

**PERSONALITY TYPES AND ACADEMIC ACHIEVEMENT
MOTIVATION AS CORRELATES OF
COLLEGE ACADEMIC
PERFORMANCE**

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DANIEL TEFERA**

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ABSTRACT

Different research outcomes indicate that noncognitive variables play important roles in determining students success or failure in educational activities. The present study aimed at the investigation of the effects of some of these noncognitive variables on college academic performance of our students. More specifically, the purpose of this study was to investigate the relationship between personality types, academic achievement motivation, status on admission and academic performance of college students. A separate and combined effect of each of the independent variable on academic performance was scrutinized. Two hundred thirty nine second year diploma students of KCTE were selected randomly. Data on personality variables and academic achievement motivation were obtained from MPI and AAM Self-Report inventory administered to these subjects. Students' personal documents and academic records were consulted in order to get data concerning status on admission and academic performance. Data were analyzed using chi-square test of independence, analysis of variance, and stepwise regression analysis. The results of statistical analysis indicated that both personality dimensions (Introversion/Extraversion and Stability-Neuroticism) and personality types (stable introversion, stable extraversion, unstable introversion, and unstable extraversion) failed to have significant relationship with CGPA of the subjects. Above average academic achievement motivation is found to be a factor in academic success. Status on admission is also found to affect academic excellence where the nonregulars were found to be inferior in their academic performance and as well as in their academic achievement motivation. Taken as a whole personality types, academic achievement motivation, and status on admission are found to have significant relationship with first year CGPA of the subjects. Since the result of this study signals to the educationalists as to the importance of noncognitive variables, further research aimed at investigating the importance of noncognitive variables in the process of education is recommended.

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LIST OF ABBREVIATIONS

- AAM - Academic Achievement Motivation
- AAU - Addis Ababa University
- ACT - American College Testing
- CGPA - Cumulative Grade Point Average
- ESLCE - Ethiopian School Leaving Certificate Examination
- IER - Institute of Educational Research
- KCTE - Kotebe College of Teacher Education
- n Ach - Achievement Motive
- NMS - National Military Service

CHAPTER - ONE

INTRODUCTION

1.1. Background to the Problem

Education at tertiary level is not limited only to imparting academic knowledge and skill, rather it is also directed towards diverse areas of the student's development which is not indicated by academic performance as such. For the most part most colleges and universities interest or objective goes beyond imparting academic knowledge and developing skills to the development of such qualities as curiosity, responsibility, tolerance, flexibility, independence, openness to new experiences and so on which are very important for the development of an all round personality who can actively participate in the development of a nation. In this connection Taber and Hackman (1976) said that;

The objectives of college's education traditionally are conceived in terms of multidimensional goals and for ranging ideals. Generally these objectives include some consideration for the development of knowledge, intellectual skills, leadership, personal values, and strength of characters (P. 546).

The objective of education in general and at tertiary level in particular is to enable students change their personality in an important way. At any level education brings changes in the intellect and mode of thought of an individual and this inturn would result in changes of the rest of his personality. This is because of the fact that anything a student knows at the time of learning is a part of his personality. Thus the kind of learning at higher level

should involve a change in the individual's personality structure which includes development - i.e., expansion differentiation, and integration (Sanford, 1962).

In the process of achieving such objectives colleges and universities entertain many difficulties which may be associated primarily with a student and those factors which may not be related to the individual but to some other conditions. Indeed at any educational level different factors constitute conditions that facilitate or hinder student's academic performance. Student's ability to learn is affected by so many factors which may be intellectual or nonintellectual.

Regarding the later Mekonnen (1987), for example, indicated that noncognitive factors such as affective dispositions, feelings, attitudes, interests and motivations constitute conditions that facilitate or inhibit cognitive achievement. Since a person functions as a unit it becomes very difficult to make any categorical differentiation between the intellect and other personality traits of such person. There is reciprocated influence between intellect and other personality variables. Thus it is possible to argue that apart from the problems which arise from students's ability to understand concepts, organize and express ideas and comprehend what has been learned in the class, there exist some problems which are mainly related with the behavior and other personality factors of a student. These problems may emanate from student's self-concept, from his family background, personality, study habit, level of

aspiration, academic motivation, from his parental expectation and so on.

As to the effect of individual difference on the teaching-learning process, for example, Amidon and Flanders (cited in Previn, 1970) discussed that the teaching method most suitable for learning and growth in one student is not the same as the one for another. Some students need more direction in their academic work and others need less direction. The way of taking lecture notes, solving problems, studying and performing examinations may vary from student to student. Furthermore Rosser and Nicholson (1984) reported that some students may be slow to begin a task; others begin readily enough but become distracted easily. As to the difference in the level of motivation these persons discussed that student's motivation may vary from one course to another. Even within a course student may pursue certain activities more diligently than others. There are some students who benefit from one curriculum and others may not. All this indicates the role that personality factors play in the process of education. And such variety of difference affect the student's academic performance in either way. So it can be said that personality as one of noncognitive variables affects the academic performance of a student.

In the above discussion, it has been tried to indicate the relationship that exists between personality and student's participation in educational activities. This may be explained further by considering Allport's definition of personality. According to Allport (cited in Hall and

Lindzey, 1985) personality is defined as:

the dynamic organization within the individual of those psychophysical system that determine his unique adjustments to his environment (p. 443)

If this definition is accepted it appears inevitable that personality will be an important determinant of classroom behavior and ultimate scholastic success. Similarly Cattell's definition of personality emphasizes this fact. For Cattell (cited in Hall and Lindzey, 1985) "Personality is that which permits a prediction of what a person will do in a given situation" (p. 530).

While discussing the role of personality and noncognitive factors in the teaching-learning process Sanford (1962) suggested that because of lack of adjustment to the college environment and because of so many noncognitive variables a number of potential scholars go out along with the unable and the indifferent students. On the other hand those who are able to play the game which is important for their stay in the college remain and successfully complete their education even though they are less competent as compared to others. Sanford further explained that sometimes remaining in colleges becomes a matter of gamesmanship or capacity to adapt oneself to conventional pressures. Still this point further emphasizes noncognitive variables besides cognitive variables for the successful completion of college education.

As it has been attempted to indicate in the above paragraphs, it seems that there might be a certain type of relationship between personality variables and academic

performance of a student. Moreover motivation, as a factor of personality affects academic performance of an individual. Kearney (1969), Kelinger (1966); Entwistle and Wilson (1970); and Packwood (1973), for instance, suggested that students who have high academic motivation are found to be academically successful.

Thus it is possible to restate that nonintellective factors are found to be potentially useful in every educational setting. As different findings indicated noncognitive factors play a large part in determining student's success or failure, but too little attention has been paid to them (Williams, 1967). Although there are so many research outcomes (published and unpublished) regarding the teaching learning process, a little or no attempt has been made concerning the identification of the effects of noncognitive factors on academic performance of our college students. More specifically no attempt is made to identify the relationship that exists between personality type, academic achievement motivation and status on admission on the one hand and college performance on the other. Also our colleges' admission criterion is purely a measure of intellectual ability which ignores the role of noncognitive factors.

As long as the objectives of college education are not restricted only at enabling students acquire a great deal of knowledge in the interest of passing examination as to the academic regulation of a particular college, employing such type of a simple criterion as admission procedure may have

its own problem. Furthermore, most of our colleges and universities do not have well organized guidance and counseling centres which play important roles in the identification and enhancement of the positive effects of noncognitive variables in the teaching-learning process. Since such factors are important in educational process, an attempt to explore the type and extent of relationship that may exist between personality types, academic achievement motivation, status on admission, and academic performance of our students becomes a very appropriate start.

1.2. Statement of the Problem

One of the concerns of researchers on higher education is the prediction of academic achievement from nonacademic variables (Lunneborg and Lunneborg, 1966). This concern emanates from the very important role of noncognitive factors in the teaching-learning process. Academic performance of students in higher institution should not be predicted only from a single traditional measure - intellectual measure. It ought to include nonacademic facets of performance.

Different studies questioned the predictive validity of cognitive variables. Boyd et al. (1989), for example, in his review of literature discussed that for black males the noncognitive variables are more predictive of academic success than the more traditionally used cognitive variables. Again Wolshin (1974) from his study on minority students reported that intellectual measures are not significantly related to the academic performance of minority students who generally perform poorly on aptitude tests. In relation to

our situation, Ethiopian School Leaving Certificate Examination (ESLCE) has been found to be weak predictor of college success 1988; Mittman, 1972; Lakew, 1972; and Mekonnen and Darge, 1991). All these findings implicitly indicate how academic performance is affected by nonintellective factors such as personality traits, environmental factors, parental expectations, biographic factors, type of admission, level of aspiration, self-concept, study habit, achievement motivation and so on.

Exploration into the nature of the population which will be considered in this study, uncovers problem area which needs to be investigated. About 20 to 30% of the population are students who were members of the previous national army due to National Military Service. Such composition of the population initiated the researcher to see the effect of type of admission (regular or nonregular) on academic performance of the subjects.

As it has already been known our universities and colleges tend to select students who qualify for the criterion set for admission irrespective of whether the candidates are regulars or nonregulars. But higher opportunity is given for the former group of candidates. This difference in background may differentiate the two groups in terms of their academic performance and academic achievement motivation scores. That is, the students' status on admission may significantly affect the performance of college students.

Eventhough there are so many noncognitive variables

which may affect the students academic performance, the present study deals with the investigation of the effect of some noncognitive factors on first year academic performance of diploma students of Kotebe College of Teacher Education (KCTE). Thus, the main objective of this study is to identify the relationship of personality types, academic achievement motivation and students' status on admission with first year academic performance of diploma students of KCTE.

The study tries to examine the relationship between personality types and academic performance; between academic achievement motivation and academic performance; and between students' status on admission and academic performance. The study further explores the relative contribution of each independent variable to the dependent variable. More specifically the study attempts to answer the following questions:

- (1) To what extent do different personality types interact with success in first year academic performance of diploma students of KCTE?
- (2) Is there a significant relationship between academic achievement motivation and first year academic performance of diploma students of KCTE?
- (3) Is there a significant difference between students who joined KCTE immediately after the completion of secondary school and those who are not, with respect to academic performance and academic achievement motivation and personality types?
- (4) To what extent is the interaction between the independent variables (personality types, academic

achievement motivation and students' status on admission) in relation to first year academic performance of diploma students of KCTE?

1.3. Operational Definition of Terms

Major concepts which are used in this study are defined as follow:-

Noncognitive Variables :- usually called nonintellective factors refer to those nonacademic factors such as biographic data, family background, achievement motivation, interest, value, personality variables etc. which facilitate or inhibit cognitive performance of a student. In this study noncognitive variables represent personality types, academic achievement motivation and students' status on admission.

Status on Admission :- refers to the type of students' admission in to the college. Those who joined the college just immediately after the completion of secondary school are considered as regulars. And those who joined the college coming from the previous national army are considered as nonregulars.

Personality Types :- refers to the classification of subjects into four personality types (stable introvert, stable extravert, unstable introvert, and unstable extrovert) obtained by dichotomising scores on Eysenck's (cited in Eysenck and Eysenck, 1969) dimensions of personality (Extraversion -Introversion and Neuroticism -Stability). This is done using Maudsley Personality Inventory.

Academic Achievement Motivation (AAM):- is a concept used to explain the activated state of a student to get a high standard in his academic performance. That is, it refers to the presence of the desire and willingness to exert the efforts necessary to make good grades as part of a general competitive attitude to life. The measurement is made based on the questionnaire designed by the researcher for this purpose.

Academic Performance :- refers to subjects' performance in classroom achievement tests. More specifically it represents first year cumulative grade point average of the subjects included in the study.

1.4. Justification and Significance

As far as cognitive measures may not be taken as the only predictors of academic performance of college students, the identification of some other factors which may have significant relationship with college academic performance becomes very important issue to be treated seriously. Thus, the present study aimed at identifying the relationship that may exist between some noncognitive factors - personality types, academic achievement motivation, status on admission, and first year academic performance of diploma students of KCTE. Such identification has its contribution in theory development regarding the role of noncognitive factors in educational process. If a general theory which explains such relationship develops educators, administrators, teachers, students, parents and school counselors will be the beneficiaries.

If students differ in their personality, we assume that they will also differ in their ability of receptivity of knowledge and ideas. If this is the case the type of personality which is favored and the one which is not favored in academic success should be identified. Such identification has a practical implication in curriculum development and method of instruction. That is, the outcomes of this study gives light to our curriculum specialists to structure our curricula in ways best suited to develop our students along lines compatible with the goal of education and the goals of society in supporting the teaching - learning process. Furthermore, this study gives clue to our instructors about the role of noncognitive factors in the teaching - learning process. This may help them reconsider their teaching style, classroom and other learning conditions, students' characteristics and individual difference, so as to help students make the best possible use of their potential ability. The outcomes of the study may help instructors in their way of treating students.

On top of this, educational decision makers may make good use of the results of this study. In addition to the economic benefits of reducing attrition, educators and administrators have the responsibility to increase the probability of academic success of their students. This may be attained by improving our selection and admission procedure. If some of the noncognitive variables considered in this study are found to have significant relation to the dependent variable, the criterion used to select students for colleges and universities may be reassessed in such a way

that such nonintellective factors may be included.

Students are also the beneficiaries of the results of this study. The outcomes of the study may initiate students give attention to the exploration of the level of their motivation which is important in learning. Finally, the study may serve as a basis for further research in this area.

CHAPTER - TWO

REVIEW OF RELATED LITERATURE

Aptitude test scores, high school grades and results obtained from entrance examination have been found to be common criteria for selecting students for higher educational institutions and scholarship. Even prediction of students' stay and success in such type of institutions is based on their performance on cognitive tests. In our country for example students are admitted into colleges and universities on the basis of their performance on Ethiopian School Leaving Certificate Examination (ESLCE). In general different educational institutions give emphasis to intellectual factors as instrument of selecting and placing students believing that academic achievement is a function of cognitive variables.

However, comments have been made regarding the inadequacy of intellectual factors as predictors of academic achievement. For instance, the study made by Spuck and Stoa (1969) on minority students revealed that cognitive measures, such as high school grade point average, school and College Ability Test - Verbal and Mathematical, Cattell Culture Fair IQ Test, and California Test of Mental Maturity - Language IQ and Non-Language IQ, are found to be highly questionable predictors of future college success in minority populations. Eventhough this result may be explained in terms of the subjects included in the study, it shows the limitation of intellectual factors in their relation to academic performance. That is, intellectual factors such as cognitive

tests explain only a certain proportion of variability in academic achievement in which the rest proportion of variance remains unexplained. In this regard Khan (1969) indicated that the average relationship between aptitude variables and achievement criteria (ranges between 0.50 - 0.75) and one half of the variability in academic achievement remains unexplained.

As the name implies intellectual variables are almost exclusively concentrated on the academic aspects of students performance than on its noncognitive characteristics. They not only do not throw light on the motivational problem but they are not causally related to growth and development of an individual. And, therefore, a mere consideration of intellectual factors as the only predictors of academic performance may reduce the extent of relationship that can be observed between the two variables. In support of this argument Schwarz (1971) stated that, the value of academic achievement as a predictor is attenuated by different noncognitive factors such as family crises, difficult social adjustments, uncorrected vision problems, personality problems, clashes between aspiration level and performance, status on admission, level of students motivation for learning and many other factors extraneous to academic variables.

As it has been indicated the objective of education at higher institutions is not limited to the mere success in academic performance rather it is also directed at enabling a person become successful in his work after the completion

of his education. In this regard Stalnaker (cited in Nichols, 1966) while discussing about National Merit Scholarship selection program said that, "... we want to find students who will succeed in college, but-much more important- will also use their college education in some socially desirable, productive way after graduation..." (p.900). And the latter can not be achieved only from cognitive factors but also from noncognitive factors. In general factors explaining college performance should not be exclusively tied with a small set of very limited cognitive variables which do not encompass all the goals and ideals of higher education. Rather some other considerations are needed so as to investigate factors associated with academic performance of college students.

The above discussion does not argue that the use of cognitive factors as predictors of college performance is unnecessary. In spite of its weakness or limited predicting power, still it is very essential. In relation to this, Kearney (1969) suggested that a certain minimum level of intelligence is a prerequisite to success and since intelligence can be measured with a relative success it must be a first line of enquiry. But the argument is that more needs to be done than solely measuring ability to predict future academic performance only from cognitive factors. There are factors which are not easily measurable but are no less important.

2.1. Noncognitive Variables in Education

As the name implies noncognitive variables are variables regardless of intellectual factors. Study habits, self-concept, attitude, motivation, academic interest, personality style, personal and social adjustment, status on admission are some of noncognitive factors important in the learning process. They also include biographic data of a student, his values, level of aspiration and everyday behavior and are important to many educators.

Noncognitive variables as of cognitive factors play a very important role in the teaching-learning process. Mekonnen (1987) discussed very briefly the roles that noncognitive factors play in the process of education. According to him noncognitive variables share common features with cognitive factors and both serve as mediating or instrumental variables, either facilitative or disruptive. As cognitive variables noncognitive factors also influence the level and rate of subject matter learned by an individual. A student's perception of himself and his ability, his need to achieve success or to avoid failure may affect the level and rate of learning. Conducive classroom environment, for example, may initiate students into active participation in the teaching - learning process so that they benefit from the process. In describing the role of noncognitive factors in student learning, Davis (1971) discussed that the student's perception of who he is, what he enjoys and what he can do or can not do and his attitudes and conduct in the learning situation affect his responses to the

ongoing learning. And this inturn affects his performance on cognitive activities.

The second feature that these groups of variables commonly share is that both cognitive and noncognitive variables serve as interactive or moderator variables. They play an important role in determining differential responses, either qualitative or quantitative to different aspects of instructional method or context. Further more, Mekonnen discussed the third common feature of these groups of variables. Cognitive and noncognitive factors serve as outcome variables reflective of educational goals. That is, a change in behavior which is the outcome of learning can be explained with reference to cognitive as well as noncognitive variables.

Level of educational attainment and career development, for example, mainly are cognitive outcomes but they are also dependent on the behavior of an individual. His drive for achievement, his beliefs and attitude towards education in general and towards a specific field of study in particular may affect his choice of a career, its development and his academic attainment. So long as noncognitive variables are found to be important in the learning, growth and development of an individual, his ambitions motivation, self-concepts, as well as subjective feelings of satisfaction and well-being need attention in every educational activities.

Further more, Mokonnen (1987) has identified the differential function of non-cognitive variables in student

learning and development. In the first place, noncognitive variables may be used to answer the question of access or the enhancement of educational opportunity. Secondly, they could serve in answering questions of what should be taught and accomplished at the various educational levels, and which of several alternatives should be attended to or addressed in setting objectives and standards in any given educational system. Thirdly, the influence of noncognitive variables may be seen in light of the guidance function. Fourthly, noncognitive variables play a critical role in the area of selection. Fifthly, they can play an important role in the placement of students. The sixth educational function of noncognitive variables deals with questions of how teaching takes place with respect to teaching style and learning styles as well as with respect to learning conditions and student characteristics. Finally, noncognitive variables have evaluative educational function.

As a whole, noncognitive variables are potentially useful variables which play a very important role just as intellectual variables play in the process of education.

2.2. Noncognitive Variables in Admission and Prediction

A number of studies suggested that cognitive measures are among the best predictors of overall freshman grades. Still one can not deny the predictive capacity of cognitive variables such as highschool grades, aptitude tests, standardized achievement tests and so on. However, there is dissatisfaction associated with the predictive accuracy of such traditional measures of cognitive outcomes since they

are not currently capable of predicting one's personal growth, and immediate or longrange feelings of satisfaction concerning his college experience which may influence his academic performance. Such inadequate prediction by cognitive measures has led to the consideration of any other factors which may have a great effect on such kind of prediction.

Behrens and Vernon (1978), for example, from their study on 7th grade students reported substantial correlation between the ability and personality variables. According to these persons besides ability measures other factors such as family background, personality characteristics, attitude and interests are also contributory variables to academic success or failure. Wolshin (1974) reported strong relation between self-concept or level of aspiration or parental expectation and minority students' achievement than aptitude test scores. Similarly, studies made by Boyer and Sedlack (1988) on international students, and Tracey and Sedlack (1984) on black students revealed that Noncognitive Questionnaire predicted college grades and retention of the subjects.

