ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

RELATIONSHIP AMONG PERSONALITY TYPE, LEARNING STYLE AND ACADEMIC SUCCESS OF COLLEGE STUDENTS IN OROMIYA REGION

BY

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Abbreviations

AC	Abstract conceptualization
AE	Active Experimentation
CE	Concrete Experience
CGPA	Cumulative Grade Point Average
LSI	Learning Style Inventory
LSQ	Learning Style Questions
OEB	Oromiya Education Bureau
RO	Reflective Observation

ABSTRACT

Different research outcomes indicate that personality types and learning styles play a role in determining students' academic success. Therefore, the present study was aimed at the investigation of the effects of some personality type and learning styles on college students' academic success. More specifically, the major concern of this study was to examine the relationship between: i . Personality types and academic success, ii . learning styles and personality types, and iii . learning styles and streams. Moreover, it also tries to identify whether there is the most preferred learning style at college level and whether there is significant difference among learning styles.

For the study three hundred twenty nine second year college students were randomly selected from three educational colleges of Oromiya region. Data on personality types and learning styles were obtained from personality types and learning styles self-reported questionnaires administrative to these subjects. College record officers were consulted to get data concerning academic success of students.

Data were analyzed using Pearson product moment correlation, one-way analysis of variance and percentage. Then, the result of the statistical analysis obtained through correlation displayed non-significant relationship between personality types and academic success, significant relationship between introverted personality type and reflective learning style preference; and significant relationship between pragmatist learning style and natural science stream. The result obtained using percentage to differentiate the most preferable learning style at college level showed reflective learning style as the most preferred, while activist was identified as the least of all. One-way ANOVA was computed to see whether there is significant difference on student's academic performance and learning styles. But the result revealed no significant difference among learning styles.
It was concluded that personality types and learning styles alone may not significantly influence students' academic success at college level. Concerning learning style though there are differences in preference, it was also concluded that all types of learning styles have their own values and are worthy for academic success.

Finally, it was suggested that teachers should have an awareness of the existence of diverse learning style preferences among learners; so that they appreciate these diversity and use while teaching to benefit all type of learners.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Education improves one's ability to understand the world. It develops the capacity for critical and creative thinking to communicate effectively with things and human beings. Furthermore, it provides knowledge to deal with ever advancing technologies that are shaping the world and human needs. Innovations such as genetic engineering, computers and even the one's that have not been thought of yet; illustrate how rapidly the world is changing (Feldman, 2000).

No one knows what the future will hold. However, education can provide with the intellectual tool and prepare for it through learning. Through learning, it builds on one's natural curiosity about the world. If one makes the best of one's life in one's college learning he/she will develop a thirst for more knowledge and a lifelong need that can never be fully satisfied; and aware that learning is never ending Journey (Feldman, 2000). Therefore, to learn effectively, efficiently and to be fruitful, one should prefer the learning style that may fit his personality trait (Feldman, 2000).

Learners have different types of learning styles that are linked to a range of preferences from particular cognitive strategies to specific environmental conditions. These preferences are related to personality characteristics of each

individual. More specifically for instance, whether one likes to study or learn under bright or medium light, studying in the morning or evening and the like depends on an individual's personality type (Harvay et al., as cited in Elliot et al., 2000).

These learning styles are unique for individuals and often coincide with personality styles. They developed during various phases of life and consist of complex interaction of physical, psychological, environmental and situational variables (Kolb, 2000). They represent the cognitive, affective and psychological characteristics of an individual and are relatively stable indicator of how learners perceive, interact with, and respond to the learning environment (Marrison, 2004). They reflect the preferred manner of acquiring, using and thinking about knowledge. Learning styles represent the way of approaching tasks according to one's personal characteristics (Feldman, 2000). Each learning style is like an instrument in an orchestra. Therefore, students need to know what instrument is theirs and how they fit into the orchestra (Jody, 2003 cited in Vermunt, 2003)

The concept is that every individual student learns differently with differing rate using different learning styles. If one's learning style is accommodated, it can result in improvement of attitude towards learning that emanates from an increase of academic success. In other words, by identifying one's learning style, one will identify how he/she can learn best. Regarding this concept Taylor

and Bonsall, (1995) stated that, people are different in terms of personality trait, interest, and preferences, which results in different individuals can learn best in different situations. This preference of learning style depends on the individuals' personality types, previous learning experiences, purpose of learning, motivation, and the demand of the learning task.

