative correlations could imply two things; 1) That high anxiety causes pupils to perform poorly on the test and that low anxiety pupils, not being handicapped by fear, are able to perform up to a fuller measure of their ability, 2) Intelligence differences can cause anxiety such that dull pupils become anxious when their intelligence is being tested while bright pupils find the experience pleasant and not anxiety-producing.

The literature reviewed by Wine(1971) supports the conclusion that test anxiety does interfere with test performance. However, differences in intelligence would only cause anxiety when the testing exercise and its purpose bear important ego-related consequences to the individual. There has to be, thus, a strong need to achieve for low intelligence to cause anxiety. Hyman(1954) and Sewell et al.(1957) pin down working-class parents to be less anxious about formal education for their children,

and find low-class children to have lower aspirations. Further, Mureria(1974) attributes low performance of Kikuyu rural children in Piagetian tasks to socio-economic conditions experienced. She notes that children who come from the low income bracket are not exposed to proper attention from their mothers who are overburdened with domestic duties. This is because fathers spend most of their time outside the home while engaging in jobs aimed at supplementing the family's income. She adds that being so overworked, mothers get easily irritated by their children's curiousity and questions and that this may not only hamper their children's intellectual developement but may also affect the attitudes that children carry to test situations. The children may tend to fear examination situations and this could be reflected in their poor performance.

Test Anxiety, Ego-involvement and Test Performance

The second hypothesis was tested for children of above average mental ability. It stated that the high test-anxious group in the low ego-involvement condition would perform better than medium and low test-anxious groups while the low test-anxious group would perform better than medium and high test-anxious groups in the high ego-involvement condition. As predicted, this hypothesis was supported by the data. With respect to the GVAT Form A performance test, test anxiety and

ego-involvement were found to have facilitative effect on the performance of bright children. A possible reason for this result may be found in what the Test Anxiety Scale for Children(TASC) measures in primary school children. The scale probably measures sensitivity to danger as Sarnoff et al.(1958) concludes. These researchers obtained similar results and then questioned how it is possible for anyone to be extremely anxious and, at the same time, extremely effective in the task which has aroused his anxiety. According to Wine (1971), anxiety effects should be given interpretation in terms of the cognitive-attentional view of performance decrements. Wine's contention is also supported by the views of Houston(1977) and Morris & Engle(1981) who add that when students become preoccupied with their own self-evaluation and with the cognitive possibilities involved in the situation, performance suffers because of the misdirection of attention away from the task at hand. However, this would apply more to average and below average children. For bright children, the facilitative effect of test anxiety may not be due to the latter's immediate effects, but to factors only indirectly related to anxiety. Ruebush(1960) and Waite(1960) hold the view that the "interference effect" of anxiety may be facilitating such as when an anxiety response like cautiousness is relevant to the kind of

responses required in the situation. Cautiousness may be a technique adopted by the bright child who is high test-anxious to reduce anxiety. In such circumstances, the worry cognitions which distract the child from task requirements and interfere with the effective use of his time, thus, contributing to poor performance would not predominate.

The third hypothesis was tested for children of middle ability. It stated that under low ego-involvement conditions, low and medium test-anxious subjects would perform better than their high test-anxious counterparts; under high ego-involvement conditions, the same observation would be made.

With respect to the middle ability children, no ego-involvement or test anxiety main effect was observed. However, a significant test anxiety by ego-involvement effects shown to be present gave a pattern that suggested interfering effects of anxiety. While instructions designed to increase the level of ego-involvement raised the level of performance of MA subjects, it decreased the level of performance of HA subjects. This lends support to the notion that negative motivational bias operates in highly evaluative conditions such that test anxiety interferes with performance. LA subjects are shown performing

well in both the LE and the HE conditions since negative motivation should not be a significant problem for them.

The fourth hypothesis was tested for children whose scores on the GVAT Form B fell in the lower third of the ability continuum. It stated that under conditions of low ego-involvement, no differences in performance would be observed between all anxiety groups; under conditions of high ego-involvement, low and medium test anxious subjects would perform better than high test-anxious subjects. The results did not support the presence of either test anxiety or ego-involvement main effects. However, the presence of test anxiety by ego-involvement interaction effects indicated a rather unexpected possibility.