In addition Boyd, et al., (1989) and Supck and Stout (1969) conducted studies on black males and minority youth respectively and found out that noncognitive variables are more predictive of academic success than traditionally used cognitive variables. Tracy and Sedlack (1986) further studied the prediction of the graduation of black and white students from noncognitive variables and concluded that noncognitive dimensions were fairly predictive of graduation

for both races, but specially for the black samples. Among the dimensions, academic self-confidence and community service were found predictive of graduation for both groups of students.

Although all these studies were made on the selected portion of the society, i.e., on minority groups and specific races, the findings give us hints to realize the importance of noncognitive variables in the teaching-learning process. On top of this biographic information (as one of noncognitive variables) also effectively contributed to the prediction of academic performance (Lunneborg and Lunneborg, 1966). Survey of the literature further revealed that self-confidence and realistic self-appraisal, preference for long-range goals, leadership, racism, feelings, having another person to whom to turn in crisis and the level of integration into the academic sphere were some of the noncognitive variables found to have relation with the attainment of academic success as measured by grades. Grades commonly reflect intellectual and nonintellectual characteristics. Thorndike (1968) for example, noted that:

the grade-point average that is made by a college freshman reflects his verbal and quantitative abilities as they have developed upto the time of college entrance, his background of educational skills and knowledge, his techniques of study and preparation, his level of interest and effort, his freedom from emotional stress and strains that prevent him from mobilizing his resources for academic work, the courses he takes, and the instructors who teach him (pp. 160-61).

The role of noncognitive variables in academic performance of college students can further be explained in terms of the positive relationship found between academic

ability and socio-economic status of the subjects. For instance Astin (1977) indicated that socio-economic status implies patterns of child rearing, styles of living, and general beliefs and attitudes which help to mold personal characteristics as "social maturity" and "academic motivation" which directly or indirectly affect individual's achievement in cognitive measures. In brief, nonintellective characteristics are very important variables in describing college academic performance because of their relation to the growth and development of a person.

Different studies implicitly and/or explicitly reported the relevance of the inclusion of noncognitive variables in the selection instrument. Heist and Webster (cited in Clifford, 1971) argued against the use of a single academic criterion as an admission instrument. In this regard Taber and Hackman (1976) stated that basing student's admission on one predictor variable may have deleterious effects on other valued, but unmeasured, dimensions of college success. As long as nonintellective factors found to have relation with college performance, the mere use of intellective variables as admission criteria may not be as effective as the criteria set from the composite variables - cognitive as well as non cognitive factors.

Thus, in order to increase the probability of success in academic and nonacademic dimensions of college performance, selection and admission procedure has to be improved using the combination of several measures-academic and nonacademic. The accuracy of prediction will increase if the admission

criteria include both groups of variables. In this connection different studies reported that eventhough such type of prediction less frequently studied, the combination of nonintellective measures with standardized tests improve predictive accuracy. Hills (1971), for example, noted that inspite of little encouraging evidence to report, it still seems logical that temperament and personality should play an important role in academic performance and be useful traits to include in prediction and selection battery. Further more Chauncey and Frederiksen (Cited in Hills, 1971) were optimistic to say:

while some improvement in prediction of college success may come from further refinement of the aptitude and achievement tests, it would seem that the greatest advances may come through a through exploration of the measurement of personality qualities (p. 693).

Many scholars agree that when selecting and admitting students to higher educational institutions, emphasis should be given for the combination of cognitive as well as noncognitive variables so as to improve the predictive accuracy of cognitive variables.

2.3. Description of Personality Types

The measurement of personality is based on its description. It is described in terms of traits, types and states. Personality type, according to Cohen et al., (1988), is defined as a constellation of traits and states that is similar in pattern to one identified category of personality within a taxonomy of personalities. The definition implies that a group of individuals display different types of overt behavior as a result of the way that they perceive or become

aware of and judge or arrive at conclusion about people, events, situation, and ideas. According to this definition, the classification of personality in terms of types is said to be based on external and observed behavior of individuals. In this regard Cohen et al. discussed that types are more clearly only descriptions of people - not something presumed to be inherent in them.

H.J.Eysenck (cited in Eysenck and Eysenck, 1969) identified two broad and independent dimensions of personality known by the name neuroticism and extraversion. Neuroticism:- Also called emotional instability, refers to the general emotional instability of a person, his emotional over responsiveness, and his liability to neurotic breakdown under stress (Manual, 1962). Anxiety, emotional instability, excessive worry and over reaction to situations are prevalent behaviors. According to Entwistle (1972), neuroticism is characterized by unnecessary worryness, feelings or restlessness, moodiness and by general nervousness. As Eysenck (cited in Eysenck and Eysenck, 1969) indicated, hypersensitivity, depression, over-criticalness, quarrelsomeness and inferiority feelings, withdrawal, unsociability are features of neuroticism.

Different studies reported discrepant findings regarding the relationship of intelligence and neuroticism. For example Eysenck, and Cattell (cited in Lynn and Gordon, 1961) reported a slight tendency for neurotics to be more intelligent than the normal population. On the contrary Vernon (cited in Lynn and Gordon, 1961) suggested that

neurotics were found to be below average in intelligence. As to learning speed Lynn and Gordon indicated that the relation between neuroticism and learning speed is expressed in the Yerkes-Dodson law which states that the optimum drive required for efficient learning is inversely related to the complexity of the task. In general researches revealed that the level of intelligence of neurotic has been found to be high.

Extraversion :- Is expressed in terms of out goingness, impulsiveness, having many social contacts with people, having many friends, uninhibited and frequently taking part in group activities (Manual, 1962). As it is indicated in the manual.

the typical extravert is sociable, likes parties, has many friends, needs to have people to talk to, and doesn't like reading or studying by himself. He craves excitement, takes chance, often sticks his neck out, acts on the spur of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change. He is carefree, easygoing, optimistic, and likes to "laugh and be merry." He prefers to keep moving and doing things, tends to be aggressive and may lose his temper quickly. His feelings are not kept under tight control, and he is not always reliable person(p.4).

Further more extraverts are found to be restless and are unable to concentrate for a long time. Their attention fluctuates. Lynn and Gordon (1961) noted that extraverts begin a task as efficiently as introverts but after sometime they show a larger amount of decrease when sustained attention is required. They are in short of vocabularies and are also quick and inaccurate in tackling tasks and problems.

Introversion:- A low E score in Extraversion - Introversion scale is indicative of introversion. As is explained in the manual:

the typical introvert is a quiet, retiring sort of person. He is introspective, fond of books rather than people, reserved and distant except to intimate friends. He tends to plan ahead, "before he leaps," and distrusts the impulse of the moment. He doesn't like excitement, takes matters of everyday life with proper seriousness, and likes a well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and doesn't lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards (p. 4).

In addition Franks; and Eysenck (cited in Lynn and Gordon, 1961) showed that introverts were capable enough to form conditioned responses more quickly than extraverts and thereby found to be rich in vocabulary. They are superior to extraverts in tasks requiring sustained work or attention. In addition, they tackle problems and tasks slowly and accurately. Inactivity, inhibited disposition, submission and social shyness are also the features of introverts. Generally they are wild, shy and not mixing with others. They derive satisfaction not from participating in social gathering and the like but from their own subjective interest such as scholastic success and so on.

Stability :- Refers to emotional stability, consistent moods and emotions. The stable person shows behavior which is generally controlled; he tends to be reliable, even - tempered and calm. As a whole the stable person is a person with consistent and dependable behavior.

2.3.1. Personality Variables and Academic Performance

Different studies reveal evidences which confirm that certain personality traits, as measured by questionnaire, are related to examination performance at tertiary level though the investigation of the relationship between personality dimensions and academic performance are far from being simple. For example, Savage (1962); Eysenck and Cookson (1969); and Behrens and Vernon (1978) suggested that personality factors are among those factors which are determinants of academic performance.

There are conflicting findings concerning the relationship between personality dimensions and academic attainment. Cowell and Entwistle (1971) in their review of literature summarized that students at tertiary level tend to be less extraverted and more neurotic than other sections of the community. Similarly, Child (1969) who made a comparative study on the relationship between personality, intelligence and social class of 607 students in a Technological University reported that the undergraduates at Bradford were more neurotic than the normal population and the art specialists. That is the mean extraversion score was lower for those traditional university samples but higher than the normal population. On the contrary, studies made by Entwistle and Entwistle (1970); Entwistle and Wilson (1970) and Bending (cited in Lynn and Gordon, 1961) yielded no relation between neuroticism and academic attainment.

A coorrelational analysis made on university students revealed different result which indicates that unstable introverts tended to have better A level grades (Cowell and Entwistle, 1971). The study made by Furneaux and other study by Kelvin et al. (cited in Entwistle and Entwistle, 1970) clearly identified unstable introverts as successful examinees at higher educational institutions. Still, other groups report different findings. Entwistle and Entwistle, for example, analyzed the item included in the inventory and identified the characteristics of good students which were positively related with stability and introversion. Furthermore, Lavin (cited in Entwistle and Entwistle, 1970); and Wankoski (cited in Entwistle, 1972) suggested that it was stable introverts who did best at university. Different from these findings Entwistle and Wilson (1970) found a highly significant link between introversion and good honours degree status.

Quite different findings were reported by Kline and Gale (1971) and Lynn and Gordon (1961). Kline and Gale from their investigation of the relationship between introversion extraversion, neuroticism and performance on a first year psychology examination come out with the result that stability of the relationship between academic success and extraversion-introversion and neuroticism was found to be low. On the other hand Lynn and Gordon found a different relationship between stability-instability scores and academic performance. The result indicated that students who had high or low instability scores did worse than those who had moderated scores.

Some studies come out with the result that university and college students differ in terms of personality classification. Evans (cited in Child, 1969), for instance, compared college of education and university students and reported that college students were more extraverted than, but similar in mental speed and accuracy to, undergraduates. In support of this Child (1969) stated that there was some evidence to suggest that on average students exhibit different degrees of introversion according to the institutions involved. Such difference was also observed between different fields of training. Warburton (cited in Child, 1969), for example, pointed out the tendency of successful students of literary and artistic subjects towards extraversion rather than introversion. In addition, Furneaux (cited in Entwistle 1972) found differences between neurotic introverts and stable introverts where the former made good engineers but the later did better in pure sciences. Still some studies reveal different results. For example neurotic introverts were found to be good at languages, but stable introverts were found to be better historians. In general these findings indicate, though not supported by so many evidences, the persistence of differences in personality style between students studying different subject areas and between students of different institutions. And this makes the generalization - a certain personality type tends to be related to success in academic work - difficult.

The study made by Bethlehem (1973) on Zambian University students to measure extraversion by self-report inventory failed to reveal similar results in view of the consistent

findings of a relationship between introversion and good academic performance. About 341 subjects considered themselves introverted against 137 who said they were extraverts. According to Bethlehem this result is intuitively unlikely since a significantly higher proportion of students who were subsequently forced to leave the university as a result of poor grades considered themselves introverted than students obtaining very high grades. Such result may be explained in relation to the response set the subjects tended to be influenced by.

In general regardless of emotional stability, the majority of the studies tend to provide evidence of the superiority of introverts in higher education. That is, introversion is found to be a factor related to high levels of performance. The explanation may be related to the temperamental features of introverts. Temperamentally, introverts appear to have an advantage in both studying and taking examinations.

2.4. Achievement Motivation (n Ach)

Human personality is a configuration of many types of needs which initiate man to engage in a certain types of activities so as to make the satisfaction of such needs possible. A person may have a need to succeed in his life, the other may be more power oriented, and still other may have different needs or motives which will be satisfied through his actions. Atkinson and Reitman (1958) defined motive as a concept referring to person's latent disposition to strive for a particular kind of goal states or aims that

are engaged in performance of an act when the cues of the situation arouse the expectancy that performance of an act is instrumental to the attainment of the goal of the motive. The definition makes clear that a person's motive will be aroused and manifested in overt performance of an act only when the situations - under which man is going to perform a certain activity - arouse in a person a cognitive expectancy that performance of an act is likely to result an effect of which he is generally interested[†] in bringing about.

Motive to achieve is the tendency to strive for better achievement. Atkinson (1958) defined achievement motivation as a person's disposition to approach success. It represents a person's interest to maintain a high standards of work as part of competitive life. A motive to achieve is manifested through man's action, that is, through his interest and activity to master and manipulate his surroundings - his physical and social environments. As Atkinson explained the arousal of motivation to achieve is dependent on the relative amount of satisfaction to be experienced in any personal accomplishment. In other words, the arousal of achievement motivation is based on the amount of satisfaction accompanying the attainment of the goal.

Individuals differ in the strength of the tendency to achieve that is expressed in performance of a particular task in a particular situation. A motive to achieve is a personality disposition possessed by individuals differently. The perception of the cues of the situations which are

important for the arousal of motivation also varies from person to person. Hence two individuals having high and low achievement motivation differ in the choice of level of aspiration, in risk taking behavior, in the need to upward mobility, in their level of persistence at the task, in the tendency to the recall and resumption of interrupted or incompleting tasks, in time perception and future orientation, in the choice of task partner, in the need for recognition by others, in their preference for achievement related activities and so on (McClelland 1985; Atkinson, 1958, 1964; Mehrabian, 1968; and Hermans, 1970).

A number of studies showed a positive relationship between performance and n Ach scores (Atkinson and Reitman, 1958). Therefore it is worthwhile, at this point, to call attention to the individual differences in the possession of the motive to achieve. It will not be correct to expect that individuals will have the same level of achievement motivation when faced with achievement situations. In this respect Humphreys and Revelle (1984) suggested that individuals with a high motive to achieve when faced with an achievement situation will have a higher level of achievement motivation than will individuals with a lower achievement motive. If performance has positive relation to achievement motive and the arousal of motivation varies between individuals with high n Ach score and those of low n Ach scores we tend to assume that the academic performance of individuals may be affected by the level of their achievement motivation. Particularly, the level of academic achievement motivation of a student may have an impact upon the level of

his performance since academic achievement motivation denotes the activated state of a student to get a high standard in his academic activity. It represents the presence of the desire and the willingness to exert the efforts necessary to make good grades.

2.4.1. Achievement Motivation and Academic Performance

Different researchers (e.g. Klinger, 1966) pointed out that academic performance of college students is determined by so many factors - intellectual and noncognitive - of which achievement motivation is only one. There are different characteristics of achievement motivation which are very important in the teaching-learning process. McClelland (1985), for example, noted that subjects high in n Ach score are more oriented towards certain stimuli and pay more attention to cues related to performance. Furthermore they gain more in learning how to do a task from a period of programmed instruction than subjects low in achievement motivation (Bartman, cited in McClelland, 1985). They tend to recall more interrupted tasks than low n Ach subjects. Farley and Mealiea (1973) in their review of related literature demonstrated that in achievement oriented contexts subjects high in need-for-achievement recall relatively more incompleting than completed tasks, whereas persons low in need-for-achievement but relatively high in fear of failure recall more completed than incompleting tasks. The performance of academic subjects can be affected by these characteristics. Giving greater attention to the performance

aspects of a situation, for example, promotes better learning which in turn facilitates better performance in academic work.

McClelland (1985) still persists in saying that achievement motivation leads to learning or performance improvement. Persistence on a task for sometime may be very important so as to do the work better. The achievement motivated person sets intrinsic satisfaction from doing something better as a result he may persist longer while doing difficult tasks. In addition, high achievement motivated subjects prefer moderate challenges while performing a task since it enhances the probability of success than the two extremes which decrease the probability of success through minimizing the sense of personal accomplishments. That is, if the task is easy they won't know whether success was due to their efforts, since everyone can do it, and if the task is difficult they will also not be able to tell what their efforts produced, because they will fail. The reason for the choice of such level of difficulty is that it is only at this level that the outcome will be attributed to the efforts of the subjects. Tasks of intermediate difficulty yields information about ones capabilities than selection of tasks which are very easy or very difficult (Weiner and Kukla, cited in McClelland and Watson, 1973). The implication is that everything being constant students differ in their response to different level of difficulty due to their level of motivation to perform an act. Thus, their orientation to different levels of the difficulty of tasks may affect their academic performance.

Furthermore Winter and Carlson (1988) found that achievement motivated people are capable enough in modifying their performance on the basis of the results they obtained. Because high achievement oriented persons ascribe their failure to a lack of effort (Weiner and Kukla, cited in Weiner and Potepan, 1970). They also tend to perform better, especially on complex problems that demand newness and innovations. The value they give to time is also very important for better academic performance. That is they perceive time as running fastly and such perception in general helps students to employ their time to better advantage and distribute their study periods more wisely.

Academic performance can also be affected by the risk - taking behavior of students. It is natural that people are going to select a certain risk level ranging from low to high. Taking the extreme risk levels (high or low) minimizes the probability of success in any performance including college academic work. As Atkinson (1958) suggested person with high achievement motivation prefers intermediate risk level than person with low achievement motivation. At this level subjects are uncertain about the outcome of a certain act and this inturn arouses motivation in a person to perform an act eagerly. It is at this level that the probability of success becomes very high. The anticipation of success may have some contribution to the improvement of performance.

In brief, defining and setting goals as to the capacity of oneself, choosing tasks of appropiate difficulty, attributing success to ability and failure to lack of effort

rather than low ability, selecting appropriate risk level and persistence in the face of difficult tasks, greater curiosity and more inner direction and so on, which are the characteristics of high achievement motivated subjects, are very important in achieving success in academic activity.

Different findings have been reported by different studies concerning the relationship between achievement motivation (in this case academic achievement motivation) and academic performance of college students. The study made by Packwood (1973) on 703 college students revealed the strongest influence of students' motivation on their academic achievement. The result indicated motivation as a factor accounted for approximately equal proportion of variance (specially for males) as highschool rank and American College Test scores. Similarly, Weiner and Potepan (1970) who studied the effect of personality characteristics and affective reaction on exam performance of 173 superior and failing college students reported that successful male students were found to be higher in achievement orientation, more able to attribute failure to lack of effort than the failing male students, and they scored higher on the achievement index than failing students. Furthermore, Kearney (1969) reported significant difference between those who are moderately or highly motivated and poorly motivated college students as to their academic performance. Kearney firmly suggested that motivation affects the performance of students. Similarly Howe (cited in Crooks, 1988) emphasized the importance of motivation in academic achievement.

Like Packwood and others Lowell (cited in Atkinson, 1964) reported positive relationship between achievement motivation and academic performance. According to Lowell persons having high n Ach scores (above the median) showed a higher level of performance on both an arithmetic and a verbal task than having low n Ach scores. Indirect results of some studies further confirmed the relative importance of motivation on higher academic performance of college students. Nichols (1966), for instance, noted that as compared to the low grade group, high grade college students were more frequently interested in school and valued school work highly. In addition Entwistle and Wilson (1970) identified motivation as a factor contributing to success in academic work.

The studies made on senior and junior secondary schools also revealed similar results. Khan (1969) made a study on 1038 eighth grade students and found significant correlations ($P < .01$) between need for achievement and reading, language, arithmetic computation, problem solving, social studies and science subjects for males and females, but most of the correlations are less than 0.20. The correlation between academic interest and performance is also significant ($P < .01$) Williams, Dewitt and Hurt (1971) conducted a study on 243 ninth graders and reported a higher correlation (0.833) between ratings of motivation and grade point average. A factor analysis on the subscales of the self-rating scale (Personal Values Inventory) made by Schlessner and Finger (cited in Entwistle, 1968) showed a relation between a factor

of achievement motivation and school performance and predicted later college success.

Other researchers reported the relation between scores of achievement motivation and grades in relation to the type of incentive exists while performing the task. For example, findings obtained from the studies made by McKeachie; and Wendt (cited in McClelland, 1985) suggested that the presence of strong achievement pressure or extrinsic incentives of any kind decreases the relationship between high n Ach scores and college grades. According to Wendt, while performing complex mental arithmetic tasks those high in need for achievement did significantly better than those low in need for achievement so long as the experimenter left them alone. Similarly, Mckeachie from his study of the joint effect of teaching style and student's motive on grades obtained in college found that when external achievement cues in the classroom were judged to be high, students high in n Ach scores tended to do less well in the course than those low in n Ach scores. Both of these findings emphasize that doing something better is the natural incentive of achievement motivation, so there is no need of external stimulation for achievement motivated subjects. Furthermore these researchers explained implicitly that there are evidences to believe that high achievement motivation should always lead to better performance regardless of the incentive presented.

A little bit different result which is not supported by many evidences was reported by Entwistle (cited in McClelland, 1985). The result indicated a relationship, but

not significant, between scores of n Ach and college grades. Based on the result Entwistle concluded that the n Ach score can not be valid because it does not predict scholastic achievement.