Similarly, Ellis (1994) indicated that there is a handful of differences in the way that people learn. Everyone has his own unique patterns of feeling; thought and behavior, which is formed by fairly, stable combination of personality traits. As personality forms inclination towards certain characteristics in any given situation, personality traits are likely to influence attitude and behavior in information seeking and learning style (Briggs cited in William, 2004).

The above discusion implies that there is individual difference in personality type as well as in learning style that leads to the differences of academic success in each individual performance. The learning style suitable for one individual learner may not fit the same for the other learner. Some students feel comfortable with working in group, while others prefer alone and solitary activities; some value basic assumptions, principles, theories, models and systematic thinking, while others prefer to be practical down to the earth (Handy, 1994).

Hence, having the knowledge of one's personality type and learning style leads to the improvement of one's own thinking skills and problem solving strategies.

This paves the way for goodness of fit that results in both better success and adjustment in colleges. Besides, knowing one's learning style preference and one's personality type can help to plan for activities that take advantage of one's natural skills and inclinations. There by it is possible to be aware of the strength and weakness to capitalize on one's strength and to compensate for the weaknesses (Vermunt, 2003).

However, going through school without the knowledge of one's learning style that can fit best the type of personality may end up with feeling isolated or unskilled. Even if classroom environment seems right: materials are exciting, the instructor is stimulating and the work is enjoyable, but the environment does not match the preference of the learners' learning style, the learner feel out of place, unconformable and unable to do out best (Ellis, 1994).

This showsus that, students learn better when they use their personal learning preferences and teaching is also better when it uses a range of methods to address various preferences. Therefore, instructors should have considerable attention to these various individual differences while they are planning for teaching. Hence, paying attention for these different preferences while teaching helps the student to be effective and successful in their learning, which may in turn contribute for better academic success. This is why learning has been directed to the effect of personality, learning styles and motivation.

The way students perceive themselves and the way they account for their academic success and failure have strong bearing on their learning styles, motivation and their academic success (Brown, Bull, and Pendlebury, 1997). Since, success or failure is directly related to the learner's effort, learners who see effort and hard work as the reason behind their performance usually do better in college. This is why, when they are working on their assignments, they feel that the greater the effort they put forth, the greater their chance of success (Feldman, 2000). Success in college education is challenging and it needs more effort than that of secondary school education. This is because students are in learning environment where they are responsible for their academic performance. Concerning this Feldman (2000: p. 2) stated that:

> *Whether academic pursuits are a struggle or come easily to you... whether you live on campus or commute... whether you are fresh out of high school or are returning to school many years after High School Graduation College is a challenge. Every one of us has doubt of one sort or another about our capabilities, and motivation, and new situations like starting college make us wonder how well we'll succeed.*

This implies that, college is not the same with that of high school. Since it is new environment for the learners it may brings them novel challenge that may need effort and skills to adapt to it. This is because in moving forward each step of the learning process is usually accompanied by more and harder work.

Thus, to be successful, intellectual ability alone does not enough unless an individual uses his ability integrating with his learning styles that suits his

personality characteristics. Moreover, flexibility to adjust oneself to the new real situations to undertake new activity is also important. Besides, seeking out experiences that are drawn from the strength of one's style and adopting one's skills to the learning style of others is helpful to enhance effectiveness. Furthermore, a person is willing to scarify his time and effort to achieve higher goal and greater success, since success is won through the person's effort, though help, and guidance from others often make it easier or even possible ((Ellis, 1994; Hurlock, 2003).

Therefore, academic success that is measured by the ability to pass examination and graduate is not only dependent on abilities. But other factors such as sex, study habits (learning styles) and personality types are also have the power to hinder or facilitate success (Entwistle, 1972, Daniel, 1992). Hence, emphasis should be given to these variables to examine academic success of learners. Similarly, research also indicates that no learning style is better or worse than the other is, but crucial to academic success is matching one's personality type with learning style preference since they are interrelated to each other.