There was no evidence that test anxiety interferes with performance in either high or low ego-involvement conditions. Rather, ego-involving instructions seemed to help both low and high test-anxious subjects show better what they have learned and what skills they may posses with respect to the verbal ability performance test. Evidence from this result suggests and, thus, contradicts the original belief that low ability causes anxiety. For low ability children, it would seem that

the ability to perform well under high ego-involving conditions is a matter involving the need for both positive motivation and test-taking skills although the latter are also important in their right.

Summary of Discussion

In the preceding discussion, it has been possible to convey a brief picture of the findings in this study. From the data has emerged the conclusion that test anxiety is facilitating for upper and middle ability children, but only under less evaluative test-taking conditions. Highly evaluative conditions seem to allow for interfering effects of test anxiety to operate, thus causing decrements in performance.

The results from this study, however, suggest that test anxiety is not a significant experience for low ability children. This is amply depicted in the results where high and low test-anxious subjects are shown to, almost equally, gain in terms of performance from low ego-involvement conditions to high ego-involvement conditions. A possible conclusion based on this observation is that, at least, low ability is not the cause of high anxiety. The source of anxiety must, therefore, be somewhere in the external enviro-ment - possibly developed over years as a result of

faulty social development in the early years of life.

Some Educational Implications

The results of this study provide some conclusions that may bear directly on educational practice and psychological theories that have been developed to explain the influence of anxiety on performance.

It is recognisable that classroom tests help determine the child's perception of the manner in which the teacher's power to assign grade will be used. The nature of test anxiety and its influence as a test-taking factor should be determined and understood. Assuming that the results of this study are generalisable, it would seem that the present practice of laying emphasis on the importance of examinations or tests, and thus creating situational pressure, would only benefit low test-anxious children. It would be necessary for teachers to diagnose the level of anxiety of each child and consequently ensure that high test-anxious middle and upper ability children are not exposed to a myriad of non-content related cognitively demanding stumbling attentional blocks that could contribute to failure to perform to full capacity.

For low ability children, it would only be necessary to identify more effective methods of positive motivation that would enhance their performance.

Among other things, which are open for future research, low ability children could be given proper training in test-taking and coping skills as part of the motivational strategy aimed at improving their level of performance.

The conclusion reached that increase in level of ego-involvement serves to raise the performance of LA individuals but not MA and HA individuals is consistent with Sarason's Interfering Response theory. T theory cannot account for the observation that anxiety has no influence, whatsoever, on the performance of low ability children.

Limitations of the Study

A study like this one does not usually escape theoritical and practical problems. The main theoritical limitation of this study, is the assumption made that ego-involving instructions induce anxiety in individuals who report high test anxiety. It was believed that individuals who report high anxiety react to ego-involving instructions with more anxiety. Since test anxiety level was not measured after ego-involving instructions had been given, it was not possible to determine the exact effects of ego-involving instructions on low test-anxious individuals.

The main practical problem was the heterogenous composition of subjects. The sample of children used contained both African and Asian children. Some items in the TASC questionnaire used make reference to events connected with walking journeys between home and school. The investigator noted that quite a number of Asian children from both Aga Khan and Xaverian Primary Schools did not walk to and from school, but were driven both ways.

Another practical problem met in this study included the inability of the investigator to select at will suitable subjects for the factorial design adopted. School head teachers only allowed use of intact classes and , as a result, some cell numbers in the factorial design occured to be undesirably low.

In administering the TASC, the oral technique employed could lead to scores confounded with listening ability of some children.

Finally, at the material time of initiating this study, there was the problem of lack of access to the necessary literature and more suitable test instruments. The design of the study was, therefore, partly dictated by the availability of resources.