2.5 Status on Admission

As we already know our universities and colleges admit students with different educational background as long as they meet the requirements or cut-off points required for admission although the majority are secondary school regular students. We can not assume similar educational background and adequate preparation on the part of private subjects as contrasted to regular ones. Thus it may be erroneous to expect similar academic achievement between these two groups of students entering college or university. As research outcomes indicate academic achievement is influenced by so many factors of which past educational experiences, current attitudes and practices play a significant role among the private students. Crooks (1988) showed that the responses of individual students to educational experiences and tasks are complex function of their abilities and personalities, their past educational experiences, their current attitudes, self perceptions and motivational states, together with the nature of current experiences. The implication is that the type of admission, joining college or university immediately after the completion of secondary school or after the lapse of some time due to some reasons, has its own effect on the performance of these two groups of subjects.

The admission cut-off points set separately for the regulars and privates, for example, may be indicative of the difference in academic performance of the two groups. Higher Education Main Department requests nonregulars to produce highest ESLCE grade point average so as to secure admission in higher educational institutions. For example, a general report of Higher Education Main Department on students selection and placement of 1983 E.C. noted that regular subjects having ESLCE grade point average of 2.80 to 3.20 were allowed to join colleges offering diploma programs whereas private subjects with similar grade point average were not allowed to attend diploma courses. As indicated this differential treatment of regular and private candidates may partially be due to doubt on the part of private candidates as to their capacity to cope with the challenges of college education.

A few studies have examined the effect of status on admission on academic performance. Habte (1988) made study on 150 natural science freshman students concerning the investigation of factors affecting first year academic performance. Among the factors, type of admission was the one treated by him. The relationship between type of admission ($X_{12} = 1$ if regular, 0 otherwise) and first semester grade point average was found to be $r_{x_{12}y} = -0.04$. The result indicates a nonsignificant negative relationship between the two variables. On the other hand Belay (1990) in his study of the predictive validity of admission criteria for teachers training institutes on 183 subjects indicated that, in both analyses status on admission ($X_5 = 1$ if regular, 0 otherwise)

found to have significant relationship with academic performance ($r_{x_5y} = 0.17$, and 0.12 respectively) of subjects implying that regulars surpassed private subjects. According to him the result was partially explained in relation to the span of lapse of time between the year of completion of secondary school and joining university or college. As the span of lapse of time gets longer and longer the academic competence of regular subjects decreases and eventually lowers students' ability to succeed academically.

SUMMARY

Different studies which investigated the role of noncognitive variables in education reported a significant positive relationship between noncognitive variables and college grades (Tracey and Sedlack, 1986; Boyer and Sedlack, 1988; Lunneborg and Lunneborg, 1966; Tracey and Sedlack, 1984; Boyd et al ; 1989; Spuck and Stout, 1969; and Wolshin, 1974). Further more, the review of literature indicated a substantial relationship suggesting personality factors as determinants of academic performance (Savage, 1992; Eysenck and Cookson, 1969; and Behrens and Vernon, 1978).

As to the relation between academic performance and dimensions of personality, different findings are reported. There are some studies indicating no relationship between neuroticism and academic attainment (Entwistle and Entwistle, 1970; and Entwistle and Wilson, 1970) and others indicating positive relationship between neuroticism and attainment; e.g. Furneaux (cited in Humphreys and Revelle, 1984). Cowell and Entwistle (1971) reported lack of difference between stable

introverts and those of extraverts regarding their examination results. Entwistle and Entwistle (1970), Lavin, and Wankowski (cited in Entwistle and Entwistle, 1970) reported that the characteristics of good students were positively related to stability and introversion. Still other study indicated significant link between introversion and good honours degree status (Entwistle and Wilson, 1970). Kline and Gale (1971) found low stability coefficient regarding the relationship between academic success and extraversion - introversion and neuroticism dimensions of personality.

Concerning the relationship between achievement motivation score and academic performance, a number of studies were conducted and revealed all most similar results. Some researchers reported substantial positive relationship between the two variables (Packwood, 1973; Weiner and Potepan, 1970; Kearney, 1969; Nichols, 1966; Entwistle and Wilson, 1980; Khan, 1969; and Williams, Dewitt and Hurt, 1971). A little bit different result was reported by Entwistle (cited in McClelland, 1985) though not supported by additional evidences. Entwistle identified a relationship between achievement motivation score and college grades, however, the relationship was not significant.

Finally the effect of status on admission on academic performance of subjects was investigated. A nonsignificant negative correlation was reported by Habte (1988) and the

contrary result indicating a positive significant relationship was reported by Belay (1990).

In general, the research outcomes reviewed here indicate different results. No one sided agreement was observed specially, concerning the relationship between personality variables and academic attainment. This difference may be seen in relation to the difference in methodology the researchers used and/or in relation to the nature of the construct under investigation.

CHAPTER - THREE

METHODOLOGY

The procedure of selecting subjects, the development of measuring instruments, data collection and analysis are described.

3.1. Sample Selection

The population under investigation is currently second year students of KCTE who were admitted into the college during 1990/91 academic year. About 501 (459 males and 42 females) applicants were permitted to pursue their education. Among these students 112 males and 23 females were either withdrawn or dismissed by their first year. Currently, the population consists of 395 (365 males and 30 females) students. About 29 (18 males and 11 females) students out of the current population are readmitted.

In order to identify the target population, the existing population was further refined. Twentynine readmitted; 17 blind (13 males and 4 females); 15 female; 2 private; and 2 foreign students were excluded from the population. Therefore the target population of which the present study is aimed at consists of 332 male students out of which 118 (about 36% of the population) students were the members of the pervious national army getting admission by virtue of their participation in the National Military Service (herafter named as nonregulars). These subjects were admitted to the college with a minimum ESLCE grade point averagage of 1.6 which is by 1.2 and 1.8 less than the

minimum ESLCE grade point average expected of regular and private subjects, respectively.

Before selecting subjects included in the study, the population was stratified into 13 departments Viz. Ethiopian Language and Literature, English, Mathematics, Geography, History, Chemistry, Biology, Physics, Accounting, Health and Physical Education, Home Economics, Metal and Electricity. The reason for further stratification of students into these departments is only to get a sample representative of the population being studied. Although there is assumption indicating personality variation as a result of difference in subject area studied, differential analysis won't be made between these departments. This is because of the fact that some departments have less than 15 students who are members of target population (e.g. Physics = 14, Electricity = 13) so that taking proportional number of students and further classification of such subjects into four personality types makes the size of a sample very small possibly less than 5. Such sample size is not advisable in Chi-Square analysis (Snedecor and Cochran, 1967). The use of such sample size in regression and chi-square analyses will yield spurious results.

After such stratification proportionate number of subjects were selected using random sampling technique (Table of Random Numbers). About 75% of the target population was thought to be sufficient. Two hundredfiftyfive subjects (165 regulars and 90 nonregulars) were selected to constitute the sample. But 2 students from the regular and 13 students

from the nonregular groups failed to complete the task because of their absence during the completion of the questionnaire. In brief the sample consists of 239 students.

Table 1: Number of Participants: Mean and Standard Deviation of their Age

Subjects	Sample size	A G E	
		Mean	Standard Deviation
Regulars	163	20.12	1.3556
Nonregulars	76	23.11	1.7813

Note that in analyzing the data on personality variables 51 subjects who responded the neutral response category ("?") more than 10 times were excluded from the study. As indicated in the manual, responding to such response category more than ten times indicates the tendency of indecisiveness which may be partially explained in relation to the nature of some items in the inventory. The researcher, for example, observed that some of the questions in the inventory (MPI) were difficult to be easily understood by the subjects. Thus, the sample size used in the analysis reduced to N= 188.

3.2. Variables Included in the Study

The variables included in the study are as follows:

3.2.1. Dependent variable (Y)

It represents the subjects' first year cumulative grade point average.

3.2.2. Independent Variables

X_1 = Academic Achievement Motivation score

X_2 = Extraversion score

X_3 = Neuroticism score

Personality types and status on admission are the variables represented by the method of dummy coding (Pedhazur, 1982) where membership in a group or category is assigned 1, while nonmembership in the category assigned 0. The variables are:

X_4 = Stable Introversion

X_5 = Stable Extraversion Personality Types

X_6 = Unstable Introversion

X_7 = Unstable Extraversion

X_8 = Status on Admission

3.3. Instruments Used

In order to carry out the study the following instruments were used. These are:

3.3.1. Maudsley Personality Inventory (MPI): This inventory is published in 1962 by H.J. Eysenck and used to get scores on Extraversion/Introversion and Neuroticism dimensions of personality. The scores on Extraversion and Neuroticism scales were dichotomized at 30% from below and 71% from above cut-off points and revealed four personality types. The cut-off points, indicated in the manual, represent the extreme traits measured by each scale. Thus, the personality types formed will represent the characteristics typical to each personality type.

As to the appropriateness of the instrument, the inventory has been used by researchers who studied the relationship between personality and academic performance of

students (e.g., Lynn and Gordon, 1961; and Savage, 1962). The inventory has high reliability indexes and also found to have high validity as a measure of peronality (Eysenck, 1962; and Eysenck and Eysenck, 1969).

3.3.2. Academic Achievement Motivation Self-Report Inventory: The inventory which consisted of 25 items is developed by the researcher to measure the academic achievement motivation of the subjects. Five point scales ranging from strongly agree to strongly disagree were used in the inventory. The items included in the inventory express the characteristics of a student with high or low academic achievement motivation. The procedure for the development of the inventory and its statistical characteristics are described in the following section.

3.4. Construction and Development of the Measuring Instruments

3.4.1. Construction and Development of Academic Achievement Motivation (AAM) Self-Report Inventory

3.4.1.1. Item Collection and Writing

Pool of items related to academic achievement motivation were collected from different sources. Items used by Russell (1969) to measure motivation for school achievement; Aberden Academic Motivation Inventory (Entwistle, 1968); Scales of Motivation and study Methods (Entwistle et al., 1971) the Achievement Motivation Scale used by Myers (1965); Motive in fantasy, action and society (Atkinson, 1958); and Human

Motivation (McClelland, 1985) were used as source materials for collecting and preparing items.

Before writing the items constituting the inventory a test blue print was prepared (See Appendix A). The behavior being measured was described in relation to persons with high AAM and low AAM. Based on such description of behavior and using the tabels of specification prepared, 68 items expressing the characteristics of persons with high AAM and low AAM and that best suit the self-report inventory were collected by the researcher.

The collection of items was made to cover some of the components of achievement motive (n Ach) as described by Atkinson (1958), Herman (1970); and McClelland (1985). The components covered by the items were: level of aspiration, risk taking behavior, upward mobility, persistence, task tension, time perception, time perspective, task partner choice, recognition of behavior, achievement behavior, feelings aroused by success or failure, competitive behavior, delay gratification and parental and/or others interference. Each component was defined briefly and grouped into seven categories.

The collected items were modified and rewritten for each of these components. The determination of the weight given for each category - which determines the number of items belonging to each component - was arbitrary since each component helps to measure achievement motivation. An attempt was made to restructure the items so that they deal

with the academic behavior of college students. In addition, an effort was made to make the items less ambiguous and brief.

3.4.1.2. Item Selection

In order to select the items which best suited the objective of the study, sixtyeight items were given to 9 judges.

Table 2: Number of Judges Who Participated in the Evaluation of Items

Position	Sex	Number of Judges	Qualification	Speciality	Place of Work
Lecturer	M	2	B.A	Psychology	AAU/Psychology
Assistant Lecturer	F	1	"	"	"
Researcher	M	1	M.A	Edu. Psychology	AAU/IER
Lecturer	M	1	"	" "	KCTE
Psychologist	M	1	B.A	Psycology	A.A. Administrative Region
Senior Graduate Student	M	3	B.A	Gra.Students	Ministry of Edu.

As explained in the afore mentioned paragraphs an opportunity was given for the judges to have some idea about achievement motivation. The definitions for some of the components of achievement motive were given. The behavior being measured also defined in relation to the person with high or low achievement motivation (See Appendix A).

And then the judges were asked to give their reaction on each item in relation to three questions (i.e., Does the item measure academic achievement motivation? To which group does the item belong - high AAM or low AAM? How strong is the item in measuring the behavior?).The raters were asked to react on

each item with respect to the given response categories for the above mentioned questions. For the third question each item was rated on a scale which ranged from very high (3), average (2) to very low (1). Here the raters were told to give "0" if and only if they had rated the item for the first question by giving "?" and/or "No" (see Appendix A). While responding to such questions, judges examined the content validity of the items gathered.

After the ratings had been given by the judges the median evaluation and the ambiguity index of each item was determined for the first and third questions. For the second question the median of the ratings for an item was compared with the key provided. Items with scale values ranging from 1.76 to 2.00 were taken as items measuring the behavior underconsideration and those items having scale values ranging from 0.39 to 1.75 were taken as items unable to measure the behavior and thus dropped. Similarly, items with scale values ranging from 2.5 to 3.0 were considered as strong items, those ranging from 1.51 to 2.5 were regarded as items measuring the behavior moderately and those items having scale values below 1.50 were taken as weak items and therefore dropped. Furthermore, those items with high index of ambiguity (disagreement between judges) that is, greater than or equal to one, were not selected since the higher quartile deviation indicates the presence of high variability of ratings which may be due to the ambiguity of the item in terms of its meaning. Therefore items, 5, 6, 13, 15 26, 27, 32, 43, 44, 49, 52, 65 and 66 were dropped.

Regarding the second question (To which group does the item belong?) Pearson r was computed to determine the presence of significant relationship between the median ratings of each item and its key and tested at 0.05 level of significance. The result indicated that ($r = 0.68$, $t_{(166)} = 7.56$, $P < .01$) the grouping of items into high AAM or low AAM mode by the judges highly corresponded to the key of each item given by the researcher. Thus, those items having median value of 2.0 were considered as items expressing high academic achievement motivation and those which have median value of 1 were taken as items expressing low academic achievement motivation.

The ratings which were made by the judges reduced the total number of items to 55 of which 31 items were those expressing high AaM and 24 items wer those expressing low AaM. the reliabilities of the judges' ratings was determined for the 55 items. Coefficient alpha was determined for the three ratings (See Appendix C).

3.4.1.3. Test Tryout

In order to develop the final version of the test, the selected 55 items were tried on 50 male second year students of Kotebe College of Teacher Education (KCTE). The subjects for test tryout were selected from 13 departments using table of random numbers. The representation of each department in the test tryout was made proportional to the number of students in each department. The mean and standard deviation of the age of the subjects included in the test tryout were found to be 20.40 and 1.73 respectively. About 64% of the

subjects indicated that they were regular highschool students and 36% of the subjects reported that they were members of the previous national army due to National Military Service.

The study subjects were subjected to the self-report inventory of AAM (ranging from strongly agree, uncertain, to strongly disagree) and Maudsley Personality Inventory consisting of 48 questions. No time limit was made for the completion of the two questionnaires but the average time taken for the completion of the two questionnaires was about 75 minutes.

The responses of the subjects were scored for both tests. The scoring for AAM was made for the two groups of items (those expressing high AAM and those expressing low AAM) separately and the final score of the individual on the test was the sum of his scores for the two groups of items. In other words, a subject's total score was the sum of his scores on each item. With regard to scoring of items, scores from 5 to 1 were given for the response categories ranging from strongly agree to strongly disagree of items expressing high AAM and scores from 1 to 5 given for the same response categories of items expressing low AAM. These different scoring procedures are explained with reference to the nature of items in the two groups. Items in the two groups express the degree of possession of a given trait by different individuals. Items in high AAM group require individuals having the trait with high degree and similarly those in low AAM group require individuals having a trait with low degree. As long as these groups of items indicate different degrees

of possession of the given trait by individuals, giving different weights and using different scoring procedure seems logical. Such type of scoring was used by Likert (cited in Edwards, 1957; and Ferguson, 1952) in the development of attitude scale. The maximum and minimum possible scores of an individual for the self-report inventory of AAM were 275 and 55 respectively.

Based on the results obtained statistical analysis was made using pointtriserial (r_{tri}) correlation in order to find correlations of items with total score a case of construct validity (Guilford, 1956). Point triserial correlation is a statistical technique used to find interrelation between item and test parameters in the case of three categories of item response tests (Michael and Perry, 1955; Jenkins, 1956; and Jaspen, 1964). Crocker and Mehrens (1971) in their study of the comparative Effectiveness of Different Item Analysis Techniques in Increasing Change Score Reliability, noted point triserial correlation as one of the four techniques which resulted in high change score reliability. In addition to the point triserial correlation item's reliability index for each item was computed.

After the computation of the aforementioned statistics items were ranked in the order of magnitude of their reliability index (See Appendix D). And then 12 items expressing high academic achievement motivation and 13 items expressing low academic achievement motivation, a total of 25 items, were selected for the final version of the inventory. Items having item reliability indexes greater than or equal

to 0.2038 were selected for the high AAM group and for low AAM items having item reliability indexes greater than or equal to 0.2362 were selected. The determination of the cut-off scores was based on the total number of items decided to be included in the final inventory.

Finally split-half, KR-20 and Coefficient alpha were computed for the selected 25 items. The obtained reliability coefficients were 0.74, 0.79, & 0.71 respectively. Thus, the final self-report inventory of academic achievement motivation consisting of 25 items was developed.

3.4.2. Maudsley Personality Inventory

As to Maudsley Personality Inventory, hand scoring was made using the key. The scoring was based on the three response categories ("Yes", "?", or "No"). If the subject responded in the keyed direction, he would get 2, and 0 or 1 if he responded for the item not in the keyed direction or the neutral case ("?"), respectively. The individual has got two scores, one for the neuroticism scale (N-Scale) and one for the extraversion - introversion scale (E-Scale). As of the self-report inventory of AAM, the overall score of a respondent for the two scales was the sum of his responses for every items in each scale.

The mean and standard deviation of the scores for both scales were calculated. The result indicated that subjects included in the test tryout were found to have mean score of N-Scale =24.10 with standard deviation of 7.62; and E-Scale

= 25.29 with standard deviation of 7.84. The correlation between N-Scale and E-Scale was found to be 0.36. These results seem to approximate the results obtained for American male university students ($n = 714$) $N = 20.19 \pm 10.71$, $E = 28.40 \pm 8.06$; for English male university students ($n = 213$) $N = 23.23 \pm 11.27$, $E = 25.26 \pm 8.85$ (Manual, 1962); for Japanese male college students ($n = 418$) $N = 23.4 \pm 9.86$, $E = 25.50 \pm 10.90$ (Eysenck 1969). Gutman (cited in Eysenck, 1969) reported N and E scores for different age groups. The results for the age group of 17-25 were ($n = 726$) $N = 21.40 \pm 9.40$ and $E = 25.81 \pm 8.80$. Iwawaki et al. (cited in Eysenck, 1969) reported a correlation between N and E for the Japanese normal groups, ranging from - 0.09 to - 0.33.

Regarding the reliabilities obtained for the scales, slightly lower Split-half and KR-20 were reported (0.71 and 0.69 for N, and 0.77 and 0.72 for E respectively) than those given in the manual (which lie between 0.85 and 0.90 for N, between 0.75 and 0.85 for E) (See Appendix E).

3.5. Procedure of Data Collection

Students' first year Cumulative Grade Point Averages (CGPAs) were collected from Kotebe College of Teacher Education's record office. Personality Types and Academic Achievement Motivation data were collected from MPI and Academic Achievement Motivation Self-Report Inventory (developed by the researcher) administered to the subjects. As to students' Status on Admission the subjects personal file was examined and the necessary information was gathered. In

addition data pertaining to status on admission were obtained from the inventory administered.

The researcher with 8 assistants administered the inventory to the subjects in two groups. The assistants were given orientation as to how they would go about administering the inventory. While administering the inventory the main objective of the study was explained. Oral instruction, in addition to the general and specific directions given in the inventory, was given to the subjects so as to emphasize genuinity in their responses. Moreover, pertinent background informations about the subjects under study were collected from the inventory administered. The average time spent by the subjects while completing the inventory was 60 minutes.

Subjects' scores on MPI and Academic Achievement Motivation Self-Report inventory were collected. The scoring procedures were the same as those used during the test tryout. In the case of personality Types (X_4 , X_5 , X_6 , X_7) and Status on Admission (X_8) dummy coding was used so that membership gets the value of unity and nonmembership gets the value of zero.

3.6. Data Analysis

In order to describe the data preliminary descriptive statistical values such as mean, standard deviation, and minimum - maximum scores were obtained. Interindependent and dependent - independent variables correlation matrix was determined to have knowledge about the extent of relationships among variables. Furthermore, simple

regression analysis was carried out to see the extent of contribution made by a single independent variable to the dependent variable.