However, no significant attention is given to these variables for their contribution to the variation of academic success among individual learners in Ethiopian context. Hence, focusing on the interrelationship among these variables, this study will try to identify personality types and learning styles

preferences that have a paramount effect on learning outcomes/academic success

1.2. Statement of the Problem

Determining learning style has received much attention in reference to personality type of an individual because these variables may have an impact on academic success. Personality is likely to affect the view of one self, one's approach to studying and one's relationship with others. Similarly, learning styles have also been found to affect learning performance as well as learners' preferences and behavior. This shows potential overlap between personality and learning styles (Richard and Wigley, 1996). This overlap may contribute for students' academic success if it fits as a way it is needed. Therefore, it is essential to examine these variables in relation to academic success.

With regard to this idea (Felder, Felder, and Dietz; Godleski; and Rosati, as cited in William et al., 2004) indicated that there is relationship between personality and learning styles in reference to academic success. More specifically, Eysenck showed the relationship between personality and academic success. In his study of personality and academic relationship, he found that introvert personality type learners shows superiority to extrovert learners in academic performance (Entwistle, 1993). However, as far as the knowledge of the researcher is concerned there is no significant research result that shows the relationship among the stated variables especially in reference

to Oromiya educational colleges. Hence, to fill this gap the researcher will try to investigate the relationships between these variables.

Therefore, the purpose of this study is to assess the interrelationship between each of the variables, and their impacts on academic achievement of Oromiya educational Colleges.

Thus, the study tries to answer the following basic questions:

1. To what extent do different personality types correlate with academic success?
2. How far do learning styles and personality type correlate to each other?
3. Which learning style do college students most prefer?
4. Is there any significant difference among learning styles on the basis of academic success?

1.3. Objective of the Study

The general objective of this study will be to identify different learning styles that may fit different individual preferences in relation to one's personality type, which may in turn leads to success in academic achievement. The specific objectives of this study is therefore,

1. To assess whether there is difference between learning styles on the basis of academic success.
2. To investigate the most preferred learning style at college level.

3. To assess the relationship between personality types and academic success.
4. To assess the relation ship between learning styles and personality types.

1.4. Significance of the Study

Assessment of the relationship between personality type and learning style on academic success is an important issue to facilitate teaching-learning process, which may in turn helps learners to be successful in their academic performance. Even though there is no learning style appear to be better or worse than the other it is essential to know the style that best fit to one's personality characteristics (Milgram, Dunn, and Price; Dunn and Gariggs as cited in,Hanson, 1996).

As a result of this, the study tries to depict important theoretical as well as practical implications that may facilitate teaching-learning process. Although these interacting components appear to be among the current areas of research emphasis, as to the knowledge of the researcher the issue has received little (if any) attention to the context of Oromiya regional colleges. Furthermore, the study will be designed to examine important and unexplored research questions, which have an important effect on learner's academic performance as well as on teaching-learning process at the colleges. Hence, the results to be obtained are expected to have the following contributions:

1 It may help students to know their learning style preferences and identify their strength and weakness

2 It may help teachers to consider different learning styles, while teaching to match each learners styles

3 It investigates whether all learning styles are equally worthy in relation to academic performance.

4 It gives light to the curriculum specialist to structure the curriculum in a way it best suit to help different students to be successful.

5. It may serve as a springboard for those who have interest in the area for further study.

1.5. Delimitation of the Study

The study is delimited to Oromiya regional state because of time factor and financial limitation College level is taken as a focus on this study because in most cases some students were not much successful in their college courses.

The scope of the study is also delimited to three Teachers Training Colleges out of five Teachers Training Colleges. This is because, the background of the students in all these five colleges are more or less similar since they are distributed to each college proportionally from each zone by Oromiya Educational Bureau (OEB). Concerning personality types they are very wide and varied therefore the researcher is delimited himself to Jung's Introvert /Extrovert personality type to manage the variables of the study.

1.6. Operational Definition of Terms

Academic success: The learners' three-semester grade point average (GPA) in college.

Personality type: refers to the classification of subjects in to two types (extrovert, introvert).

Extrovert personality type: An individual with a type of personality that is interested to people and prefer to act with groups than to be alone.

Introvert personality type: an individual with a type of personality that is interested to be alone and with his thought rather than with people.

Learning style: Preferred manner of acquiring knowledge.

Activist: a type of learning style preference through active participation and group discussion.

Reflector: a type of learning style preference through observation and listening to lecture and more of independent work.

Theorist: a type of learning style preference through dealing with theories, concepts, assumptions and ideas.