Future Research

A number of directions for future research are suggested by the results of the present study. In this study the subjects used were mixed in terms of race and sex. Sex differences with respect to anxiety influence on test performance, though alluded to in the literature reviewed, were not investigated. Also in the literature reviewed is the notion that anxiety is developed in the home setting and during the preschool years. There is a need, then, for research to be carried out to determine if some of the conclusions reached in this study also hold for males or females separately, and for different socio-economic levels. In particular, ways need to be found by which high test-anxious individual can be challenged but their anxiety kept within non-interfering limits.

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# A P P E N D I C E S

## APPENDIX I

### THE TEST ANXIETY SCALE FOR CHILDREN (TASC)

1. Do you worry when the teacher says that she is going to ask you questions to find out how much you know?
2. Do you worry about being promoted, that is, passing from Class Seven to Form One at the end of the year?
3. When the teacher asks you to get up infront of the class and read aloud, are you afraid that you are going to make some bad mistakes?
4. When the teacher says that she is going to call upon some boys and girls in the class to do arithmetic problems, do you hope that she will call upon someone else and not on you?
5. Do you sometimes dream at night that you are in school and cannot answer the teacher's questions?
6. When the teacher says that she is going to find out how much you have learned, does your heart begin to beat faster?
7. When the teacher is teaching you about arithmetic, do you feel that other children in the classroom understand her better than you?
8. When you are in bed at night, do you sometimes worry about how you are going to do in class the next day?
9. When the teacher asks you to write on the blackboard in front of the class, does the hand you write with sometimes shake a little?
10. When the teacher is teaching you about reading, do you feel that other children in class understand her better than you?
11. Do you think you worry more about school than other children?

12. When you are at home and you are thinking about your arithmetic lesson for the day, do you become afraid that you will get the answers wrong when the teacher calls upon you?
13. If you are sick and miss school, do you worry that you will do more poorly in your schoolwork than other children when you return to school?
14. Do you sometimes dream at night that other boys and girls in your class can do things you cannot do?
15. When you are home and you are thinking about your reading lesson for the next day, do you worry that you will do poorly on the lesson?
16. When the teacher says that she is going to find out how much you have learned, do you get a funny feeling in your stomach?
17. If you did very poorly when the teacher called on you, would you probably feel like crying even though you would try not to cry?
18. Do you sometimes dream at night that the teacher is angry because you do not know your lessons?

In the following questions the word "test" is used. What I mean by "test" is any time the teacher asks you to do something to find out how much you know or how much you have learned. It could be by your writing on paper, or by your speaking aloud, or by your writing on the blackboard. Do you understand what I mean by "test"—it is any time the teacher asks you to do something to find out how much you know.

19. Are you afraid of school tests?
20 Do you worry a lot before you take a test?
21. Do you worry a lot while you are taking a test?
22. After you have taken a test do you worry about how well you did on the test?

23. Do you sometimes dream at night that you did poorly on a test you had in school that day?
24. When you are taking a test, does the hand you write with shake a little?
25. When the teacher says that she is going to give the class a test, do you become afraid that you will do poorly?
26. When you are taking a hard test, do you forget some things you knew very well before you started taking the test?
27. Do you wish a lot of times that you didn't worry so much about tests?
28. When the teacher says that she is going to give the class a test, do you get a nervous or funny feeling?
29. While you are taking a test do you usually think you are doing poorly?
30. While you are on your way to school, do you sometimes worry that the teacher may give the class a test?

## APPENDIX II

### GENERAL VERBAL ABILITY TESTS SUITABLE FOR USE IN AFRICAN SCHOOLS

By

HAMED EL-ABD, M.A., PH.D., (London)

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INSTRUCTIONS FOR FORM (B).

Fill in the following Spaces:

Names:_____

Sex:_____

School:_____

Class:_____

Country of Origin:_____

Tribe:_____

How many years have you been at school?_____

Father's:_____

Date of Birth:_____

Today's Date:_____

Age:_____

NOW YOU HAVE CONPLETED THE EXAMPLES, PUT YOUR PENCIL/PEN DOWN AND READ THE FOLLOWING CAREFULLY.

***

When you are given the signal to begin work straight through the test as quickly and carefully as you can.

***

Remember that no one is expected to do everything. Do as much as you can. If you cannot do a question don't spend too much time on it, but go no to the next.