Chi-Square analysis was determined so as to make categorical frequency analysis concerning the relationship between dependent and independent variables. Here, correction for continuity was made, as Dixon and Massey (1983) used, for those Chi-Square tests having 1 degree of freedom. One-way analysis of variance was also used to determine whether or not there is statistically significant difference between the means of regulars and nonregulars with respect to academic performance and academic achievement motivation and scores on personality dimensions.

Finally multiple regression analysis was made to explain the relationship between the dependent and independent variables. The individual and/or combined contribution of the independent variables to the dependent variable was scanned using stepwise regression analysis. Here, for the sake of convenience in data analysis personality variables were divided in to two, i.e., Extraversion and Neuroticism on the one hand and Personality Types on the other. Thus two stepwise regression analyses were performed separately to see their contribution to the dependent variable.

CHAPTER - FOUR

RESULTS AND DISCUSSION

4.1. Results

Table 3: The Mean and Standard Deviation of the Dependent and Independent Variables as they are used in different analyses

Variables	Sample Size N	Mean	Standard Deviation
X ₁	237	32.72	5.6402
	186	32.86	5.6485
	152	33.35	5.7311
X ₂	188	25.10	5.0199
	186	25.10	4.9461
X ₃	188	23.60	8.2434
	186	23.63	8.2570
X ₄	154	0.3312	0.4722
	152	0.3247	0.4698
X ₅	154	0.1818	0.3815
	152	0.1753	0.3822
X ₆	154	0.1753	0.3815
	152	0.1753	0.3822
X ₇	154	0.1688	0.3758
	152	0.1688	0.3766
X ₈	239	0.6820	0.4667
	237	0.6820	0.4634
	186	0.6774	0.4675
	152	0.6842	0.4648
Y	239	2.5360	0.4939
	237	2.5397	0.4906
	188	2.5393	0.5056
	186	2.5401	0.5046
	154	2.5695	0.5146
	152	2.5711	0.5135

In the above table, different N values indicate the sample size of each variable used in different analyses. For example, in simple regression analysis the sample size of Y varies on the basis of the sample size of each independent variable. In multiple regression, Chi-Square test, and also in analysis of variance the sample size of each variable varies based on the size of other variable(s) which is/ are used in the analysis. The table further indicates that X_1 , X_2 , X_3 , and Y have minimum and maximum scores of 18 and 48; 14 and 36; 6 and 43 and 1.76 and 4.00 respectively. It is apparent that the rest dummy variables have 0 and 1 as minimum and maximum scores.

As indicated in the above table the mean score of X_1 , X_2 , and Y exceed the expected mean scores of the variables (25, 24 and 2.00 respectively). But for X_3 the mean scores are a little below the expected mean score of the variable (i.e., 24). The mean corresponding to each dummy variable (X_4 , X_5 , X_6 , X_7 , and X_8) is the proportion of cases in the category where the value of the dummy variable is unity. As shown in the table, the standard deviation of each variable is different from zero, denoting that the sample mean of each variable can be different from what is expected.

The standard deviations of X_2 and X_3 (extraversion and neuroticism scores, respectively) indicate the existing difference among the subjects with regard to their responses to the items in the two scales of the inventory. Relative homogeneity of the responses is observed for X_2 than X_3 where the high spread of responses is discerned.

Table 4 and 5 show intercorrelations among the independent variables and between the dependent and independent variables for the two separate regression analyses.

Table 4: Intercorrelation Matrix among the Independent Variables (Academic Achievement Motivation, Extraversion Scores, Neuroticism Scores and Status on Admission) and between the Dependent (Cumulative Grade Point Average-CGPA) and Independent Variables.

Variables	X ₁ N = 237	X ₂ N = 188	X ₃ N = 188	X ₈ N = 239	Y N = 239
X ₁	1.0000				
X ₂	-0.0502	1.0000			
X ₃	-0.2034*	0.1488*	1.0000		
X ₈	0.3485*	-0.0928	0.0054	1.0000	
Y	0.6218*	-0.0693	-0.0868	0.4614*	1.0000

* P < 0.05

The test for singificance of correlations for N=186, 237, 154, and 152 with df = N-2 is made at $\alpha = 0.05$. Nondirectional t-test revealed that highly significant correlations have been noticed between X₁ and Y, i.e., $r_{x,y} = 0.6218$ ($t_{235} = 0.1293$, $P < 0.05$) and also between X₈ and Y, i.e., $r_{x8y} = 0.4614$ ($t_{237} = 0.1288$, $P < 0.05$). The rest independent variables have nonsignificant correlations with the dependent variable. The study suggested that it is only academic achievement motivation and students' status on admission which are significantly correlated with the dependent variable. None of the personality factors (extraversion and neuroticism scores) are significantly correlated with first year comulative grade point average of the subjects. Rather, the results denote nonsignificnat

negative correlations between extraversion, neuroticism scores and the dependent variable ($r_{x_2Y} = -0.0693$ and $r_{x_3Y} = -0.0868$, respectively). Furthermore, the above table shows significant positive relationship between X_1 and X_8 (students' status on admission). Strong but negative correlation is seen between X_1 and X_3 , $r_{x_1x_3} = -0.2034$ ($t_{184} = 0.1447$, $P < .05$) noting that neuroticism is not the factor in academic achievement motivation. The results of this study also suggest that there is an overlap between the two scales of MPI. That is, a significant positive relationship ($r_{x_2x_3} = 0.1488$) is observed between extraversion and neuroticism scores.

Similarly, nondirectional t-test of correlation coefficients for $N=154$ and 152 with $df=N-2$ revealed nonsignificant correlations between personality types and first year cumulative grade point average of the subjects.

Table 5: Intercorrelation Matrix among the Independent Variables (Academic Achievement Motivation, Personality Types, and Status on Admission) and between Dependent and Independent Variables

Variable s	X_1 N = 237	X_4 N = 154	X_5 N = 154	X_6 N = 154	X_7 N = 154	X_8 N = 239	Y N = 239
X_1	1.0000						
X_4	0.1578	1.0000					
X_5	0.0829	-0.3317*	1.0000				
X_6	-0.1094	-0.3244*	-0.2174*	1.0000			
X_7	-0.0307	-0.3171*	-0.2125*	-0.2078*	1.0000		
X_8	0.3485*	0.0459	-0.0327	0.0644	0.0904	1.0000	
Y	0.6218*	0.1200	-0.0800	-0.0142	0.1017	0.4614*	1.0000

* $P < .05$

But the correlation among the personality types is significant though negative. The table shows positive correlation between stable introversion scores (X_4) and the dependent variable ($r_{x_4y} = 0.12$). And similar result is discerned between unstable extraversion score and the dependent variable ($r_{x_7y} = 0.1017$). In addition, the correlation matrix indicates a little higher but not significant correlation between stable introversion and academic achievement motivation scores ($r_{x_1x_4} = 0.1578$).

Simple Regression Analysis

Simple regression analysis was made to see the extent of interaction between independent and dependent variables when the independent variable is taken alone. The investigation of the usefulness of individual variable as each is related to first year cumulative grade point average of the subjects revealed the following results.

Table 6: Results of Simple Regression Analysis

Independent Variable	N	Mean	Standard Deviation	B	Standard error of bi	r	t	Dependent Variable	
								Mean	Standard Deviation
X_1	237	37.72	5.6402	0.0544	0.0045	0.6218*	12.089*	2.5397	0.4906
X_2	188	25.10	5.0199	-0.0070	0.0074	-0.0693	-0.9459	2.5393	0.5056
X_3	188	23.60	8.2434	-0.0053	0.0045	-0.0868	-1.1778	2.5393	0.5056
X_4	154	0.3312	0.4722	0.1312	0.0881	0.1200	1.4892	2.5695	0.5146
X_5	154	0.1818	0.3870	0.1079	0.1079	-0.0800	-0.9898	"	"
X_6	154	0.1753	0.3815	0.1098	0.1098	-0.0142	-0.1758	"	"
X_7	154	0.1688	0.3758	0.1397	0.1109	0.1017	1.2597	"	"
X_8	239	0.6820	0.4667	0.4884	0.0610	0.4614*	8.0066*	2.5360	0.4939

* $P < 0.05$

The results suggest that when independent variables are taken individually to correlate with dependent variable, only X_1 , and X_8 are found to have significant contribution to the relationship between dependent and independent variables. The remaining variables taken alone do not correlate significantly although the scores on stable introversion and unstable extraversion are correlated positively with CGPA of the subjects.

As noted in the above table the highest variation in the CGPA (about 45%) is attributed to X_1 . The next highest percent (about 22%) of variation in the CGPA is due to the effect of X_8 . In general, the results of simple regression analysis signify that personality types (X_4 , X_5 , X_6 and X_7), scores on extraversion (X_2) and neuroticism (X_3) do not significantly correlate with the dependent variable.

Results of Chi-Square Analysis

The extent of association between personality factors and success in academic performance was scrutinized. Particularly, whether introversion or extraversion is the factor in academic success, the relation of emotional stability and instability to academic success, and the interaction between personality types and success in academic performance were investigated. The results are presented in Table 7, 8 and 9 respectively.

Table 7 shows the results of Chi-square test of independence between introversion/extraversion and academic performance of the subjects.

Nonsignificant relationship ($\chi^2_{(1,.05)} = 3.841$) is observed between introversion-extraversion and academic performance. Here, neither of the two personality variables is found to be factor in academic success. About equal percent of the subjects in introversion and also in extraversion are found to have above and below average scores on first year cumulative grade point average. That is, no significant difference is noted between introverts and extraverts in relation to their cumulative grade point average.

Table 7: A Relationship between Introversion/Extraversion and Academic Performance

Academic Performance	Personality Variables		Total
	Introversion	Extraversion	
Above Average ≥ 2.54	48 (44.97)	41 (44.03)	89
Below Average < 2.54	47 (50.03)	52 (48.97)	99
Total	95	93	188

$\chi^2 = 0.5463$ df=1 P> 0.05 (Non significant)

Table 8 shows the results of Chi-square test of independence between state of emotionality and subjects' first year cumulative grade point average.

The results suggest nonsignificant association ($\chi^2_{(1,.05)} = 3.84$) between stability - instability and academic

Table 8: A Relationship between Emotional Stability/Instability and Academic Performance

Academic Performance	Personality Variables		Total
	Stable	Unstable	
Above Average ≥ 2.54	49 (46.74)	38 (40.26)	87
Below Average < 2.54	52 (54.26)	49 (46.74)	101
Total	101	87	188

$$\chi^2 = 0.2666 \text{ df} = 1 \text{ P} > 0.05 \text{ (Not significant)}$$

performance. As indicated, no one of the two is found to be a factor in academic success. The results further indicate a slight tendency of below average achievers to be emotionally unstable. That is, though it is not significant emotional instability seems to be a factor in low academic performance.

Table 9 shows the results of Chi-square test of independence between personality types and first year grade point average of the subjects.

Table 9: A Relationship between Personality Types and Academic Performance of the Subjects

Academic Performance	Personality Types				Total
	Stable Introversion	Stable Extraversion	Unstable Introversion	Unstable Extraversion	
Above Average ≥ 2.54	30 (27.43)	15 (15.06)	11 (14.52)	15 (13.98)	71
Below Average < 2.54	21 (23.57)	13 (12.94)	16 (12.48)	11 (12.02)	61
Total	51	28	27	26	132

$$\chi^2 = 2.5286 \text{ df} = 3 \text{ P} > 0.05 \text{ (Not significant)}$$

Still the results show lack of association ($\chi^2_{(3,0.05)} = 7.815$) between personality types and academic performance.

According to the results presented personality type is not a factor of academic success. A little higher but not significant proportion of above average achievers are found to belong in stable introversion and unstable extraversion groups. The analysis revealed no clear relationship between personality types and success in academic performance.

Concerning the relationship between academic achievement motivation and success in academic performance of the subjects the analysis disclosed that subjects high in academic achievement motivation are above average achievers. Table 10 presents the results of Chi-square test of independence between these two variables.

Table 10: A Relationship between Academic Achievement Motivation and Academic Performance

Academic Performance	Academic Achievement Motivation		Total
	Above Average ≥33	Below Average <32	
Above Average ≥2.54	85 (53.84)	31 (62.16)	116
Below Average <2.54	25 (56.16)	96 (64.84)	121
Total	110	127	237

$$\chi^2 = 63.8189 \quad df = 1 \quad P < 0.01$$

Statistically significant relationship ($\chi^2_{(1,0.01)} = 6.635$) is observed between academic achievement motivation and academic performance. As the result suggests there is clear relationship between the two variables denoting high academic achievement motivation as a factor of better examination results. And low academic achievement motivation, on the

contrary, observed to be a factor in low academic performance.

Results of One-Way ANOVA

One way analysis of variance was carried out in order to see whether or not there is significant difference between subjects who joined KCTE immediately after the completion of secondary school and those who joined KCTE coming from the previous national army with regard to academic achievement motivation scores and first year cumulative grade point average.

Table 11 shows the results of one way analysis of variance about academic achievement motivation of the regular and nonregular subjects.

Table 11: Summary Table of One-Way ANOVA Concerning Academic Achievement Motivation of Regular and Nonregular Subjects

Source	df	SS	MS	F
Between	1	872.3577	872.3577	31.1038*
Within	235	6590.9588	28.0466	
Total	236	7463.3165		

* P 0.01

df = degree of freedom

SS = Sum of squares

MS = mean square

As shown in Table 11 the result of the analysis suggests that there is significant difference ($F_{(1/235, 0.01)} = 6.7495$) between regular and nonregular subjects with respect to their academic achievement motivation. According to the result, the mean score of regulars ($\bar{X} = 33.95$) is significantly higher than the mean score of nonregular candidates

($X=29.81$). That is, subjects who were regular secondary school students were found to have higher academic achievement motivation score than those who were not.

Table 12 reveals the results of one way analysis of variance concerning academic performance of regular and nonregular subjects.

Table 12: Summary Table of One-Way ANOVA Concerning Academic Performance of Regular and Nonregular Subjects

Source	df	SS	MS	F
Between	1	11.9283	11.9283	61.6602*
Within	237	45.8481	0.1935	
Total	238	57.7764		

* $P > 0.01$ not significant

Similarly significant difference ($F_{(1/237,0.01)} = 6.7489$) is observed between regular and nonregular candidates as to their first year cumulative grade point average. Regular subjects are found to be superior than nonregular subjects. The mean score of regulars ($X = 2.69$) significantly exceeds the mean score of nonregular subjects ($X=2.21$). The result implies that those subjects who joined KCTE immediately after the completion of secondary school have been performing better than nonregular candidates who joined KCTE coming from the previous national army.

The scores on Extraversion and Neuroticism scales of the regular and nonregular subjects were examined. One way analysis of variance was computed so as to investigate whether or not there is significant difference in personality

dimensions of these subjects.

Table 13 shows the results of one way analysis of variance about Extraversion scores of the regular and nonregular subjects.

Table 13: Summary Table of One - Way ANOVA Concerning Extraversion Scores of Regular and Nonregular Subjects

Source	df	SS	MS	F
Between	1	39.1838	39.1838	1.5722
Within	186	4635.6832	24.9230	
Total	187	4674.8670		

P > 0.05 notsignificant

As indicated in Table 13 the result suggests that there is no significant difference ($F_{(1/185, 0.05)} = 3.8956$) between regular and nonregular subjects with regard to their personality dimensions.

Table 14 indicates the results of one way analysis of variance about Neuroticism scores of the regular and nonregular subjects.

Table 14: Summary Table One-Way ANOVA Regarding Neuroticism Scores of Regular and Nonregular Subjects

Source	df	SS	MS	F
Between	1	9.4123	9.4123	0.1371
Within	186	12772.4760	68.6692	
Total	187	12781.8883		

P > 0.05 Notsignificant

Similarly the result of analysis of variance suggests that there is no significant difference ($F_{(1/186, 0.05)} =$

3.8956) between the mean scores of regular and nonregular subjects implying that the two groups of students do not differ in terms of their personality dimensions.

Furthermore, an attempt was made to determine whether or not the classification of respondents into different personality types is dependent on subjects' status on admission. That is, Chi-square test of independence was made in order-to determine whether or not the proportion of subjects in each cell is the same as the proportion of subjects in another cell of the same column. Table 15 shows the results of Chi-square test of independence between personality types and status on admission.

Table 15: A Relationship between Personality Types and Status on Admission

Status on Admission	Personality Types				Total
	Stable Introvert	Wtable Extravert	Unstable Introvert	Unstable Extravert	
Regular	35 (36.16)	18 (19.85)	20 (19.14)	22 (19.85)	95
Nonregular	16 (14.84)	10 (8.15)	7 (7.86)	6 (8.15)	39
Total	51	28	27	28	134

$$\chi^2 = 1.7136$$

$$P > 0.05$$

As the results indicate the classification of subjects into different personality types is not dependent ($\chi^2_{(3,0.05)} = 7.815$) on respondents' status on admission (i.e. on regular and nonregular). This result implies that the distribution of personality types is the same regardless of status on admission.

In the regular class, the observed frequencies are higher than expected for unstable introvert and unstable extravert, and lower than expected for stable introvert and stable extravert and the reverse is true for nonregular class. That is, in nonregular class the observed frequencies are higher than expected for stable introvert and stable extravert and lower than expected for unstable introvert and unstable extravert. Though not significant it seems that regulars have got higher proportions in unstable introvert cell and the nonregulars have got higher proportion in stable introvert and stable extravert cells.

In general, the results suggest that we don't have sufficient reason to say that personality types are dependent on whether or not an individual is regular or nonregular.

Results of Multiple and Stepwise Regression Analysis

As indicated the purpose of this study is not only of determining the relation of each independent variable to the dependent variable but also to discern the combined effect of two or more independent variables on the dependent variable. Thus multiple regression analysis was needed so as to determine the extent of interaction between the independent variables in relation to the dependent variable. Furthermore, stepwise regression analysis was made in order to identify the relative contribution of independent variables when they are used in combination with other independent variables.

Since personality variables are separated into two, multiple and stepwise regression analyses treated the independent variables in two ways i.e., taking X_2 and X_3 in both cases, the first analysis considered only two independent variables (X_2 and X_3). And the second analysis involved all personality types (X_4, X_5, X_6 and X_7).

Summary of Multiple and Stepwise Regression Analysis on Y
(X_1, X_2, X_3 , and X_8)

Multiple correlation $R_{Y \cdot 1238}$ 0.6656 shows a significant ($F_{(3/182, 0.01)} = 3.8908$) relationship between the dependent variable (Y) and a linear combination of the independent variables (X_1, X_2, X_3 and X_8). Coefficient of multiple determination indicates that about 44.3% of the variation accounted for in the dependent variable is due to the combined effect of the afore mentioned independent variables.

Table 16 shows the results of multiple regression analysis considering X_1, X_2, X_3 and X_4 as independent variables.

Table 16: Summary of Multiple Regression on Y
(X_1, X_2, X_3 and X_8) N = 186

Variables	Regression Weight (b_i)	Standard error of b_i	Beta Coefficients B	F
X_1	0.0466	0.0054	0.5231	112.627*
X_2	-0.0046	0.0058	-0.0449	1.125
X_3	0.0015	0.0035	0.0238	0.620
X_8	0.2806	0.0649	0.2599	18.676*

* $p < .01$

$$R_{Y \cdot 1238} = 0.6656$$

$$R^2_{Y \cdot 1238} = 0.4430$$

Regression Equation

$$Y = 0.8961 + 0.0466 X_1 - 0.0046 X_2 + 0.0015 X_3 + 0.2806 X_8$$

$$F = 35.995$$

But the majority of the variance in the dependent variable is due to X_1 and X_8 . The measure of relative importance of each independent variable indentified X_1 and X_8 as the only significant contributors for the total variation in the dependent variable. Nonsignificant contribution is made by the remaining variables.

Table 17 shows the results of stepwise regression analysis made to determine the relative contribution of each independent variable considered in this analysis and also to identify the variable that best correlate to the dependent variable. Here the independent variables considered are X_1 , X_2 , X_3 and X_8 .

In the first step of the analysis X_1 entered in the regression model. The proportion of variance accounted for in Y by X_1 is about 37.97%. Then X_8 entered in the regression model. The increase in the proportion of variance accounted for in Y attributable to X_8 is about 6.11%. The remaining variables (X_2 and X_3) can not be entered in the model. The total variance explained by the regression of Y on X_1 and X_8 is 44.08%. Had the remaining variables (i.e., X_2 and X_3) been included in the regression model, the total variance accounted for in Y would have been 44.30%. That is, the increase of the variation in Y attributable to X_2 and X_3 is only 0.22%.