Pragmatist: a type of learning style preference through work-based project, practical problem solving and laboratory experiments.

CHAPTER TWO

2. Review of the Related Literature

2.1. Theoretical Background OF Learning Styles

Learning is not finding out what other people already know but solving one's own problem for one's own purpose by questioning things and testing until the solution is part of one's life. Individuals learn differently through different styles that refer to expression of individuality including qualities, activities and behaviors sustained over a period of time (Handy, 1994).

In educational psychology style has been identified and recognized as a key construct for describing individual differences in the context of learning. One's personal style is therefore, the way in which that individual systematically and habitually responds to and work on a learning task (Sunny, 2001). The concept of learning style in education is important because it incorporates all human attributes, which help to determine and characterize a person's preferred approach to problem solving (Child, 1993).

There are no findings to suggest that students confined to learning in only one way, rather the existence of individual difference assure that no process ever quite the same even for two learners (Dressel, 1976 and Nelson, 1998). Based on this idea learning style research aims to account for individual differences according to the manner in which learners' process information from their environment (Clenton, 2003).

This means that individuals are unique impaling the way one approaches to learning is different from other personal style of learning. These preferences can be interrelated with personality characteristics and also it is believed to be derived in part from biological and physical characteristics of an individual. Moreover, it reflects developmental, cultural, and other experimental factors. For instance, students' preferences from working alone or in-group may be the result of familiar culture or personality characteristic tendencies (Eby, 1997).

Similarly, Niven (2002) stressed that there is no single learning style that will be prefect for every individual learner because of the complexity of human beings. Therefore, one's individual learning style affects the way one processes and assimilates information since individuals have unique approach to perceive and understand situations.

Indeed studies have addressed an exhaustive range of factors. Keefe as cited in Clenton (2003) highlights different components of styles including personality trait, attitude and psychological factors. Similarly, (Dunn et al., as cited in Clenton, 2003) claim that learning styles include such factors as individual response to sound, light, temperature, design, motivation, responsibility or conformity and need for structure.

Accordingly, with these diverse components there are a number of learning styles, which are stated by different authors. For instance, field dependent and

field independent cognitive styles or differences in the way an individual structure and analysis information. Holiest and serialist styles that manifest differences in the way people approach to learning and problem solving Deep and surface approach that involves active search for meaning and that relies primarily on attempt to memorize; and Kolb's learning style which are the combination of two bipolar dimensions of cognitive growth.

These imply that there is no one single style of learning in which learners' need is to be met. Learning styles are like finger points no two are alike (Carbo, Dunn and Dunn, 1991 and Eby, 1997). Learning style theorists point out that individuals vary in how they approach learning. According to Brooks (2002), values and beliefs, previous experience, social relationship and gender are some factors, which influence approach to learning. So, each style must be honored for its particular contribution and strength. Therefore, rather than focusing on one or two approaches of learning, educators should strive to develop all the various means that contribute to pupils' understanding of, and interaction with their world (Evans, Hamrick and Schuh, 2002).

To fully motivate students to learn new materials, it is also important to consider each student's particular learning style since learning style is the result of biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some, and ineffective for others. In other wards, each person has a particular pattern of

needs for optimum learning (Dunn, Beaundry and Klauas as cited in Eby, 1997).

However, diagnosing students learning style and providing unique set of experience for every student in the class is impossible, appreciating the fact that variation in learning styles exist and being flexible enough to allow students to work in the way they find most comfortable and productive is essential (Eby, 1997).

Learning style diagnosis and treatment is probably best accomplished by allowing students to make a choice. This choice depends on such factors as their interest in the topic, the nature of their academic motivation, the pressure others demands on their time and energy, the total amount of content in course, the way in which the task is introduced, and their perception of what will be demanded of them in subsequent evaluations or applications of the material (Handy, 1994).

Therefore, it is advisable to build an adaptable learning environment that present that material in the variety of the methods than try to determine each learner's personal style (Clark, 2000). This is because the core of learning style is a person's characteristic of personality. Hence, personality characteristics are the most stable and the least subject to change in response to intervention by research or instructor (Randall, 2004).