***

When you finish a page go straight onto the next. You are allowed to alter any of your answers. But make sure that your final answer is clear.

***

The time allowed for this test is 45 minutes.

***

IF YOU WISH TO ASK ANY QUESTIONS ASK THEM NOW. YOU WILL NOT BE ALLOWED TO ASK QUESTIONS WHILE YOU ARE DOING THE TEST.

DO NOT TURN OVER THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

***

FORM A

Underline the word in brackets which has almost the same meaning as the given word:

(1) rescue (reserve, spare, save, stock)

(2) demand (claim, ask, urge, beg)

(3) guide (teacher, advisor, father, instructor)

(4) proceed (go, do, carry, continue)

The alphabet is:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Complete the following sequences of letters:

(5) E, G, I, ___, ___.

(6) M, P, S, ___, ___.

(7) AB, BC, CD, ____, ____.

(8) Z, X, V, ___, ___.

(9) HJ, KM, NP, ____, ____.

For each of the following underline one of the alternatives:

(10) A baby always has _____
a toy, a mother, a pram, a sister, an ayah.

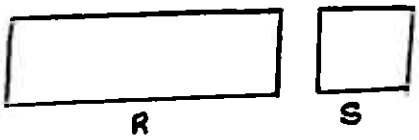
(11) An old man always has _____
a hat, glasses, a wife, a car, a nose.

(12) A bus always has _____
seats, traffic, petrol, passengers, conductor.

(13) A shop always has _____
customers, a doorway, vegetables, a window, a counter.

(14) If Cairo is in Asia write CN in the brackets if not write NC ( ).

(15) If the rectangle R is equal in area to the square S put = in brackets, if not put ± ( ).




(16) If ♀ represents a male and ♀ represents a female draw in the box a picture of three cows and a bull.

(17) If the elephant is bigger than the lion write disagree in brackets if not write agree
(_____)

Arrang tho following words so taht they make sensible sentences:

(18) Father son a older is than his

_____

(19) Some school university pupils to go after

_____

(20) Clock the town watch fifteen by fast my minutes is

_____

(21) Wish was to his great a headmaster become

_____

Complete the following:

(22) A male is to female as a son is to a _____

(23) Fanta is to drinking as food is to _____

(24) Confront is to front as invalid is to _____

Rewrite the following words in alphabetical order in the spaces provided below:

(25) of, out, off, over

_____, _____, _____, _____,

(26) spoon, spool, sport, spray

_____, _____, _____, _____

(27) forever, ever, forehand, hand

_____, _____, _____, _____

(28) An expensive suit is used for _____(underline one of the following):

(a) occasions, (b) showing off, (c) dressing,
(d) enjoyment, (e) dance

In the series below, write the next two numbers:

1, 1

(30) 1, 6, 11, 16, ___, ___, ___

(31) 12, 9, 6, 3, ____, ____

(32) 2/3, 3/4, 4/5, 5/6, ____, ____

(33) 3, 4, 9, 16, ____, ____

(34) 2, 6, 24, 120, ____, ____

From the letters of each word given, make five different words. You may use any letter more than once.

(35) TRUNCATE, _____

(36) CARPET, _____

(37) DETERMINE, _____

For each of the following underline the word, symbol or figure which does not belong:

(38) table, chair, wood, door, desk.

(39) suck, rock, duck, luck, muck

(40) bb, pp, ff, gp, mm

(41) lot, but, cut, hut, nut

(42) cast, met, fat, rat, sat

(43) coal, silver, gold, zinc, copper

(44) D. G. O, D, H.

Underline the word in brackets which belongs with the group not in brackets:

(45) glad, jolly, happy, merry, .....
(perfect, good, nice, cheerful, right)

(46) Coefficient, coexistence, cooperation, coeducation ...
(common, coordination, correct, correlate, conv ntion

(47) Boat, road, goat, load, .....
(board, shore, sword, soap, door)

(48) Indian, Egyptian, Italian, Russian, .....
( Uganda, Australia, German, Londoner, Africa)

(49) Tennis, f otbal, wrestling, boxing .....
(reading, singing, hockey, referee, athletics)

(50) Fat er, Mother, son, daughter, .....
(teacher, man, judge, aunt, aunt, family)

Put in the two missing letters to make the words into nouns. Use only the letters e,i,o,u,a.