**Table 17: Summary of the Stepwise Regression on Y
(X₁, X₂, X₃ and X₈) N = 186**

Step No.	Number of Variables Entered	Multiple correlation and Related Values			Standard Error of Estimate	Variables Entered	Values in the Final Step				Simple Correlation With r
		Multiple R	Multiple R ²	Changes in Multiple R ²			Coefficients		F-delete	Constant	
							Raw Coeff. B	Standard Coeff. B			
1	1	0.6162	0.3797	0.3797	0.3997	X ₁	0.0462	0.5183	75.877*	0.8252	0.6162
2	2	0.6639	0.4408	0.0611	0.3805	X ₈	0.2871	0.2659	20.006*		0.4568
All Variables being included in the model		0.6656	0.4430	0.0022	0.3818						

Regression Equation

$$Y = 0.8252 + 0.0462 X_1 + 0.2871 X_8$$

As of multiple regression analysis, the stepwise regression analysis identified academic achievement motivation (X_1) and students' status on admission (X_8) as the independent variables that best relate to the dependent variable. The addition of extraversion (X_2) and neuroticism scores (X_3) do not contribute any other unique information to the relationship. This does not mean that the added independent variables (X_2 and X_3) did not contribute, but the contribution of these variables is so little and nonsignificant (about 0.22%) as compared to other variables.

As the results of the analysis communicate, X_2 and X_3 (both personality variables) do not significantly relate to the dependent variable. From the results it has been assumed that the inclusion of status on admission (X_8) might have suppressed, by virtue of taking the precedence in entering the model, the variables (X_2 and X_3) from having significant relationship. Thus, the stepwise regression was made regardless of X_8 . Still the results suggest (see Table 18) that X_2 and X_3 are the variables that can not be entered in the model.

Table 18: Summary of the Stepwise Regression on Y
(X_1 , X_2 , and X_3) N = 186

Step No.	Number of variables Entered	Multiple Correlation and Related Values			Standard Error of Estimate	Variables entered	Values in the Final Step				Simple Correlation With r
		Multiple R	Multiple R^2	Changes in Multiple R^2			Coefficients		F delete	Constant	
							B Raw Coefficient	B Standard Coefficient			
1	1	0.6162	0.3797	0.3797	0.3997	X_1	0.0549	0.6162	112*.627	0.7324	0.6162
All variables being included in the model		0.6209	0.3856	0.0059	0.3999						

* P<.01

Regression Equation

$$Y = 0.7324 + 0.0549 X_1$$

As mentioned earlier, the independent variables are X_1 , X_2 and X_3 . The first variable to enter in the regression equation was X_1 . As of the previous analysis, the proportion of variance accounted for in Y by X_1 is about 37.97%. No more variables entered in the model. If X_2 and X_3 were allowed to enter the regression model the total variance accounted for in Y would have been 38.56%. That is, the increase of variation in Y attributable to X_2 and X_3 will be about 0.59 percent.

The proportion of variance in Y attributable to X_2 and X_3 increased by 0.37% when X_8 (status on admission) was not included in the analysis. Eventhough the contribution of X_2 and X_3 to the relationship increased still they are not best contributors. The contribution is still not significant. The exclusion of X_8 from the analysis reduced the variance in Y that is explained by the regression by 5.74 percent.

In general the contribution made by personality variables particularly by extraversion and introversion is not significant and adds little to the precision of the relationship between the dependent and independent variables.

Summary of Multiple and Stepwise Regression on Y

(X_1 , X_4 , X_5 , X_6 , X_7 , and X_8)

Extraversion and neuroticism scores were dichotomized at certain point and revealed four personality types. The scores on these personality types together with academic achievement motivation scores and students' status on admission were regressed on the dependent variable - first year cumulative grade point average. The results are presented in Table 19.

Table 19: Summary of Multiple Regression on Y
 (X₁, X₄, X₅, X₆, X₇ and X₈) N= 152

Variables	Regression Weight (Bi)	Standard Error of Bi	Beta Coefficients	F
X ₁	0.0476	0.0061	0.5313	61.513
X ₄	0.0880	0.1013	0.0805	0.754
X ₅	-0.0928	0.1126	-0.0690	0.678
X ₆	0.0868	0.1127	0.0646	0.593
X ₇	0.1658	0.1140	0.2116	2.116
X ₈	0.2539	0.0746	0.2299	11.590*

* P < 0.01

R = 0.6784

F = 20.680*

R² = 0.4603

Regression Equation $Y = 0.7537 + 0.0476X_1 + 0.088X_4 - 0.0928X_5 + 0.0868X_6 + 0.1658X_7 + 0.2539 X_8$

Since the observed $F = 20.608$ is greater than F critical ($F_{(6/145)} .01 = 2.926$), the combined effect of the six independent variables is found to be significant. Multiple R_y . 145678= 0.6784 represents a significant relationship between the independent and dependent variables. Furthermore, coefficient of determination obtained suggests that about 46% of the variation in the dependent variable is explained by the combined effect of all independent variables.

The independent F ratio obtained for each variable suggests that among the independent variables, X_1 and X_8 are found to be relatively more important than the remaining variables. Here X_7 also has a relatively good relation with the dependent variable though not significant. Negative regression coefficient is seen only for X_5 indicating that the members did not perform better than the nonmembers.

The stepwise regression analysis was made in order to identify the relative contribution of each independent variable to the dependent variable and to identify those variables that entered in the regression model. Table 20 shows the results of stepwise regression analysis when first year commulative grade point average is regressed on the independent variables academic achievement motivation, personality types and students' status on admission.

Like the previous stepwise regression, academic achievement motivation (X_1) primarily entered in the regression model. Similar percentage (37.97%) of the variation in Y is attributed to X_1 . And then, students' status on admission entered in the analysis. The inclusion of X_8 improved the relationship between the variables by 5.51%. When stable extraversion scores entered at the third step, the relationship is further improved by 1.8%. The search for other independent variables terminated at this step.

As F test reveals, the contributions made by each variable entered in the model is significant ($P < .05$). The remaining variables failed to enter in the regression model. This does not mean that the remaining variables did not contribute to the precision of the relationship; rather, had there been the opportunity for the remaining variables to enter in the regression model, the precision of the relationship would have improved by 0.74%. Statistically, such contribution adds virtually no relevant and unique information to the relationship.

Table 20: Summary of the Stepwise Regression on Y
(X_1, X_4, X_5, X_6, X_7 and X_8)
N = 152

Step No	Number of variables Included	Multiple correlation and Related Values			Standard Error of Estimate	Variable entered	Values in the Final Step				Simple Correlation with Y
		Multiple R	Multiple R^2	Changes in Multiple R^2			Coefficients		F-delete	Constant	
							Raw Coeff. B_i	Standard Coeff. B			
1	1	0.6159	0.3793	0.3793	0.4072	X_1	0.0477	0.5323	64.622*	0.8267	0.6159
2	2	0.6591	0.4344	0.0551	0.3900	X_8	0.2723	0.2465	13.947*		0.4535
3	3	0.6726	0.4524	0.0180	0.3851	X_5	-0.1809	-0.1347	4.852		-0.0949
All variables being entered		0.6784	0.4603	0.0079	0.3862						

Regression equation

$$Y_{(pred)} = 0.8267 + 0.0477 X_1 + 0.2723 X_8 - 0.1809 X_5$$

$$F = \frac{(R^2_{y.145678} - R^2_{y.18}) / K_1 - K_2}{(1 - R^2_{y.145678}) / N - K_1 - 1} = \frac{(0.4603 - 0.4344) / 6 - 2}{(1 - 0.4603) / 152 - 6 - 1} = 1.7396$$

$$F_{(4/145, 0.05)} = 2.432$$

$$P > 0.05$$

Table 21: Summary of Stepwise Regression and Y
(X_1, X_4, X_5, X_6 and X_7)
(N = 152)

Step No.	Number of variables entered	Multiple Correlation and Related Values			Standard Error of Estimate	Variable entered	Values in the Final Step				Simple Correlation With y
		Multiple R	Multiple R_2	Changes in Multiple R_2			Coefficients		F delete	Constant	
							Raw Coeff. B_i	Standard Coeff. B			
1	1	0.6159	0.3793	0.3793	0.4072	X_1	0.0564	0.6293	98.446*	0.6998	0.6159
2	2	0.6331	0.4008	0.0215	0.4015	X_5	-0.1714	-0.1276	3.869		-0.0949
3	3	0.6394	0.4089	0.0081	0.4001	X_7	0.1256	0.0921	2.029		0.0997
All variables being included in the model		0.6458	0.4171	0.0082	0.4000		* $P < .01$				

Regression equation

$$Y_{(pred)} = 0.6998 + 0.0564 X_1 - 0.1714 X_5 + 0.1256 X_7$$

$$F = \frac{(R^2 y.14567 - R^2 y.1) / K_1 - K_2}{(1 - R^2 y.14567) / N - K_1 - 1} = \frac{0.4171 - 0.3793/5 - 1}{(1.0.4171) / 152 - 5 - 1} = 2.3670^*$$

$$F(4/146, 0.05) = 2.4384$$

* $P > 0.05$

Different from the results of the preceding stepwise regression analysis, this analysis included stable extraversion into the model. Stable extraversion scores significantly contributed to the reported relationship though the contribution made by extraversion is smaller as compared to that made by academic achievement motivation scores or by students' status on admission. When academic achievement motivation and status on admission was partialled out, the proportion of variance accounted for in the dependent variable only by personality types was found to be nonsignificant.

When students' status on admission was kept out from the stepwise regression, the analysis revealed different picture. As shown in Table 18, the results indicate that in addition to X_1 , the regression model selected X_5 (stable extraversion) and X_7 (unstable extraversion) though both of them are nonsignificant.

The F test at the final step suggests that among the selected three independent variables the contribution of X_5 and X_7 is not significant ($F_{(1/149, 1.05)} = 3.9104$; $F_{(1/148, .05)} = 3.9108$, $P < .05$). The data indicate that, as of the previous stepwise regression about 37.93% of the variation in Y is explained by X_1 only. And about 2.15% and 0.81% of the increase in the precision of the relationship is attributed to X_5 and X_7 , respectively.

Eventhough, the primary enterance of X_8 may sseem to suppress the predictive power of the personality types, the exclusion of such variable does not result in any significant effect. In general except stable extraversiion the remaining personality types do not significantly contribute to the relationship between the dependent and independent variables. Here again the effect of academic achievement motivationwas partialaed out . Still the proportion of variance accounted for the dependent variable only by the whole personality types was found to be nonsignificnat.

4.2. Discussion

The outcomes of the present study are going to be discussed in line with the major questions raised early in this study. The questions are:

- 4.2.1. To what extent do different personality types interact with success in first year academic performance of diploma students of KCTC?
- 4.2.2. Is there significant relationship between academic achievemnt motivation and first year academic performance of diploma students of KCTE?
- 4.2.3. Is there significant difference between students who joined KCTE immediately after the completion of secondary school and those who were not, with respect to academic performance, academic achievement motivation and personlity types?
- 4.2.4. To what extent is the interaction between the independent variables in relation to first

year academic performance of diploma students of KCTE?

4.2.1. Personality Variables and Academic Performance

The results of this study regarding the relationship between different personality variables (based on Maudsley Personality Inventory) and first year academic performance of diploma students are not consistent with the results of other studies. The study, for example, discovers that good academic performance (in this case, above average cumulative grade point average) is not related to either extraversion or neuroticism scores. Further exploration of the issue resulted nonsignificant relationship ($X^2 = 0.5463$, $P > 0.05$) between introversion - extraversion and CGPA, and emotional stability - instability and cumulative grade point average ($X^2 = 0.2666$, $P > 0.05$) of the subjects. But Entwistle and Wilson (1970) reported a significant relationship between high academic performance and introversion scores. Regarding lack of relationship between neuroticism and academic attainment the present study agrees with the findings reported by Entwistle and Entwistle (1970), Entwistle and Wilson (1970), and Bending (cited in Lynna and Gordon, 1961). According to these persons there is no relationship between neuroticism and academic attainment.

As to the relationship between personality types and first year cumulative grade point average of the subjects, Chi-square test of independence, simple correlation and regression analysis indicated lack of significant relationship between the two variables. The result of this

study is not in the direction of the results obtained by Cowell and Entwistle (1971), Furneaux (cited in Entwistle and Entwistle, 1970) and Kelvin et al. (cited in Entwistle and Entwistle, 1970). For these persons unstable introverts are successful in their academic work. But this study revealed that subjects grouped under each personality type do not differ in terms of their CGPA. However there is a tendency signifying a relationship, though nonsignificant, between stable introversion and above average CGPA.

In general the present study failed to identify significant relationship between any one of the personality variables and first year CGPA of the subjects. In relation to the findings of others the result of this study is unlikely. Savage (1962), and Behrens and Vernon (1978), for example, suggested that personality variables are among the factors that determine academic performance of a student. That is any habit, attitudes or idea that has been learned by a person is susceptible to his personality. There may be different habit-systems which are differentially important in academic behavior. For instance, students with different personality style are capable for different kinds of activities. Claunch (Cited in Pervin, 1970) in his study of the relationship between cognitive style and exam performance, for example, found that abstract students were superior to concrete students in performance on essay exams but not on multiple choice test. Here the intention is not to present the details of Claunch's findings but to show that in one way or another personality variables are important factors in the teaching-learning process and are related to

success in academic performance. From the results of other studies, it seems that there is reciprocal relationship between personality variables and learning. What a student knows becomes part of his personality and his personality also influences his way of acquiring knowledge and ideas. Such clear and conspicuous relationship between personality variables and academic performance can not be identified by this study. Such failure may be explained in relation to the following points.

Firstly, the failure of personality variables to have significant relationship with the dependent variable may be explained in relation to the limitation of MPI to measure personality dimensions of our subjects due to cultural factors. As Pervin (1970) discussed, the impact of a society's established patterns of behavior on the personalities of its individuals varies from culture to culture. This idea suggests that by being in a specific culture some patterns of behavior may be prevalent for the people of that culture. In this regard Kluckhohn (cited in Pervin, 1970) stated that,

culture regulates our lives at every turn. From the moment we are born until we die there is, whether we are conscious of it or not, constant pressure upon us to follow certain types of behavior that other men have created for us (P. 19).

Granted the importance of cultural factors in the determination of personality patterns in members of a society Linton (cited in Pervin, 1970) has suggested three principles to answer, how is it that a basic "personality type" can come to exist in a society. These are,

a) Early experiences have lasting effects on personality. b) Child rearing practices are culturally patterned so that children in a society are subjected to similar, though not identical, early experiences. c) These similar early experiences of children within a society lead to similar personality configurations, while differing early experiences in children of different societies lead to different personality configuration (p.21).

Thus the use of personality inventory constructed and standardized in one culture may not be effective in other different cultures. The use of MPI may be seen in relation to this fact. Because of this limitation subjects might be reluctant to respond for some items in the inventory. Besides subjects with similar intellectual ability, but having different subcultures, might belong to different personality dimensions. This may be impotent factor for MPI to measure the personality dimensions of the subjects under study.

Secondly, associated problems in the use of personality test that employs self-report of the subjects may be another factor to be mentioned. Among the problems, lack of sound judgement and insight in answering the questions and unwillingness of subjects to reveal anything they suspect that could place them in a negative light might have contributed to such result. In addition the tendency of being indicisive (giving the neutral response category ("?")) might have its own effect on the result of the present study. In brief carelessness, response set, and being indecisive might have contributed to the failure of personality variable to have significant relationship with the dependent variable.

Thirdly, the explanation for the inconsistent findings regarding the relationship between personality types and academic performance of the subjects may be associated with the type and characteristics of institutions and in terms of the effects of subject area difference. Most of the studies reported undertaken in universities (e.g., Kline and Gale, 1971; Lynn and Gordon, 1961; and Savage, 1962) and technical colleges (e.g., Cowell and Entwistle, 1971). As Entwistle (1972) suggested, the inconsistency of the results of this study with other studies may be seen in relation to institutional difference. Furthermore, lack of relationship may be due to failure to control the effects of subject area difference. As Entwistle (1972) reviewed, different personality types relate better with different areas of study. According to Furneaux (cited in Entwistle, 1972) neurotic introverts apparently make good engineers. As Entwistle (1972) discussed stable introverts do better in pure sciences. Neurotic introverts are also good at languages, but stable introverts make better historians. Among social science students the correlations between both personality dimensions and attainment are near zero. Thus, lack of control of this effect may be considered as one of the causes of nonsignificant relationship between personality variables and academic attainment.

Finally, the difference in the instruments used to measure personality variables and the dependent variable (academic performance) may be responsible for the difference of the results of this study and that of others. Most of the studies reported here (e.g., Cowell and Entwistle, 1971;

Kline and Gale, 1971; Entwistle and Entwistle, 1970; and Child, 1969) used EPI. And Eysenck and Cookson (1969); and Entwistle and Cunningham (1968) used JEPI whereas only Lynn and Gordon (1961), and Savage (1962) used MPI to measure personality factors. Eventhough different personality inventories claim to measure personality traits, due to different meaning attached to the construct different tests may give special emphasis with reference to one or other of its particular aspects.

Similarly, academic attainment can be measured in a variety of ways. The studies reported here give evidences in this regard. Lynn and Gordon (1961), for example, used Raven Progressive Matrices as a measure of academic attainment. Verbal reasoning test was also used by Entwistle and Cunningham (1968) and Entwistle (1972). Others like Entwistle and Cowell (1971) used average of examination marks obtained at the end of academic year as a measure of academic attainment. It seems improbable that a single set of personality factor say introversion will adequately describe success in such different forms of intellectual activity. Thus, the difference between the findings of this and other studies may be attributable to these variations.

4.2.2. Academic Achievement Motivation and Academic Performance

Regarding the relationship between academic achievement motivation and academic performance of the subjects, this study yielded results in the direction with the results of other studies. The study revealed a statistically significant relationship between academic achievement

motivation and cumulative grade point average of the subjects. The result of this study is in agreement with the results of Entwistle and Entwistle (1970), Klinger (1966), Mayehu (1965), and Khan (1969) who reported strong positive relationship between motivation and college performance. Furthermore Packwood (1973) presented evidences supporting strong relationship existing between students' motivation and their academic performance. According to Packwood the variance in college achievement is composed of many variables of which the Motivation Checksheet as high school rank and ACT accounts for an almost equal portion of the variance although there is a sex difference.

The strong relationship observed signifies the deterring or actuating effect of different level of motivation held by a person. The results of this study also shows that academic achievement motivation is one of the determinants of academic performance. Such strong and significant relationship between these two variables may be partially explained in relation to the role motivation plays in man's life activities. As different studies suggest individuals possess interest or drive to manipulate physical and social environment for the purpose of attaining success in their life. They have motive to be productive and maintain high standards in life situations. In this regard Atkinson and Reitman (1958) showed significant positive relationship between performance and motivation to achieve success.

The significant positive relationship between above average academic achievement motivation and CGPA of the

subjects may be due to the activated state of the subjects to make good grades. In addition , such relationship may be partilally explained by the reward, public attention or respect, they may get as a result of being educated. It seems from reality that in our society persons who joined and completed universites and colleges, relatively speaking, are well respected. This expectation held by students at higher educational institutions might have differentially motivated students to achieve success in their performance. Or the relationship may be attributable to intrinsic satisfaction they may get from doing better in college education. As Atkinson (1958) and McClelland (1985) suggested people high in achievement motivation scores get intrinsic statisfaction from doing better. The most possible reason for high academic achievement motivation and then success may be the economic reward they may get from completing college education. At present days people consider joining higher education as means of scaping all life difficulties in which many of our people live with them. This condition might also have differentially motivated the subjects to work hard and put a great effort in educational activites.

The presence of such motivation, as Watkins (1982) explained, likely determines the strategies students use to achieve their goals. If motivated to achieve success in academic performance, students organize themselves to work hard, plan how and when to study, spend their time wisely and ensure assignments are completed in time. These traits are important for good performance. Above average achievers seem to be superior in this regard. The reason may be that

subjects who have high academic achievement motivation tend to have realistic calculation of the probability of success which ultimately lead them to have the right track for academic success.

It is all clear that academic success is largely a function of the amount of effort put into studying and performing everything necessary . As Winter and Carlson (1988) suggested, subjects who have high achievement motivation exert high effort to attain their goals. Thus, it seems from the result that above average CGPA of the subjects who have high academic achievement motivation may be partially explained in relation to their effort and hardwork.