To analyze learning styles that may fit different individuals different researchers (Scameck, Ribich and Ramaniah, 1977; Entwistle, 1981 cited in Handy, 1994) have developed inventories of learning processes and study approaches. These were designed largely to gain insight to the varied style and approach employed by students in their internalization of cognitive materials. Accordingly, one of the most learning styles that attract researchers is Kolb, 1976 model of learning style. It was built on the work of cognitive psychologist and identified two dimensions a long which cognitive learning occurs and attracted considerable attention (Yoenl and Noilee, 1994).

As learning style includes cognitive, affective and physiological dimensions, cognitive styles appear to hold the greatest potential for yielding new understandings relevant to the educational process. Therefore, though the design of motivational strategies and the manipulation of environmental factors may indeed enhance learning, human cognitive is at the core of the learning process. Hence, the dimension of cognitive styles appears to be most relevant to variables associated with academic achievement (Obrine, Bernold and Akroyd, 1998). Moreover, cognitive style categories also apply to categories that describe various dimensions of personality (Delworth and Hanson, 1989).

Thus, knowledge of learning styles suggests the importance of using various presentation techniques in individual programming and training sessions (Lea and Leibowitz as cited in Evans, Hamrick & Schuh, 2002). Moreover,

introducing the concept of learning styles to students is another way of encouraging development to help students for better understanding of their learning preferences and strengths (Evans, Hamrick & Schun, 2002). On top of this, learning style information can help students to become better student. The more students know about their own styles the better they can study and have a better chance for their success. As a result, learning style information gives students a greater appreciation of their strength. It then, helps them become more deliberate in their learning (Randall, 2004).

2.1.1. Definitions, Concepts and Developments of Learning styles

Learning style, which is characterized as individual's preferences how to learn, has been defined by different authors differently. According to Carbo, Dunn & Dunn (1991) learning style is the way students are affected by their immediate environment, own emotions, sociological needs, physical characteristics and psychological inclination when concentrating and trying to master and remember new or difficult information.

This definition implies that learning styles are phenomenon in which students interact with various factors when they are on the process of acquiring and mastering knowledge using their own personal skills. Learning styles are also defined as general tendency to adopt strategic reaction to particular learning situation, which might be dependent on interest, and anxiety, which may linked

to the features of personality and motivation (Entwistle, & Fordas cited in Heineman, 1995).

According to (Claxton and Ralston as cited in Clenton, 2003 and Kolb as cited in Cornwell and Manferdo, 1994) learning styles are people's consistent way of responding; and characteristic tendencies for the understanding, processing information and experience in the context of learning. Hence, they are unique for individuals since they developed during various phases of life.

Learning styles are also seen as social interaction describing different role of students' plays in the classroom interaction with their peers, teachers and course contents (Fuhrman and Grasha as cited in Heineman, 1995). This concept emphasizes on the learners role and their interaction with different individuals or things in the process of acquiring knowledge. Hence, this interaction is processed through effective communication in reference to their experience and personality traits. In relation to this idea (Garger and Guild, as cited in Raven, Carton and shelhmer, 1993) defined learning style as stable and pervasive characteristics of individuals expressed through the interaction of one's behavior and personality in learning situations.

In general, from the stated definitions of the concept of learning styles, it is possible to say that, learning styles are the composite characteristics of cognitive, affective and psychomotor factors that can be influenced by different

factors such as environment, one's emotion or personality traits, but adopted and relatively stable across time and situations. Moreover, it is an individual's concentration, observation and retention of information or skills with effective communication.

The term learning style has been used in the literature during the past thirty years (Maran, cited in Badford, 2004). In relation to this concept (Theall, 2003) also stated that, the best-validated conception of learning styles stem from research began in Sweden in the mid-1970's by Ference Marton and Roger Saljo. Similarly, Randall (2004) stated that the term "learning style" first came into use when researchers began to search for specific strategies for matching course presentation and materials to students needs. From these concepts it is possible to assume that learning style concepts began to emerge in the literature in recent years.

The concept of styles, in relation to learning styles is referred to as cognitive centered, personality-centered and activity-centered approach. As a result the concept of learning styles is developed from the activity-centered approach conceptualizing and defining 'styles', whereas the concept of cognitive styles are developed from cognitive-centered approach. Then the concept of learning styles approach to have developed, to some extent, concomitantly, with the concept of cognitive style from research by psychologists into individual differences (Garcia and Hughes, 2000 and Hickcok, cited in Badford). Hence, the development of

the concept of cognitive styles preceded the development of the concept of learning styles (Dunn, cited in Bedford, 2004). Calxton and Murrele as cited in Badford (2004) also concluded that learning style is a concept broader than, and incorporates the concept of cognitive style, or cognitive style is the subset of the more comprehensive learning style.