(51) d__ __r g__ __nt.

(52) p__ __m ch__ __ r

(53) m__ __n r__ __ d

(54) t__ __I f__ __r

(55) sc__ __t st__ __rs.

Put the necessary signs to make the two sides equal:

| | Left side = right side | | Left side = right side |
|---|---|---|---|
| (56) | $\frac{18 \quad 9}{3}$ = 3 | 7 5 | = 2 |
| (57) | $\frac{8 \quad 2}{4}$ = 4 | 20 5 | = 5 5 |
| (58) | 4 9 = 5 | 4 $\frac{1}{2}$ | = 2 |
| (59) | $\frac{32 \quad 4}{}$ = 6 6 | 3 4 | = 0.75 |
| (60) | 48 6 = 6 7 | 13 17 | = 4 |

This list contains paris of opposite words. Write out the pairs of spaces provided below:

(61) above soft _____,_____

(62) active slim _____,_____

(63) hard repulsive _____,_____

(64) fat below _____,_____

(65) attractive lazy _____,_____

FORM B

Underline the word in brackets which has the same or almost the same meaning as the given word:

(1) rescue (reserve, spare, saue, stock)

(2) demand (claim, ask, urge, beg)

(3) guide (teacher, advisor, father, instructor)

(4) proceed (go, do, carry, continue)

The laphabet is:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Complete the following sequences of letters:

(5) E, G, J, _____,_____,

(6) M, P, S. _____,_____.

(7) AB, BC, CD, _____,_____.

(8) Z, X, V, _____,_____.

(9) HJ, KM, NP._____,_____.

For each ofthe following underline one of the alternatives

(10) A baby always has .....
a toy, a mother, a poem, a sister, an ayah

(11) An old man always has .....
a hat, glasses, a wife, a car, a rose.

(13) A bus always has ..... .....
seats, traffic, petrol, passengers, conductor.

(14) A shop always has .....
customers, a doorway, vegetables, a window, accountor.

(15) If Cairo is in Asia, write CN in the brackets if not write NC ( )

(16) If the rectangle R is equal in area to the square S pull = in brackets, if not put I ( )

(17) If ♂ represents a male and ♀ represents a female draw in the box is a picture of three cows and a bull.

(18) If the elephant is bigger than the lion write disagree in brackets if not write agree ( .....)

Arrange the following words so that they make sensible sentences:

(19) Father son a older is than his

.....

(20) Some school University pupils to go further

.....

(21) Clock the town warch fifteen by fast my minutes is

.....

(22) ish was to his great a headmaster become

.....

(23) Complete the following:

(23) A male is to a female as a s n is to a .....

(24) Fanta is to drinking as food is to .....

(25) Confront is to front as invalid is to .....

Rewrite the following words in alphabetical order in the following spaces provided below:

(26) of, out, off, over _____, _____, _____, _____

(27) Spoon, spool, sport, spray _____, _____, _____, _____

(28) Forever, over, forehand, hand _____, _____, _____, _____

(29) An expensive suit is used for .....(underline one of the following): (a) occassions (b) showing off (c) dressing (d) enjoyment (e) dance

In the series below, write the next two numbers;

(30) 1, ½, ¼, ⅛, _____, _____

(31) 2, 4, 8, 16 _____, _____

(32) 17, 12, 7, 2 _____, _____

(33) 99, 11, 88, 22 _____, _____

(34) 1, 2/9, 3/16, 4/25 _____, _____

From the letters of each word given, make five different words. You may use any letter more than once:

(35) TEARS _____, _____, _____, _____, _____

(36) CONFUSED _____, _____, _____, _____, _____

(37) SERIOUS _____, _____, _____, _____, _____

For each of the following underline the word, symbol or figure which does not belong:

(38) Aa, Bb, Cc, Dd, Ee.