In general, the finding of this study indicating a significant relationship between above average academic achievement motivation and high academic performance is explained with reference to the importance of motivational factors in the learning process. In this regard Howe (cited in Crooks, 1988) said;

I have a strong feeling that motivational factors are crucial whenever a person achieves anything of significance as a result of learning and thought,... That is not to claim that a high level of motivation can ever be a sufficient condition for human achievements, but it is undoubtedly a necessary one. And conversely, negative motivational influences, such as fear of failure, feelings of helplessness, lack of confidence, and having the experience that one's fate is largely controlled by external factors rather than by oneself, almost certainly have effects that restrict a person's learned achievements (pp. 460-61).

4.2.3. Status on Admission and Academic Performance

Simple correlation and regression analysis revealed significant relationship between status on admission and first year cumulative grade point average of the subjects. The positive correlation obtained ($r_{xy} = 0.4614$, $t < 0.05$) suggests that those subjects who joined KCTE immediately after the completion of secondary school performed higher than those subjects joined KCTE coming from the pervious national army. The result is consistent with the findings reported by Belay (1990).

Further analysis of the difference between regulars and nonregulars with regard to first year cumulative grade point average and academic achievement motivation yielded statistically significant difference ($F = 61.66$ and $F = 31.10$, $P < .01$, respectively) between the two groups. As of the correlational analysis, F test also uncovers the superiority of regulars with respect to academic performance. That is the mean CGPA of regular subjects surpasses the mean CGPA of the nonregulars. Concerning academic achievement motivation the study still indicates the superiority of regular students.

The superiority of regular subjects with respect to academic performance may be explained in relation to the span of time that nonregulars lagged behind. As mentioned before, the nonregular subjects were in a different environment. They were away from the school in the average for about 4.68 years, where the maximum-minimum time lag being 8 and 3 years respectively. They were totally deprived from participating

in the teaching-learning process. Thus, the inferior first year cumulative grade point average of the nonregulars is explicable. Their first year may be the time of self adjustment to the different aspects of college education. Because of retroactive interferences, the rate of retaining information may be so limited as compared to the regulars. Their skill of taking lecture note, reading ability, their method of study and so on may be inferior as compared to their counterpart.

An alternative explanation of inferior academic performance of nonregulars may be related to their ability. As mentioned in the preceding chapter, these subjects joined the college by virtue of their participation, in National Military Service. If ESLCE grade point average was considered they would have not been admitted to the college because of the fact that they could not meet the criterion set for admission. The implication is that academically these subjects were unable to pursue college education. Thus low academic performance of nonregulars may be seen in relation to this factor.

Concerning academic achievement motivation the inferiority of the nonregulars may be explained in relation to what has been discussed so far. Nonregulars, as reported, are inferior in their academic performance. They might attribute such inferiority to lack of ability. And this self-perception may be due to the feeling of hopelessness which may affect the strength of their academic achievement motivation. An alternative explanation may be the fact that

the intervening variables in the life situation of these subjects may enter into the academic situation to prevent them from meeting their academic need to achieve success. The outcome may be the reduction in the strength of academic achievement motivation of the subjects.

As it has been shown the environments in which regular and nonregular subjects were in were completely different as a result we may tend to assume that these different environments might have differential influence on the personality traits of these groups of subjects. But the results of this study do not conform to this expectation. Rather the results of this study suggests that these two groups of subjects do not differ in terms of Eysenck's dimensions of personality (Extraversion-Introversion and Neuroticism) and in terms of personality types as well. The possible explanation for the results may be that being members of the previous national army for short period of time has no significant effect on the personality make-up of the nonregular subjects.

In brief the result suggests that status on admission differentially affected cumulative grade point average and academic achievement motivation of the subjects. But its effect was not observed in the case of personality factors.

4.2.4. The Relation Between Personality Types, Academic Achievement Motivation Status on Admission and Academic Performance

In the first analysis, the results of multiple regression analysis indicated a statistically significant relationship between the dependent and independent variables. That is, Extraversion, Neuroticism, Academic Achievement Motivation and Status on Admission jointly and significantly related to cumulative grade point average of the subjects. But further analysis of the relative contribution of each independent variable yielded the inability of extraversion and neuroticism scores to contribute significantly to the relationship between the dependent and independent variables.

Such result is consistent with the findings of Kline and Gale (1971) who reported low relationship between academic success in a psychology examination and extraversion/introversion and neuroticism dimensions of personality. But on the contrary, the present result does not agree with the result forwarded by Savage (1962). Savage noted that personality factors, in particular neuroticism and extraversion, are important determinants of academic performance. As already discussed in the review part, personality factors are among the determinants of academic behavior, i.e., learning may be regarded as function of individuals characteristics and their interaction with the learning environment. Lack of significant relationship between extraversion - neuroticism scores and academic performance of these subjects may be seen in relation to some points raised in 4.2.1. In addition, since academic performance, as Biggs (1978) discussed, is determined by the

interaction of personality variables and environmental factors, the relationship between these two independent variables and the dependent variables may be complicated by some environmental factors. Academic achievement motivation and status on admission, on the other hand, were found to have statistically significant relationship with cumulative grade point average of the subjects, though the highest proportion of variance in the dependent variable is due to academic achievement motivation of the subjects.

Similarly the second analysis involving personality types, academic achievement motivation and status on admission revealed significant relationship between dependent and independent variables. The assesement of the relative importance of each independent variable indicate that personality types, as a whole, failed to have significant relationship with the dependent variable. That is, the proportion of variance accounted for in the dependent variable by the four personality types is found to be not significant. But the stepwise regression analysis yielded a significant relationship between academic achievement motivation, status on admission, stable extraversion scores and cumulative grade point average of of the subjects. Still the highest proportion of variance in the dependent variable is due to academic achievement motivation.

As the stepwise regression analysis discovered, stable extraversion (among the Personality types) found to have significant contribution to the variance in the dependent variable. This result is not in line with the findings of

other scholars. But for Evan (cited in Child, 1969) this result seems probable. According to Evan college students as compared to university students are more extraverted implying positive relationship between academic performance and extraversion scores among college subjects. However, many researchers suggest that extraversion is not a factor in academic success at tertiary institutions but the case at primary school age (Entwistle, 1972); Eysenck and Cookson, 1969; and Anthony, 1977). Extraversion loses its power of being a factor in academic success at a higher level.

The significant contribution made by stable extraversion may be explained in relation to the concept of suppressor variable. As indicated in Table 5 and in simple regression analysis, stable extraversion (X_5) negatively and poorly ($r_{x_5y} = -0.08$) correlated with the dependent variable. According to Conger (1974) a suppressor variable may be defined as;

a variable which increases the predictive validity of another variable (or set of variables) by its inclusion in a regression equation. The variable is a suppressor only for those variables whose regression weights are increased (pp. 36-7).

Thus the significant increase of multiple correlation as a result of the inclusion of stable extraversion may be attributed to its effect as being a negative suppressor. It seems from the result that stable extraversion as a negative suppressor removed irrelevant predictive variance from the valid independent variables academic achievement motivation and status on admission which was not represented in the dependent variable inspite of its relation to the dependent variable.

In brief, as Melton (cited in Skinner, 19989) stated, "Motivation is an essential condition of learning" (p.450). The results of the present study seem to confirm what Melton has suggested. High academic achievement motivation is found to be a factor for success in academic performance of the subjects. Similarly status on admission indicating a student's background, it may be educational, is found to affect the subjects' academic performance and their academic achievement motivation. On the other hand the results of this study questioned the relative importance of personality variables, particularly Extraverssion - Neuroticism (as measured by MPI) in academic performance of the subjects. Likewise personality types in general failed to have significant relationship with the dependent variable, however, stable extraversion contributed significantly to the increase in multiple correlation.

In general, personality types, academic achievement motivation and status on admission jointly found to have significant relationship with the dependent variable.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

From this study it is quite difficult to give a conclusive statement to the relationship between personality types, academic achievement motivation, status on admission, and academic performance of students. There are no accepted theories which indicate the relationship between personality types and academic performance, though there are so many research outcomes which indicate different and sometimes contradictory results. Academic performance of students is also affected by many variables some of which are hardly controllable and others are accessible to investigation, e.g. academic achievement motivation, and status on admission. It is with the hope of investigating the relationship between personality types, academic achievement motivation, status on admission, and academic performance of college students that this study was undertaken. Here are some limitations which have to be considered while looking into the results of this study.

In the first place, the limitation of this study may be seen in relation to the instruments used in this study. The adequacy of MPI to measure personality dimensions would have been improved if the inventory was rewritten on the basis of item analysis. Since local validation process did not go beyond the determination of different reliability indices, the researcher could not claim that the instrument is completely adequate. The validity of MPI stated in the manual as measuring personality dimensions was taken for granted and no

attempt was made to set the local validity coefficient due to lack of appropriate criterion measure. As to the measure of academic achievement motivation, the instrument developed by the researcher for the present study has different reliability indices denoting that the instrument consistently measures the behavior under consideration. Regarding validity coefficients the instrument has been found to have content validity but lacks empirical validity coefficients because of lack of appropriate criterion measure. Therefore, both inventories used in this study need further validation process.

Lack of control over the effects of some variables is another limitation of this study which restricts the interpretation of results. It may be suspected that the relationship between personality variables and academic performance might have been complicated by the difference in subject area studied, methods of evaluation, teaching methods, instructors' personality and geographical area. The results of this study would have been quite different if these variables were controlled during the study.

5.1. SUMMARY

In spite of the limitations mentioned above, the results of this study lead to the following major observations. These observations are limited only to the subjects and population considered in this study.

Regarding the relationship between personality variables and cumulative grade point average of the subjects, the following observations are made.

1. The results of this study indicated that Extraversion/Introversion and Neuroticism/ Stability as dimensions of personality do not have relation with college academic success though there is a tendency for introverts to be academically successful.
2. Personality types as a whole failed to have significant relationship with first year cumulative grade point average of the subjects.

- Chi-Square analysis indicated that a relatively higher proportion (though not significant) of stable introverts and unstable extraverts found to be above average achievers.
- On the other hand stepwise regression analysis indicated that among the personality types, significant contribution to the dependent variable is made only by stable extraversion.

As outlined in the review of related literature academic motivation seems to be a very important factor influencing the quality and extent of learning activities and thereby affects academic performance of students. That is, it is a sine qua non for attention and apprehension and so for better examination results. Concerning the relationship between academic performance and academic achievement motivation of the subjects the study revealed results consistent with the results of other studies. The results obtained in this study pertaining to this relationship warrant the following observations:

1. Academic achievement motivation is found to be the most important factor which is strongly related to first year cumulative grade point average of the subjects.
2. A significantly higher proportion of subjects with above average academic achievement motivation scores are found to be above average achievers than subjects who have below average academic achievement motivation scores.

In this study status on admission (regular and non regular) is found to have significant relationship with first year cumulative grade point average of the subjects. According to the results status on admission is the second factor which significantly contributed to the dependent variable. Furthermore, analysis of variance indicated that regular subjects are superior with respect to first year cumulative grade point average and academic achievement motivation scores than non regular subjects. There is no difference between these groups with respect to personality variables.

Multiple and stepwise regression analysis revealed that the combined effect of personality types, academic achievement motivation, and status on admission on cumulative grade point average of the subjects is significant though personality type independently have a nonsignificant contribution to the dependent variable.

5.2. Conclusion

From the results of this study one may tentatively conclude the following.

1. Even though the explanation of the relationship between personality variables and academic attainment of the subjects seems far from being simple, the study revealed a nonsignificant relationship between the two variables.
2. Academic achievement motivation is found to be one of the noncognitive variables that determine academic performance of the subjects.
3. Status on admission is one of the noncognitive variables that differentially affects academic performance of the subjects, the span of lapse of time after the completion of secondary school being the deterring factor.
4. Personality types, academic achievement motivation and status on admission jointly affect academic performance of the subjects.

5.3. Recommendations

On the basis of these findings the following recommendations are given.

- 1) Based on the results of this study it seems dangerous to assume wide generality regarding the relationship between personality variables and academic performance of subjects. Rather the study has suggested that the relationship between personality traits and academic

performance is much more complex than expected in this study. Age, ability, sex, geographical area, class room organization, teaching methods, teachers' personality and so on may interact with personality in such a way that generalization can be difficult. Thus, the researcher recommends further research in this area using complex model so that these and other variables will be considered.

2. Since academic achievement motivation is found to have significant effect on academic performance of the subjects, a team work is needed to develop academic achievement motivation scale that can be applicable for different educational levels. Thus, it becomes potentially useful in identifying and counseling students who experience academic difficulties related to their level of motivation. The development and application of such kind of instrument help in the reduction of wastage rates and thereby minimizes the expense by retaining students until graduation.
3. As long as academic achievement motivation is found to be a factor in academic success, early identification of the level of students' academic achievement motivation is important. So that students with low academic motivation will be helped to develop such behavior. There may be students having above average intelligence but low academic achievement motivation scores due to some reasons. Therefore early identification enables student guidance and counseling personnels and/or concerned bodies

to take appropriate measures which stimulate students develop the desire and willingness to exert effort necessary to achieve success.

4. As indicated in the results section status on admission is found to affect subjects' level of motivation and academic performance. Since nonregular respondents included in this study were found to be inferior in this regard, attention should be given for such kind of students so as to help them in their endeavour to success.
5. Further investigation of the importance of noncognitive variables in the teaching learning process and hence in academic performance is very important.

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Appendix A

Direction

Here are items ^{designed} to measure the Academic Achievement Motivation (AAM) of college students. Academic achievement motivation is a concept referring to students' drive or interest to maintain their relation to the process of education and get a high standard in their academic achievement. It is a drive to obtain high grades as part of a general competitive attitude to life. The drive may be seen in relation to the components of achievement motive which will be defined in the next page.

This pool of items is prepared to design a reliable academic achievement motivation self-report inventory. Thus, you are kindly requested to rate items on the basis of the diagnostic relationship of the items with the behavior being measured.

There are 68 items which will be evaluated in relation to the three questions provided. Each question has three alternatives of which you select only one for an item. Before you start evaluating the items please,

- 1) read the definition given to each components of achievement motivation,
- 2) read the description of the behavior given with reference to to high and low achievement motivated person, and
- 3) by looking at the clustering of content areas, examine the items included in each group belong to the appropriate component of achievement motivation. Underline the question number you believe placed wrongly.

N.B:- Each item has to be evaluated in relation to three questions:

- a) Does the item measure AAM?
- b) To which group does the item belong? , and
- c) How strong is the item in measuring the behavior?

- For question "a" give 2 if your response is 'yes' ; 0 for '?' & 1 for "No"
- For question "b" give 2 for "High AAM" ; 0 for "?" ; and 1 for "low AAM". The "?" stands for uncertainty.

- For each item, your response for question "c" is based on the responses given for question "a" and "b". If an item is stated in line with the description of behavior for the motivated person give 2, and 1 if it is for low achievement motivated person, and 0 if you are uncertain.

Example: If you rate an item for question "a" as measuring AAM (give 2) and if it belongs to Low AAM (give 1) then your response of question "c" (for the same item) is based on referring low AAM as a behavior being measured. If a statement is strong in measuring this behavior give 3; 2 and 1 if it is average or weak, respectively. And give 0 if and only if the item for question "a" is responded as "?" or "No".

- If your response for an item is uncertain "?" for either question a or b, give 0 and give your reason for such rating at the last column.

I hope you will realize that your critical evaluation of each item as for the behavior measured has paramount importance for the development of reliable self-report inventory.

THANK YOU !

Aspect of Achievement Motivation-n Ach

In the development of Academic Achievement Motivation Inventory the following factors are considered as components of achievement motivation (n Ach).

- a) Aspiration level:- is the tendency to perform an activity as to the level of ones capacity to perform well.
- b) Risk-taking behavior:- the tendency to prefer a certain probability when the outcome of an action is largely determined by external factors such as chance.
- c) Up-ward mobility:- the need to succeed, the tendency to choose higher status.
- d) Persistence:- showing persistence either for short or longer period of time while doing tasks with various level of difficulty.
- e) Task tension:- displaying high or low tendency to the recall and resumption of interrupted or incompletd tasks.
- f) Time perception:- considering time as a static or dynamic entity.
- g) Time perspective:- future orientation.
- H) Task partner choice:- preference to the most able person or unable but sympathetic person.
- i) Recognition of behaviour:- striving for recognition of behavior.
- j) Achievement behavior:- preference for achievement related activities, need to perform well.
- k) Feelings;-refers to either positive or negative feelings aroused by success or failure.

.... /

- l. Competitive behavior- desire to activities which involve skill and competition.
- m. Delay gratification- interest in activities which may not be intrinsically satisfying but leading to distant reward or interest in those leading to short-term satisfaction.
- o. Parental and/or others indulgence- refers to involvement of others in the activities and behavior of individual.

Preparation of Test Blue-Print for the
Development of Academic Achievement

Motion Inventory

The objective here is to develop Academic Achievement Motivation Inventory (AAMI) which will be used to measure the academic achievement motivation of college students. The achievement motive, according to Atkinson (1958) may be briefly defined as a Person's disposition to approach success. Thus academic achievement motivation is a concept which has been introduced to explain the activated state of a student to get a high standard in his academic Performance. The Writing of items which constitute the inventory is made to relate the following initial set of hypothesis or test rationals using the format that Flanagan (cited in Schwarz, 1971) has suggested:

1. Description of the behavior:

The behavior to be measured is academic achievement motivation of college students. Based on the works of Atkinson (1958); Isaacson (cited in Hermans, 1970); Klinger (1966); Rosen; and French (cited in Hermans, 1970) the behavior is described as follows: The high achievement motivated individual has realistic aspiration level so that he tends to choose courses of intermediate difficulty; prefers intermediate risk situation; has a strong striving for upward mobility; persists for a long time when confronted with a task of intermediate difficulty;

has dynamic time perception; has a more distant future perspective; prefers a successful and competent friend as a work partner; shows more striving for recognition; prefers achievement related activities; has more positive feelings aroused by success than he has negative feelings aroused by failure; prefers activities which involve skill or competition; tends to engage in activities which may not be intrinsically satisfying but lead to distant rewards; is more independent in his interpersonal relationship and less susceptible to conformity pressures; and has been indulged less by his parents during his childhood. Low n Ach subject, on the other hand, has either relatively low or high aspiration level and tends to prefer either high or low risk situations; has less striving for upward mobility; persists for a long time at the extreme probabilities; has slight tendency to resume an interrupted task; has static time perceptions is less future oriented; prefers incompetent but sympathetic person as a task partner; has less concern for recognition; shows less preference for achievement related activities; has more negative feelings aroused by failure than he has positive feelings aroused by success; not attracted to activities which involve competition; prefers activities which are inherently gratifying and which do not necessarily lead to future gains; is less independent in his interpersonal relationships and more susceptible to conformity pressures; and has been indulged more by his parents during his childhood.

2. Analysis of the Behavior:

The basis of the behavior identified is the aspects of achievement motivation (n Ach) which have been mentioned elsewhere in the theory of achievement motivation. The behaviour identified, academic achievement motivation, may be efficiently evaluated using the instrument developed based on such description of behavior. There seems to exist the relation among such factors and the students involvement in the teaching-learning process. The tendency to strive for success in college studies, for example, is related

with the need for achievement (Atkinson, 1958). The need for achievement (achievement motivation) as Winterbottom (1958) explained has relation with man's overt behavior which may be explained in terms of his level of aspiration, his choice of task partner, his achievement related behavior and so on. In general these diverse factors which have been identified assumed to have relation with behavior-expressed through activity- and are organized in such a way that they can efficiently measure the academic achievement motivation of college students.