(39) Lion, Leopard, tiger, cheetah, flamingo

(40) Paw-paw, apple, sweet, orange, pineapple

(41) X, Z, L, C, Y.

(42) (1,3,5,), (3,5,7,), (5,6,9,), (7,9,11) (9,11,13)

(43) Cow, b ffalo, elephant, horse, monkey

(44) mate, late, hate, gate, fate.

Underline the word in brackets which belongs with the group not in brackets:

(45) nephew, niece, cousin, uncle, ,,.....(tribe, relative, aunt, parents, family)

46) Bus, truck, car, taxi .....(boat, lorry, plain, bicycle, ship)

47) endeavour, hour, sour, colour .....(flower, summer, shower, tour, hammer)

(48) sad, deplorable, dull, gloomy,.....(terrified, frightened, backward, sorrowful, shocked)

(49) concave, conceal, conceive, concentrate,..... (conic, condense, courtesy, cork, concert)

(50) Britain, Ireland, Malta, Australia,..... (Africa, Europe, Ceylon, Canada, China)

Put in the two missing letters to make the words into nouns. Use only the letters, e, i, o, u, a.

| | | |
|---|---|---|
| (51) | ch__ __n | t__ __m |
| (52) | m__ __l | r__ __f |
| (53) | tr__ __n | sp__ __t |
| (54) | t__ __m | t__ __r |
| (55) | c__ __n | p__ __t |

Put the necessary signs to make the following sides equal:

| | left side | = | right side | | left side | = | right side |
|---|---|---|---|---|---|---|---|
| (56) | 7 4 1 | = | 4 | | 2 3 | = | 3 8 |
| (57) | $\frac{20 \quad 4}{6}$ | = | 4 | | 5 10 | = | 0.5 |
| (58) | $\frac{3 \quad 4}{2}$ | = | 6 | | 11 3 | = | 8 |
| (59) | 36 $\frac{1}{3}$ | = | 12 | | 3 5 2 | = | 6 |
| (60) | 16 4 | = | 4 | | 3 4 | = | 2 5 |

This list contains pairs of opposite words. Write out the pairs like rich-poor on the pairs of spaces provided below.

| | | | |
|---|---|---|---|
| (61) | near | disperse | ....., ..... |
| (62) | assemble | reluctant | ....., ..... |
| (63) | respect | dark | ....., ..... |
| (64) | willing | despise | ....., ..... |
| (65) | bright | far | ....., ..... |

## APPENDIX III

### END-TERM SCHOOL MARKS BY SCHOOL AND SUBJECT

| SCHOOL | N | $\bar{X}$ | SD |
|---|---|---|---|
| AGA KHAN | | | |
| Mathematics | 26 | 71.5 | 7.2 |
| English & Comp. | 26 | 69.8 | 8.7 |
| General Subjects | 26 | 60.1 | 8.6 |
| XAVERIAN | | | |
| Mathematics | 31 | 62.8 | 14.5 |
| English & Comp. | 31 | 73.6 | 5.8 |
| General Subjects | 31 | 53.8 | 9.9 |
| LAKE PRIMARY | | | |
| Mathematics | 43 | 35.2 | 11.1 |
| English & Comp. | 43 | 64.1 | 10.5 |
| General Subjects | 43 | 49.6 | 13.9 |
| ARINA PRIMARY | | | |
| Mathematics | 39 | 51.0 | 17.6 |
| English & Comp. | 39 | 52.6 | 10.2 |
| General Subjects | 39 | 50.5 | 9.0 |
| KIBUYE PRIMARY | | | |
| Mathematics | 47 | 49.2 | 17.5 |
| English & Comp. | 47 | 48.7 | 10.5 |
| General Subjects | 47 | 52.1 | 8.0 |
| NANGA PRIMARY | | | |
| Mathematics | 31 | 43.6 | 16.6 |
| English & Comp. | 31 | 50.1 | 13.8 |
| General Subjects | 31 | 46.2 | 11.7 |
| PANDPIERI | | | |
| Mathematics | 35 | 46.1 | 13.1 |
| English & Comp. | 35 | 29.5 | 7.8 |
| General Subjects | 35 | 45.5 | 9.6 |