3/ Item Specification

- Subject to be tested:- College Students
/1st year diploma students/
- Attribute to be measured:- Academic achievement motivation
- Clustering of content areas

G R O U P	ITEM	ITEM NOS.
Group 1. Aspiration and risk-taking component		
- aspiration level	5	8, 14, 51, 54, 67
- risk taking behavior	5	31, 32, 33, 48, 52
Total	10	
Group 2. Feelings aroused by success and/or failure	4	19, 28, 57, 64
Group 3. Upward mobility	5	7, 13, 20, 26, 56
Group 4. Reaction to level of difficulty and interruption of tasks		
- Persistence	8	3, 5, 10, 27, 34 47, 50, 53
- Task tension	2	16, 24
Total	10	
Group 5. Time component		
- Time Perception	5	1, 2, 39, 42, 46
- Time Perspective	5	17, 18, 40, 41, 44
- Delay of gratification	3	36, 63, 65
Total	13	
Group 6. Intepersonal relation component		
- Task partner choice	4	21, 25, 43, 45
- Need for independence	3	59, 61, 68
Total	7	
Group 7. Behavioral component		
- Recognition of behavior	4	6, 9, 38, 60
- Achievement behavior	8	11, 12, 15, 22, 29, 35, 37, 49
- Competitive behavior	4	23, 30, 55, 58
Total	16	
Group 8, Parental indulgence	3	4, 62, 66
Grand Total	68	

NO.	I.T.E.M.	DOES THE ITEM (1) MEASURE AAM ?			TO WHICH GROUP DOES (2) THE ITEM BELONG ?			HOW STRONG IS THE ITI IN MEASURING THE BEH IOR		
		YES 2	? 0	NO 1	HIGH AAM 2	? 0	LOW AAM 1	VERY HIGH 3	AVERAGE 2	VEI LOV
1	When attending the class and /or studying an hour seems to me " a quite motionless ocean" rather than " a bird in flight."									
2	Studying in colleges and universties for about 2 to 5 Years is rather a waste of time.									
3	When I am given an assignment a little bit difficult, I enjoy finding Solution to it.									
4.	I want college admittance so as to make my parents' earlier expectation fulfilled.									
5.	I hardly enjoy the hardship of university / college education.									
6.	My friends consider me that I never take work seriously i.e. they likely consider me as couasal and carefree.									
7.	To prepare myself a longtime for an important task is necessary to succeed.									
8.	When I am working, the demands I make upon myself are very high.									
9.	If an assignment is given ^{by my} instructor, I usually set my heart on doing my best and making a favorable impression.									
10.	I usually tackle the easy problem first and do not worry about the more difficult ones.									
11.	I very much worry about not doing well in the class.									
12.	If I have not attained my goal and havn't done a task well then, I usually give up.									
13.	I play any game to win, not just for the fun of it.									

NO	I T E M	DOES THE ITEM (1) MEASURE AAM ?			TO WHICH GROUP DOES (2) THE ITEM BELONG ?			HOW STRONG IS THE ITEM(3) IN MEASURING THE BEHAVIOR		
		YES 2	? 0	NO 1	HIGH AAM 2	? 0	LOW AMM 1	VERY High 3	AVERAGE 2	VERY LOW
27.	When doing something difficult, I usually see it through.									
28.	If I failed several times consecutively, I would quit trying as harder next time.									
29.	I prefer to enroll in a course in which no grades are to be given.									
30.	If more people seek the same goal, I will try for it to the best of my ability.									
31.	When I suspect that there are going to be one or two questions on an examination from outside reading assignment, I allways read all the material.									
32.	I do not prefer to risk a little to make a lot.									
33.	Eventhough the probability of questions included in the test from outside is so little, I would like to read all related subjects from outside.									
34.	I can work at something without getting tired for a very longtime.									
35.	Other interests (sport, extracurricular activities, or hobbies) prevent me from obtaining an excellent mark for efforts in college work.									
36.	If I find the work has no immediate feed back but distant reward, I would rather not do the work.									
37.	I usually spend a great effort to get my assignments and paper work right.									
38.	I feel that my instructors think that I misbehave too much in the class.									

NO	I T E M	DOSE THE ITEM (1) MEASURE AAM ?			TO WHICH GROUP DOES (2) THE ITEM BELONG ?			HOW STRONG IS THE ITEM(3) IN MEASURING THE BEHAVIO		
		YES 2	? 0	NO 1	HIGH AAM 2	? 0	LOW AAM 1	VERY HIGH 3	AVERAGE 2	VER LO
39.	I sometimes wish I had gone straight to work than spending time in college after school.									
40.	The future is too uncertain for a person to make serious plans.									
41.	Since future success is based on current performance, I will do my best at college.									
42.	While in college, I usually feel the time is going too fast.									
43.	Partner with equal ability is necessary in life.									
44.	Satisfaction from college work will certainly be better in future.									
45.	I prefer to have friends who are hard working though not sympathetic.									
46.	I usually start performing homeworks and assignments as early as possible.									
47.	I usually enjoy the challenge of difficult problems.									
48.	I give attention to those activities which involve chance factors.									
49.	Rewards should be given regardless of effort or achievement.									
50.	I stick to an assignment until it is completed though it is dull and boring to me.									
51.	I often do something just to prove to my self that I can do it.									
52.	Even there is high risk of losing, I usually participate in gambling.									

APPENDIX B

SUMMARY OF THE JUDGES' RATINGS

1/ Does the Item Measure Academic Achievement Motivation?

Items Serial No.	SCALE VALUES GIVEN BY JUDGES									Scale Value	Q ₂	X
	001	002	003	004	005	006	007	008	009			
1	2	2	2	2	2	2	1	2	2	1.94	0.28	1
2	2	2	2	2	2	2	2	2	2	2.00	0.25	1
3	2	2	2	2	2	2	2	2	2	2.00	0.25	1
4	2	2	2	2	1	2	1	2	2	1.86	0.32	1
5	0	2	0	2	2	2	2	2	0	1.75	0.94	1
6	2	2	2	0	0	0	0	2	0	0.39	0.89	
7	2	2	2	2	1	2	2	2	2	1.94	0.28	1
8	2	2	2	0	2	2	2	2	2	1.94	0.28	1
9	2	2	2	2	2	2	2	2	2	2.00	0.25	1
10	1	2	2	2	2	2	2	2	2	1.94	0.28	1
11	2	2	2	0	2	2	2	2	2	1.94	0.28	1
12	2	2	2	2	2	2	2	2	2	2.00	0.25	1
13	0	2	2	2	2	0	1	2	0	1.61	0.90	1
14	2	2	2	2	2	2	1	2	2	1.94	0.28	1
15	0	2	2	1	2	0	2	2	0	1.75	0.94	1
16	2	2	2	2	2	2	2	2	2	2.00	0.25	1
17	2	2	0	2	2	2	2	2	2	1.94	0.28	1
18	2	2	2	2	1	2	2	2	2	1.94	0.28	1
19	0	2	2	2	1	2	2	2	2	1.84	0.32	1
20	2	2	2	2	1	2	2	2	0	1.84	0.32	1
21	0	2	2	2	1	2	2	2	2	1.84	0.32	1
22	2	2	2	2	1	2	2	2	2	1.94	0.28	1
23	2	2	2	2	1	2	2	2	2	1.94	0.28	1
24	2	2	2	2	1	2	2	2	2	1.94	0.28	1
25	2	2	2	2	1	2	2	2	2	1.94	0.28	1
26	2	2	1	2	1	2	2	0	1	1.54	0.57	1
27	2	0	0	2	2	2	2	1	1	1.61	0.71	1
28	2	2	2	2	2	2	2	2	2	2.00	0.25	1
29	2	2	2	2	1	2	2	2	2	1.94	0.28	1
30	2	2	2	2	2	0	2	2	2	1.94	0.28	1
31	2	2	2	2	2	2	2	2	2	2.00	0.25	1
32	2	0	2	2	0	2	2	2	0	1.75	0.94	1
33	2	2	2	2	0	2	2	2	2	1.94	0.28	1
34	2	2	2	2	1	0	2	2	1	1.75	0.50	1

Items Serial No.	SCALE VALUES GIVEN BY JUDGES										Scale		
	001	002	003	004	005	006	007	008	009	Value	Q/2	X	
35	2	2	0	2	1	2	2	2	2	1.84	0.32	15	
36	2	1	2	2	2	2	2	2	2	1.94	0.28	17	
37	2	2	2	2	2	2	2	2	2	2.00	0.25	18	
38	2	2	2	1	2	1	2	2	2	1.86	0.32	15	
39	0	2	2	2	1	2	2	2	2	1.84	0.38	14	
40	2	2	2	2	1	2	2	2	2	1.94	0.28	17	
42	2	2	2	2	1	2	2	2	2	1.94	0.28	17	
42	2	0	2	2	1	2	2	2	2	1.84	0.32	15	
*43	2	0	2	0	1	0	2	2	1	1.27	0.85	10	
*44	2	2	0	2	1	2	2	0	2	1.75	0.68	13	
45	2	2	2	2	1	2	2	2	2	1.94	0.28	17	
46	2	2	2	2	0	2	2	2	2	1.94	0.28	16	
47	2	2	2	2	1	2	2	2	2	1.94	0.28	17	
48	2	1	2	2	1	2	2	2	2	1.86	0.32	16	
*49	1	1	2	2	1	2	0	1	2	1.39	0.57	11	
50	2	1	2	2	1	2	2	2	2	1.86	0.32	16	
51	2	2	2	2	0	2	2	2	2	1.94	0.28	16	
*52	2	2	0	2	1	1	1	2	2	1.54	0.57	11	
53	2	2	2	2	0	2	2	2	2	1.94	0.28	16	
54	2	2	2	2	2	2	2	2	2	2.00	0.25	18	
55	2	1	2	2	1	2	2	2	2	1.86	0.32	16	
56	2	1	2	2	1	2	2	2	2	1.86	0.32	16	
57	2	1	2	2	1	2	2	2	2	1.86	0.32	16	
58	2	2	2	2	2	2	2	2	2	2.00	0.25	18	
59	2	2	2	2	1	2	2	2	2	1.94	0.28	16	
60	2	2	2	2	2	2	2	2	2	2.00	0.25	18	
61	2	2	2	2	1	2	2	2	2	1.94	0.28	16	
62	2	2	2	2	1	2	2	2	2	1.94	0.28	16	
63	2	2	2	2	2	2	2	2	2	2.00	0.25	18	
64	2	2	2	1	0	2	2	2	2	1.84	0.32	15	
*65	0	2	2	2	0	2	0	0	1	1.05	0.94	9	
*66	2	1	2	0	1	2	2	2	1	1.54	0.57	11	
67	2	2	2	2	2	2	2	2	2	1.94	0.28	16	
68	2	2	2	2	2	0	2	2	2	2.00	0.25	18	
Σ	120	119	123	123	86	119	125	128	118				
σ^2	.3858	.3051	.3311	.3017	.4299	.3934	.2238	.1920	.3711			5.504	

* Items dropped

Q/2 = Semi-interquartile Range (Quartile Deviation)

Σ = Summation

σ^2 = Variance

2) To which group does the item belong?

Item's Serial No.	SCALE VALUES GIVEN BY JUDGES									Median Value	X
	001	002	003	004	005	006	007	008	009		
1	1	1	1	1	2	1	0	1	1	1	9
2	1	1	1	1	1	1	1	1	1	1	9
3	2	1	2	2	2	2	2	2	2	2	17
4	1	2	1	1	0	2	0	1	1	1	9
5	0	1	0	1	1	1	2	1	0	1	7
6	1	1	1	0	0	0	0	1	0	0	4
7	2	2	2	2	0	2	2	2	1	2	15
8	2	2	2	0	2	2	2	2	2	2	16
9	2	2	2	2	2	2	2	2	1	2	17
10	0	1	1	1	1	1	1	1	1	1	8
11	2	1	1	2	1	0	2	2	2	2	13
12	1	1	1	1	2	1	1	1	1	1	10
13	0	2	2	2	2	0	0	1	0	1	9
14	1	1	1	2	1	1	0	1	1	1	9
15	0	1	1	0	1	0	1	1	0	1	5
16	1	1	1	1	2	2	1	1	1	1	11
17	1	1	0	1	1	2	1	1	1	1	9
18	1	1	1	1	0	1	2	1	1	1	9
19	0	1	1	1	0	1	1	1	1	1	7
20	2	1	2	1	0	2	2	2	0	2	12
21	0	1	1	1	0	1	2	1	1	1	8
22	1	1	1	2	0	1	1	1	2	2	10
23	2	1	1	1	0	1	2	1	1	1	10
24	1	2	1	1	0	1	1	1	2	1	10
25	2	2	2	2	0	2	2	2	2	2	16
26	2	2	0	2	1	2	2	0	0	2	11
27	2	0	0	2	2	2	0	0	0	0	8
28	1	2	2	1	1	1	1	1	1	1	11
29	1	1	1	2	0	1	1	1	1	1	9
30	2	2	2	2	2	0	2	2	2	2	16
31	2	2	1	1	2	2	2	2	2	2	16
32	1	0	1	1	0	2	2	1	0	1	8
33	2	2	1	2	0	2	2	2	2	2	15
34	2	2	2	2	0	1	2	2	0	2	13
35	2	2	0	1	0	1	1	1	1	1	9
36	1	1	1	1	2	1	1	1	1	1	10

Item's Serial No.	SCALE VALUES GIVEN BY JUDGES									Median	X
	001	002	003	004	005	006	007	008	009	Value	
37	2	2	2	2	2	2	2	2	2	2	18
38	2	2	1	0	0	0	1	1	1	1	8
39	0	1	1	1	0	1	2	1	1	1	8
40	1	2	1	1	0	1	1	1	1	1	9
41	2	2	2	2	0	2	2	2	0	2	14
42	2	0	2	2	0	2	1	2	2	2	13
*43	1	0	2	0	0	0	1	2	0	0	6
*44	2	2	0	2	0	2	1	0	2	2	11
45	2	2	2	2	0	2	2	2	2	2	16
46	2	2	2	2	0	2	1	2	2	2	15
47	2	2	2	2	0	2	2	2	2	2	16
48	2	1	1	1	0	1	1	1	1	1	9
*49	0	1	1	1	0	1	0	0	1	1	5
50	2	1	2	2	0	2	1	2	2	2	14
51	2	2	2	2	0	2	1	2	2	2	15
52	2	1	0	1	0	0	0	1	1	1	6
53	2	2	2	2	0	2	2	2	2	2	16
54	2	1	1	2	2	0	2	2	2	2	15
55	2	1	2	2	0	2	2	2	2	2	15
56	2	1	2	2	0	0	2	2	2	2	13
57	1	1	1	1	0	2	1	1	1	1	9
58	2	2	2	2	2	2	1	2	2	2	17
59	2	2	2	2	0	2	2	2	2	2	16
60	2	2	2	2	2	0	2	2	2	2	16
61	2	2	2	2	0	0	2	2	2	2	14
62	2	2	1	1	0	0	1	1	1	1	9
63	2	2	1	1	2	1	2	2	2	2	15
64	2	2	2	0	0	2	0	2	2	2	12
*65	0	2	2	1	0	1	0	0	0	1	6
*66	2	1	2	0	0	2	1	2	0	1	10
67	2	2	2	2	2	2	2	2	2	2	18
68	2	2	1	2	2	0	2	2	2	2	15
Σ	100	98	90	92	45	86	90	96	84		
σ^2	.5138	.3642	.4297	.4420	.7532	.5770	.5130	.3893	.5623		13.6815

$$Y = \frac{68(165) - (97)(106)}{\sqrt{68(163) - (97)^2 \cdot 68(182) - (106)^2}} = \frac{11220 - 10282}{\sqrt{1675 \times 1140}} = 0.6788$$

$$t = \frac{Y \sqrt{N-2}}{\sqrt{1-Y^2}} = \frac{7.56}{\sqrt{1-0.4588}} = 7.56$$

$P < 0.01$

3) How Strong is the Item in Measuring the Behavior?

Item's Serial No.	SCALE VALUES GIVEN BY JUDGES									Scale		X
	001	002	003	004	005	006	007	008	009	Value	Q/2	
1	3	2	3	2	3	2	0	3	2	2.39	0.5650	20
2	3	3	3	3	3	3	3	2	3	2.94	0.2800	26
3	3	2	3	3	3	3	3	3	2	2.86	0.3200	25
4	2	2	3	3	0	1	0	3	2	2.02	1.0000	16
*5	0	2	0	2	3	3	3	1	0	2.05	1.3450	15
*6	2	2	3	0	0	0	0	3	0	0.50	1.2050	10
7	3	2	3	3	0	3	2	3	2	2.61	0.5650	21
8	3	2	3	0	2	2	3	2	2	2.25	0.49500	19
9	3	2	2	3	3	3	3	3	2	2.75	0.4350	24
10	0	3	2	3	3	2	2	2	2	2.20	0.4250	19
11	3	3	0	0	3	0	2	3	2	2.27	1.3450	16
12	2	2	3	2	3	2	2	3	3	2.39	0.4900	22
*13	0	3	3	3	3	0	9	2	0	2.06	1.44	14
14	3	2	2	3	3	3	0	3	2	2.61	0.5650	21
*15	0	2	3	0	3	0	2	2	0	1.68	1.1850	12
16	1	2	3	2	3	3	2	3	3	2.61	0.5650	22
17	3	3	0	3	2	3	2	3	3	2.75	0.4950	22
18	3	2	3	1	0	3	2	3	3	2.61	0.7050	20
19	0	2	3	3	0	3	2	3	3	2.61	0.7050	19
20	3	2	3	3	0	2	2	3	0	2.35	0.6800	18
21	0	3	3	3	0	3	3	2	3	2.75	0.6800	20
22	2	2	3	1	0	3	2	3	2	2.14	0.6000	18
23	2	3	3	3	0	3	3	3	3	2.86	0.3200	23
24	2	2	3	2	0	3	2	2	2	2.08	0.3750	18
25	2	3	3	3	0	2	2	3	3	2.61	0.5650	21
*26	3	3	0	3	1	3	2	0	0	2.06	1.3450	15
*27	2	0	0	3	3	3	0	0	0	0.50	1.3950	11
28	2	2	3	3	3	2	2	3	3	2.61	0.4900	23
29	2	3	2	2	0	3	1	3	3	2.35	0.6800	19
30	3	3	3	3	3	0	2	3	2	2.75	0.4950	22
31	3	2	3	2	3	3	3	2	3	2.75	0.4350	24
*32	2	0	2	2	0	3	2	1	0	1.64	1.3450	12
33	3	3	3	3	0	3	2	2	2	2.61	1.1300	21
34	3	3	2	3	0	2	2	3	0	2.34	0.68	18
35	3	2	0	3	0	2	2	2	2	2.00	0.45	16
36	3	2	2	3	3	3	2	3	3	2.75	0.4350	24
37	3	2	3	3	3	3	2	2	3	2.75	0.4350	24

Item's Serial No.	SCALE VALUES GIVEN BY JUDGES									Scale		
	001	002	003	004	005	006	007	008	009	Value	Q/2	X
38	2	3	3	0	0	0	3	2	2	2.02	1.2550	15
39	0	2	2	2	0	3	3	3	3	2.35	0.6800	18
40	3	2	3	2	0	3	3	3	2	2.61	0.5650	21
41	3	3	3	3	0	3	3	2	0	2.75	0.6800	20
42	3	0	1	2	0	3	3	3	3	2.61	1.1400	18
*43	2	0	2	0	0	0	2	2	0	0.51	0.9900	8
*44	2	2	0	3	0	2	2	0	2	1.80	0.9950	13
45	3	2	2	3	0	3	3	2	3	2.61	0.5650	21
46	2	2	3	3	0	3	2	3	2	2.39	0.6800	20
47	3	3	3	3	0	3	3	3	3	2.94	0.3300	24
48	2	2	2	3	0	3	1	2	2	2.00	0.4500	17
*49	0	1	2	3	0	3	0	0	2	1.05	1.1700	11
50	3	2	3	3	0	3	2	3	3	2.75	0.4950	22
51	2	2	1	2	0	3	3	3	3	2.35	0.6800	19
*52	3	2	0	3	0	0	0	2	1	1.05	1.1700	11
53	3	3	3	3	0	3	3	3	2	2.86	0.3200	23
54	2	3	3	3	3	3	2	2	3	2.75	0.4350	24
55	3	2	2	2	0	2	3	3	3	2.39	0.5650	20
56	3	3	1	3	0	0	3	2	2	2.27	1.0900	17
57	2	2	3	3	0	2	3	2	2	2.20	0.4950	19
58	3	3	2	3	3	2	3	3	3	2.86	0.3200	25
59	3	2	2	3	0	2	3	3	3	2.61	0.5650	21
60	3	3	2	2	2	0	3	2	3	2.39	0.5650	20
61	3	2	2	3	0	0	3	3	2	2.35	0.6800	18
62	3	2	2	2	0	0	2	3	2	2.20	0.4800	16
63	1	2	2	3	3	3	3	2	2	2.39	0.5650	21
64	3	2	3	0	0	3	0	3	3	2.61	1.3950	17
*65	0	2	2	2	0	3	0	0	0	0.50	1.0550	9
*66	2	2	2	0	0	2	2	1	0	1.61	0.8950	11
67	3	3	3	3	3	3	3	3	2	2.94	0.2800	26
68	3	2	3	3	3	0	3	3	3	2.86	0.3200	23
Σ	153	150	153	161	76	148	142	161	136			
σ^2	1.0404	0.5370	0.9816	0.9972	1.8662	1.3218	1.003	0.7619	1.1765			19.6442

APPENDIX G

RELIABILITY ESTIMATES OF THE RATINGS

The reliability estimate of the ratings given by more than two judges could be obtained from coefficient alpha () where scorers are treated as items (Cohen et al., 1988)

$$r_{\alpha} = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma_i^2}{\sigma^2} \right)$$

The reliability of the ratings for the three questions were obtained.