## APPENDIX IV

## MEAN TASC SCORES

| School | N | Mean | S.D. |
|---|---|---|---|
| Xaverian | | | |
| Boys | 17 | 14.3 | 4.9 |
| Girls | 14 (31)* | 16.4 (15.4)* | 4.8 (4.9)* |
| Aga Khan | | | |
| Boys | 18 | 13.4 | 4.6 |
| Girls | 8 (26)* | 16.5 (14.4)* | 5.0 (4.9)* |
| Lake Primary | | | |
| Boys | 27 | 14.9 | 4.4 |
| Girls | 16 (43)* | 16.6 (15.5)* | 3.6 (4.2)* |
| Arina Primary | | | |
| Boys | 24 | 14.5 | 7.3 |
| Girls | 15 (39)* | 17.2 (15.5)* | 4.2 (6.3)* |
| Kibuye Primary | | | |
| Boys | 36 | 15.0 | 4.5 |
| Girls | 11 (47)* | 16.4 (15.3)* | 3.8 (4.4)* |
| Nanga Primary | | | |
| Boys | 23 | 15.7 | 4.5 |
| Girls | 8 (31)* | 19.7 (16.8)* | 2.7 (4.5)* |
| Pandpieri | | | |
| Boys | 23 | 15.3 | 4.4 |
| Girls | 12 (35)* | 18.3 (16.3)* | 3.2 (4.3)* |

*Numbers in parentheses refer to pooled numbers of pupils of both sexes for each school.

## APPENDIX V

## MEAN GVAT FORM B SCORES



| School | N | Mean | S.D. |
|---|---|---|---|
| Xaverian | | | |
| Boys | 17 | 42.4 | 5.5 |
| Girls | 14 (31)* | 47.1 (44.5)* | 4.6 (5.6)* |
| Aga Khan | | | |
| Boys | 18 | 43.8 | 5.6 |
| Girls | 8 (26)* | 47.5 (44.9)* | 4.2 (5.4)* |
| Lake Primary | | | |
| Boys | 27 | 33.9 | 9.4 |
| Girls | 16 (43)* | 31.5 (32.6)* | 7.7 (8.9)* |
| Arina Primary | | | |
| Boys | 24 | 32.5 | 6.7 |
| Girls | 5 (39)* | 31.5 (32.1)* | 7.7 (7.1)* |
| Kibuye Primary | | | |
| Boys | 36 | 29.4 | 8.4 |
| Girls | 11 (47)* | 30.6 (29.6)* | 8.2 (8.3)* |
| Nanga Primary | | | |
| Boys | 23 | 32.2 | 9.8 |
| Girls | 8 (31)* | 26.5 (30.7)* | 10.2 (10.1)* |
| Pandpieri | | | |
| Boys | 23 | 28.1 | 6.0 |
| Girls | 12 (35)* | 29.3 (28.5)* | 6.8 (6.8)* |

*Numbers in parentheses refer to pooled numbers of pupils of both sexes for each school.

# APPENDIX VI

# M I S C E L L A N E O U S  I T E M S

# MUNICIPALITY OF KISUMU

Tel. Nos: Kisumu
- Office 2251 - 55

Town Hall
Court Road
P. O. Box 105
Kisumu Kenya

Our Ref: MEO/43/Vol.III/(82)

Your Ref:

9th February, 1982.

The Headmaster/Mistress,

Aga Khan Primary School,
Xaverian Primary School.

LETTER OF INTRODUCTION

This is to introduce Mr. Morris Odinde, a student at Kenyatta University College, Education Department, Psychology section.

At the moment he is carrying out research on test anxiety and test performance.

Since your school is one of the best in this area in Kisumu Municipality, we have permitted him to carry out his research in your school, please assist him.

Mainly he is going to deal with standard seven (7) and six (6). You should give him time to exercise his research in the afternoon after 3.20 p.m., anyway you may make necessary arrangements with him.

Thanks in advance.

(B.S. OCHIENG')
for: MUNICIPAL EDUCATION OFFICER

BSO/jpa.

F3

# MUNICIPALITY OF KISUMU

Tel. Nos: Kisumu
- Office 2251 - 55

Our Ref: MEO/43/Vol.III/(81)

Your Ref:

Town Hall
Court Road
P. O. Box 105
Kisumu Kenya

9th February, 1982.

The Headmaster:

Kibuye Mixed Primary School.
Lake Primary School.
Nanga Primary School.
Pandpieri Primary School.
Arina Primary School.

LETTER OF INTRODUCTION

This is to introduce Mr. Morris Odindo, a student at Kenyatta University College, Education Department, Psychology Section.

At the moment he is carrying out research on test anxiety and test performance.

Since your school is one of the best in this area in Kisumu Municipality, we have permitted him to carryout his research in your school, please assist him.

Mainly he is going to deal with standard seven(7) and six (6). You should give him time to exercise his research during morning session, anyway you may make necessary arrangements with him.

Thanks in advance.

(B.S. OCHIENG')
for: MUNICIPAL EDUCATION OFFICER

BSO/jpa.

OFFICE OF THE PRESIDENT,
HARAMBEE HOUSE,
P.O. BOX 30510,
NAIROBI.

REF: NO.P.13/001/11C. 205/3 ...  DATE: ..10th. October, 1981

~~Prof/Dr~~/Mr/~~Mrs/Miss~~ Maurice Odondi,.....

.....Department of Educational Psychology,
Kenyatta University College,
.....P. O. Box 43844,
.....NAIROBI.....

Dear Sir/~~Madam~~,

APPLICATION FOR AUTHORITY TO CONDUCT RESEARCH IN KENYA

This is to acknowledge receipt of your application for authority to conduct research on, " A study of the influence of Test ..anxiety and stress on Test performance of some selected ..Primary Seven Kenyan School Children".....

and to inform you that it has been registered in this office, and the proposal has been forwarded to the National Council for Science and Technology, for evaluation. A decision on your application will be reached as soon as we receive the recommendations of the Council.

In meantime you may correspond directly with the Secretary, National Council for Science and Technology on any additional information that you might have on the application. (For any future correspondence with the office, please quote the reference given on this letter).

Yours faithfully,

C. A. KWANGO (MRS)
for: PERMANENT SECRETARY/CABINET AFFAIRS

c.c.

The Secretary,
National Council for Science and Technology,
NAIROBI

# KENYATTA UNIVERSITY COLLEGE

OFFICE OF THE REGISTRAR

P.O Box 43844
Nairobi Kenya
Telephone: Templer 356

Our Ref. 255/7145/80

Your Ref

5th October, 1981

The Permanent Secretary,
Office of the President,
P.O. Box 30510,
NAIROBI.

(Attention: Mr. K. Ruchiami)

Dear Sir,

RESEARCH CLEARANCE

MAURICE ODONDI

Enclosed please find research apolication forms for 'Authority to conduct Research in Kenya' in respect of the above duly completed for your necessary action.

Mr. Odondi is a student at this University College and his proposed research has our full support. Also, enclosed please find shs.25/- cash being the application fee.

I hope you will consider this request at your convenience.

Yours sincerely,

PETER O. OSEBE
FOR: REGISTRAR.

enc. 1 No.

# OFFICE OF THE PRESIDENT
**CABINET AFFAIRS**

Telegrams: "RAIS", Nairobi
Telephone: Nairobi 27411
When replying please quote
Ref. No. CP.13/001/11C 205/5
and date

P.O. Box 30510
NAIROBI, KENYA

..10th..November,.. 19.81

Mr. Maurice Odondi,
Department of Educational Psychology,
Kenyatta University College,
P. O. Box 43844,
NAIROBI.

RE: RESEARCH AUTHORIZATION

Your application to make a "Study of the Influence of Test Anxiety and stress on Test performance of some selected primary seven Kenyan school children"has been approved.

Please collect a research Permit from our Office.

C. A. Nyango (Mrs)
for: PERMANENT SECRETARY/CABINET AFFAIRS

c.c.

The Secretary,
National Council for Science and
Technology,
NAIROBI.