(1) Does the Item Measure Academic Achievement Motivation?

Judges (K)	R	SR	S_R^2
001	120	0.6211	0.3858
002	119	0.5524	0.3051
003	123	0.5754	0.3311
004	123	0.5493	0.3017
005	86	0.6557	0.4299
006	119	0.6272	0.3934
007	125	0.4731	0.2238
008	128	0.4382	0.1920
009	118	0.6092	0.3711
		Σ	2.9339

Where, R= the sum of the ratings given by the judges to all items

S_R^2 = Variance of the ratings given by the judge to all items

S_X^2 = Variance of the total score

Rating reliability

$$r_{\alpha} = \left(\frac{K}{K-1} \right) \left(1 - \frac{S_R^2}{S_X^2} \right)$$

Where X = the sum of the ratings given by all judges to each item.

$$S_X^2 = 5.5041$$

$$r_{\alpha} = \left(\frac{9}{9-1} \right) \left(1 - \frac{2.9339}{5.5041} \right)$$

Rating Reliability = 0.5996

2. To which group does the item belong, "High AAM" "?", or ".Low AAM"?

Judges (K)	R	S_R	$\frac{2}{S_R}$
001	100	0.7168	0.5138
002	98	0.6035	0.3642
003	90	0.6555	0.4297
004	92	0.6649	0.4420
005	45	0.8679	0.7532
006	86	0.7596	0.5770
007	90	0.7162	0.5130
008	96	0.6239	0.3893
009	84	0.7499	0.5623
		Σ	4.5445

$$S_x^2 = 13.6615$$

Rating Reliability

$$r_\alpha = \left(\frac{9}{9-1} \right) \left(1 - \frac{4.5445}{13.6615} \right)$$

$$r_\alpha = \underline{\underline{0.7508}}$$

3) How strong is the item in measuring the behavior?

Judges (K)	R	S _R	S _R ²
001	153	1.0200	1.0404
002	150	0.7328	0.5370
003	153	0.9908	0.9816
004	161	0.9986	0.9972
005	76	1.4093	1.9862
006	148	1.1497	1.3218
007	142	1.0046	1.0093
008	161	0.8729	0.7619
009	136	1.0847	1.1765
		Σ	9.8119

$$S_x^2 = 19.6442$$

Rating Reliability

$$r_\alpha = \left(\frac{9}{9-1} \right) \left(1 - \frac{9.8119}{19.6442} \right)$$

$$r_\alpha = \underline{\underline{0.5631}}$$

APPENDIX D

ITEM-TEST CORRELATION OF ACADEMIC ACHIEVEMENT

MOTIVATION TEST ITEMS

Items Expressing High Academic Achievement motivation			Items Expressing low Academic Achievement Motivation		
No.	r_{tri}	$r_{tri} \sqrt{S}$	No.	r_{tri}	$r_{tri} \sqrt{S}$
33	0.4300	0.3870	12	0.5104	0.4160
35	0.4324	0.3263	32	0.4007	0.3759
48	0.3764	0.3172	10	0.4390	0.3755
53	0.3970	0.2863	15	0.4632	0.3730
54	0.5136	0.2576	31	0.3444	0.3006
7	0.4095	0.2565	13	0.3374	0.2795
26	0.4854	0.2425	17	0.3421	0.2757
37	0.3972	0.2324	14	0.2897	0.2706
38	0.3370	0.2324	39	0.2644	0.2460
5	0.3867	0.2227	28	0.2544	0.2460
41	0.3622	0.2150	22	0.3788	0.2373
3	0.3162	0.2101	23	0.3150	0.2371
30	0.3642	0.2060	51	0.2622	0.2362
27	0.2632	0.2056	1	0.2381	0.2128
34	0.2852	0.2038	20	0.2307	0.1971
6	0.2295	0.1850	19	0.3286	0.1892
9	0.1643	0.1358	8	0.2010	0.1764
43	0.2434	0.1314	29	0.2226	0.1724

No.	r_{tri}	$r_{tri} \bar{U}_g$	No.	r_{tri}	$r_{tri} \bar{U}_g$
40	0.1462	0.1308	11	0.1891	0.1476
42	0.1588	0.0801	18	0.2143	0.1450
55	0.0851	0.0672	52	0.2023	0.1307
16	0.0555	0.0525	4	0.1441	0.1277
25	0.0537	0.0405	2	0.2426	0.0889
45	0.0376	0.0308	46	0.0445	0.0370
50	0.0316	0.0280	Items Selected		
36	0.0528	0.0398	1) Items expressing high academic achievement motivation		
47	0.0527	0.0476	$r_{tri} \bar{U}_g \geq 0.2101$		
24	0.1161	0.0614	2) Items expressing low academic achievement motivation		
44	0.0834	0.0754	$r_{tri} \bar{U}_g \geq 0.2362$		
21	0.1832	0.09			
49	0.4339	0.3739			

Based on these item reliability & item test correlation, 12 items expressing high academic achievement motivation and 13 items expressing low academic achievement motivation were selected and then combined to form the final inventory. The reliabilities of this inventory were reported.

APPENDIX E

RELIABILITY OF MPI

The reliabilities of E and N scales were computed for 42 subjects included in the test tryout.

The correlation between the two scales:

$$\begin{aligned}
 r_{EN} &= \frac{n \sum X_E X_N - (\sum X_E)(\sum X_N)}{\sqrt{n \sum X_E^2 - (\sum X_E)^2 \cdot n \sum X_N^2 - (\sum X_N)^2}} \\
 &= \frac{42 (24682) - (1062)(1012)}{\sqrt{42(29432) - (1062)^2 \cdot 42(26822) - (1012)^2}} \\
 &= \frac{-38100}{105298.4} \\
 &= \underline{\underline{-0.3618}}
 \end{aligned}$$

E - Scale

Split half reliability

$$\begin{aligned}
 r_{x_1, x_2} &= \frac{42(490) - (1)(54)}{\sqrt{42(685) - (1)^2 \cdot 42(450) - (54)^2}} \\
 &= \frac{20526}{32618.9} \\
 &= 0.6293
 \end{aligned}$$

Spearman Brown Stepped up
full length reliability

$$\begin{aligned}
 r_{11} &= \frac{n r_{x_1, x_2}}{1 + (n-1) r_{x_1, x_2}} \\
 &= \frac{2(0.6293)}{1 + 0.6293} \\
 &= \frac{1.2585}{1.6293} \\
 &= \underline{\underline{0.7724}}
 \end{aligned}$$

KR 20

$$\begin{aligned}
 r_{xx} &= \frac{K}{K-1} \left(1 - \frac{\sum_{g=1}^K [(P_g + Q_g) - (P_g - Q_g)^2]}{\sigma_x^2} \right) \\
 &= \frac{24}{24-1} \left(1 - \frac{18.9878}{60.5471} \right) \\
 &= \underline{\underline{0.7163}}
 \end{aligned}$$

Coefficient alpha

$$\begin{aligned} r_{\alpha} &= \frac{k}{k-1} \left(1 - \frac{\sum_{g=1}^k \sigma_g^2}{\sigma_x^2} \right) \\ &= \frac{24}{24-1} \left(1 - \frac{21.3689}{81.3946} \right) \\ &= \underline{\underline{0.6803}} \end{aligned}$$

N - Scale

- Split-half

$$\begin{aligned} r_{x_1, x_2} &= \frac{42(435) - (-4)(4)}{\sqrt{42(942) - (-4)^2 \cdot 42(854) - (4)^2}} \\ &= \frac{18286}{32949.5} \\ &= \underline{\underline{0.5550}} \end{aligned}$$

Spearman Brown Stepped
up full length reliability

$$\begin{aligned} r_{11} &= \frac{2(-.555)}{1 + 0.555} \\ &= \frac{1.1099}{1.5550} \\ &= \underline{\underline{0.7138}} \end{aligned}$$

- KR 20

$$\begin{aligned} r_{xx} &= \frac{24}{24-1} \left(1 - \frac{20.8696}{58.7148} \right) \\ &= \underline{\underline{0.6868}} \end{aligned}$$

- Coefficient alpha

$$\begin{aligned} r_{\alpha} &= \frac{24}{24-1} \left(1 - \frac{21.8975}{59.4541} \right) \\ &= \underline{\underline{0.6592}} \end{aligned}$$

APPENDIX F

ITEMS PREPARED FOR TEST TRYOUT

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
(Department of Educational Psychology)

General Direction

This booklet consists of three parts. Part one deals with the background information of the respondent. Part two contains items designed to measure academic achievement motivation of college students, and part three contains items dealing with the way you behave, feel and act.

The objective of the Questionnaire is to get some relevant first hand information about academic achievement motivation and the personality type of college students.

The information obtained from the responses of the items will not be used for other purposes but for research. Therefore, there is no need of being secretive in your responses.

The respondent's full name will not appear in the booklet. But for the researcher's convenience in analysing the data you are kindly requested to write:

1. The first letters of your name, father's name, and grand father's name respectively, and
2. Your ID. NO.

Except part I (i.e. Part II and Part III) each part has its own specific direction. Please, complete all the items according to the instruction given in the questionnaire. Your FRANK and HONEST response for each and every item has practical and valuable significance for the proper accomplishment of the study. The researcher appreciates your sincere responses.

Thank you for your kind Cooperation!

QUESTIONNAIRE CODE NO. _____

PART ONE
BACKGROUND INFORMATION

- 1.1. Write the first letters of your name, father's name, and grand father's name respectively.

(e.g. A student with name Kebede Alemu Belachew should write as KAB)

ID..NO. _____

- 1.2. The area you came from
Region _____ Kefitegna _____ Kebele
(Peasant Association) _____
- 1.3. Sex _____
- 1.4. Age _____
- 1.5. Date of birth _____ (month & Year E.C)
- 1.6. Before you were admitted into the college, Were you a _____ regular student?
_____ Night student? _____
Private student? _____ other Specify

- 1.6.1. If you were a private or a night student were you a worker?
_____ Yes _____ No.
- 1.6.1.1. If a worker, your occupation _____

1.6.1.2. Work experience (in years) _____

1.7. How many times have you taken E.S.L.C.E? _____
once. _____ Twice _____ Three or
more times.

1.7.1. What is the year? _____ (E.C)

1.8. Is the college of your choice ? _____ Yes.
_____ No.

1.8.1. If not, which college was your first choice?

1.9. Your present department _____
Year. _____ First. _____ Second.
GPA. _____ First Semester _____
Second Semester _____ CGPA

1.10. Is the department of your choice? _____
_____ No.

1.10.1. If not, which department was your choice?

1.11. What is your general attitude towards the
teaching profession?
_____ Very good _____ Fair
_____ Very Poor
_____ Good _____ Poor

PART TWO

ACADEMIC ACHIEVEMENT MOTIVATION SELF-REPORT INVENTORY

Direction

Here are some items about academic achievement/^{motivation}(AAM) of college students. In all items you are requested to answer on the five point scales. Choose one of the following:

STRONGLY AGREE (SA) OR

AGREE (AG) "

UNCERTAIN (UN) "

DISAGREE (DA) "

STRONGLY DISAGREE (DA) based on the extent to which an item explains your behavior.

There are no RIGHT or WRONG answers. It is simply a measure of your opinion regarding the behavior explained in each item. So you are kindly requested to mark " X " under your choice on the basis of what you feel and act in your life situation. Answer all the items TRUTHFULLY but QUICKLY. The whole items should not take you more than a few minutes. Don't spend too much over any question.

Thank You!

ITEM'S NO. I T E M S		RESPONSE CATEGORIES				
		SA	AG	UN	DA	SDA
1	When attending the class and/or/ studying an hour seems to me "a quite motionless ocean" rather than "a bird in flight!"					
2	Studying in college and universities for about 2to5 years is rather a waste of time.					
3	When I am given an assignment a little bit difficult, I enjoy finding solution to it.					
4	I want college admittance so as to make my parents expectation fulfilled.					
5	To prepare myself a long time for an important task is necessary to succeed.					
6	When I am working, the demands I make upon myself are very high.					

ITEMS NO.	I T E M S	RESPONSE CATEGORIES				
		SA	AG	UN	DA	SDA
7	If an assignment is given by my instructor, I usually set my heart on doing my best and making a favorable impression.					
8	I usually tackle the easy problem first and do not worry about the more difficult ones.					
9	I worry very much about not doing well in the class.					
10	If I have not attained my goal and haven't done a task well, I usually give up.					
11	I am a pretty average student. I will never be particularly a good STUDENT, so there is no point in striving to be something I am not					
12	If I was called from my homework to watch television or listen to the radio, then afterward I would find it very difficult to begin again.					
13	I am not so strongly future oriented in any of my academic work.					
14	There is no point in trying to do things in a hurry since a future is uncertain.					

ITEMS NO.	I T E M S	RESPONSE CATEGORIES				
		SA	AG	UN	DA	SDA
15	Failure discourages me from trying as hard as possible the next time.					
16	I would rather be a leader in a small group than to be just a member in a large group.					
17	I like to select my friends from among those whose abilities are generally below my own.					
18	I would like to take courses in which no tests were to be given					
19	I don't prefer to attend a courses which involves skills & competition.					
20	When I begin somethint to do, I seldom carry it to a successful completion.					
21	I prefer to have friends who perform at least as equal as I perform.					
22	If I faild several times consecutively, I would quit trying as harder next time.					

INTEMS NO.	I T E M S	RESPONSE CATEGORIES				
		SA	AG	UN	DA	SDA
23	I prefer to enroll in a course in which no grades are to be given.					
24	If more people seek the same goal I will try for it to the best of my ability.					
25	When I suspect that there are going to be one or two questiones on an examination from outside reading assignments I always read all the material.					
26	Evethough the probability of ques-tions included in the testfrom outside is so little,I would like to read all related subjects from outside.					
27	I can work AT SOMETHING WITHOUT getting tired for a long time.					
28	Other interests (sport,extracurr-icular activities or hobbies) prevent me from obtaining an excellent mark for efforts in college work.					
29	If I find the work has no immed-iate feedback but distant reward I would rather not do the work.					

ITEMS NO	I T E M S	RESPONSE CATEGORIES				
		SA	AG	UN	DA	SDA
30	I usually spend a great effort to get my assignments and paper work right.					
31	I fell that my instructors think that I misbehave too much in the class.					
32	I sometimes wish I had gone straight to work than spending time in college after ashool.					
33	The future is too uncertain for a person to make serious plans.					
34	Although the future seems uncertain I will do my best at college.					
35	While in college,I usually fell the time is going too fast.					
36	I prefer to have friends who are hard working though unsympathetic.					
37	I usually strat performing homeworks and assignments as early as possible.					
38	I usually enjoy the challenge of difficult problems.					

ITEMS NO.	I T E M S	RESPONSE CATEGORIES				
		SA	AG	UN	DA	SDA
39	I give attention to those activities which involve chance factors.					
40	I stick to an assignment until it is completed though it is dull & boring to me.					
41	I often do something just to prove to myself that I can do it.					
42	Regardless of its level of difficulty I always continue to work on my goal until I achieve it.					
43	I should set my goals as high as I CAN easily reach.					
44	It bothers me if another student makes better grades than I do.					
45	I enjoy being one of the class leaders or representative.					
46	If I lose several times consecutively, I will quit trying.					
47	I always prefer to do a task or an assignment without any assistance.					
48	If I am given lower marks than other students it makes me unhappy.					
49	I regard myself as a more consistent & hard worker in my classroom assignments than other students in my class.					

ITEMS NO	I T E M S	RESPONSE CATEGORIES				
		SA	AG	UN	DA	SDA
50	It is better to fail than asking favor to pass.					
51	I believe that my parents expect of my performance is more important than what I expect for myself.					
52	I often responsive to assignments whose feedback is immediate.					
53	Students should be more concerned about success in college than avoiding feelings of failure.					
54	I have a very strong desire to excel academically.					
55	I would rather work on a task where I alone am responsible for the final product than one in which many people contribute to the final product.					

PART - THREE

MADUSLEY PERSONALITY INVENTORY (MPI)

Instructions.

There are some questions regarding the way you behave feel and act. After each question is ^a space answering "yes", "?", or "no".

Try and decide whether "yes" or "No" represents your usual way of acting or feeling. Then mark "x" in the space under the column headed "yes" or "No". If you find it absolutely impossible to decide, mark "x" in the space headed "?", but use as answer only occasionally.

Work quickly and don't spend too much time over any question we want your first ^e reaction, not a long drawn out thought process. The whole questionnaire should not take more than a few minutes. Be sure not to omit any question work quickly, and remember to answer every question. There are no right or wrong answers and it is not a test of intelligence or ability, but simply a measure of the way you behave.

NO	I T E M S	RESPONSE CATEGORIES		
		YES	?	No
1	Are you happiest when you get involved in some project that calls for rapid action?			
2	Do you sometimes feel happy, sometimes depressed, without any apparent reason ?			
3	Does your mind often wander while you are trying to concentrate ?			
4	Are you inclined to be quick and sure in your actions ?			
5	Do you usually take the initiative in making new friends ?			
6	Are you sometimes bubbling over with energy and sometimes very sluggish ?			
7	Are you frequently "lost in thought" even when supposed to be taking part in a conversation ?			
8	Would you rate yourself as a lively individual ?			
9	Would you be very unhappy if you were prevented from making numerous social contacts ?			
10	Are you inclined to be moody ?			
11	Do you have frequent ups and downs in mood either with or without apparent cause ?			

No.	I T E M S	RESPONSE CATEGORIES		
		YES	?	No
12	Do you prefer action to planning for actions ?			
13	Are your dreams frequently about things that can never come true?			
14	Are you inclined to keep in the background on social occasions ?			
15	Are you inclined to ponder over your past ?			
16	Is it difficult to "Lose yourself" even at a lively party ?			
17	Do you ever feel "just miserable" for no good reason at all ?			
18	Are you inclined to be over conscientious ?			
19	Do you often find that you have made up your mind too late ?			
20	Do you like to mix socially with people ?			
21	Have you often lost sleep over your worries ?			
22	Are you inclined to limit your acquaintances to a select few ?			

NO	I T E M S	RESPONSE CATEGORIES		
		YES	?	No
23	Are you often troubled about feelings of guilt ?			
24	Do you ever take your work as if it were a matter of life and death ?			
25	Are your feelings rather easily hurt ?			
26	Do you like to have many social engagements ?			
27	Would you rate yourself as a tense or "highly-strong" individual ?			
28	Do you generally prefer to take the lead in group activities ?			
29	Do you often experience periods of loneliness ?			
30	Are you inclined to be shy in the presence of the opposite sex ?			
31	Do you like to indulge in a reverie (day dreaming) ?			
32	Do you nearly always have "ready answer" for remarks directed at you ?			
33	Do you spend much time in tinkering over good times you have had in the past ?			

NO	I T E M S	RESPONSE CATEGORIES		
		YES	?	No
34	Would you rate yourself as a "happy go lucky (carefree) individual?			
35	Have you often felt listless and tired for no good reason ?			
36	Are you inclined to keep quiet when out in a social group ?			
37	After a critical moment is over do you usually think of something you should have done but failed to do??			
38	Can you usually let yourself go and have a hilariously (noisily happy) good time at a gay party ?			
39	Do ideas run through your head so that you can not sleep ?			
40	Do you like work that requires considerable attention ?			
41	Have you ever been bothered by having a useless thought come into your mind repeatedly ?			
42	Are you touchy on various subjects?			

NO	I T E M S	RESPONSE CATEGORIES		
		YES	?	No
43	Are you touchy on various subjects ?			
44	Do other people regard you as a lively individual ?			
45	Do you often feel disgruntled (discontented) ?			
46	Would you rate yourself as a talkative individual ?			
47	Do you have periods of such great restlessness that you can not sit long in a chair ?			
48	Do you like to play pranks (playful tricks) upon others ?			

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

Name: Daniel Tefera

Signature: 

Place: Department of Educational Psychology, Addis
Ababa University, Addis Ababa

Date of Submission: June 8, 1992