However, there is confusion in the literature concerning the terms cognitive style and learning style in that numerous authors use the terms interchangeably. For instance, (Garity, 1985 cited in Heineman, 1995) noted that learning styles has been used as a description of cognitive process of thinking, perceiving and remembering. Therefore, most definitions of learning styles as well as cognitive styles illustrate variations in individual information processing. Hence, there is no single definition for learning style or cognitive style has been identified (McFadden, cited in Heineman, 1995).

Furthermore, cognitive style is involved in thinking and problem solving, while learning style points to preference in learning and studying, which really are the two sides of a coin. Therefore, it can be used interchangeably since no sharp distinctions exist between these terms (Snow et al., cited in Elliott, 2000).

2.1.2. Some Characteristics of Learning Styles

Learning styles, which are essential in acquiring knowledge, have their own characteristics. According to some scholars these characteristics of learning styles are stated as follows:

- Learning styles are proclivities or natural tendencies. They are preferred ways of processing information, not abilities to process the information (Baltes and Staudinger, 1996).
- Learning styles are not "good" or "bad" but rather matters of fit. What is good is to have a style that fits a given task or situation of learning. The same learning style that fits a certain task or learning situation may be poor fit to others. Therefore, no one can speak of styles of learning as generally better or worse (Baltes and Staudinger, 1996).
- Learning styles can vary across tasks, situations and life span. Though learning styles are relatively stable, they are not rigged or fixed throughout. But rather vary across tasks and situations as well as with age and maturity (Baltes and Staudinger, 1996). Mcwhorter (1996) also stated that, learning style is not a fixed unchanging quality. Just as personalities can change and develop so can learning styles change and develop through exposure or practice.
- People differ in strength of learning stylistic performance. It is obvious that there is individual difference that results in various learning styles. Some come out strongly toward certain styles and weak in other styles. Therefore, people are not necessarily clearly strong or weak in each aspect

(Mcwhorter, 1996; Balets and Staudinger, 1996).

- Learning styles are measurable. Research has demonstrated that teachers are able to identify only a few elements of their students learning style through observation; other elements are only identifiable through administration of reliable and valid tests (Beaty; Duna, Dunn and Prices; and Marus, cited in Hanson, 1996).

2.1.3. Factors that Contribute to Different Learning Styles

Learning styles may be as unique as handwriting and different from individual to individual depending on personality types. However, the challenge for educators is to distinguish the style, and shape instruction to meet individual learner needs. Hence, to overcome this challenge it is important to investigate factors that contribute to each individual learning style differences.

Different authors on their study stated that, there are at least three factors that contribute for different learning styles of an individual:

- **Cognition (information processing) factor**: It is thought to be brain's processing of information that distinguishes the way one senses, thinks, solve problems and remembers information. For instance, Kolb's learning style describes the process of learning and his model shows the process for receiving information. Each individual has preferred, consistent and distinct way of processing, organizing and retaining information. Some students rely heavily on careful observation in making judgment, and

slow to react, others dislike being passive and quick to respond some learners focus on attention narrowly and with great intensity, while others pay attention to many things at once. These and other information processing factors are all parts of the cognitive domain that contribute to different learning styles (Sadker, Sadker, 1997; Clark, 200 and Conner, 2002).

- **Affective (attitude) related factors**: are defined as personality traits relating to attention, emotion, values and how one motivates himself and sustain behavior. It is obvious that individuals bring different levels of motivation and drives to learning challenges. The intensity or lack of intensity of this motivation is a crucial determiner of learning style. Curiosity, which is the ability to tolerate and overcome frustration and the willingness to take risks is different from individual to individual learner that may result from differences in personality. For instance, some learners attribute success or failure to external, factors such as; "these problems were confusing", "the teacher did not review the material well", or my score was high because I made some lucky guesses". Others attribute performance to internal factors such as; "I do not study enough", or I did not read the direction carefully" (James and Blank, cited in Sunny, 2001;Sadker, Sadker, 1997). Hence, those who attribute their performance to external factors do not take responsibility for their behavior

- **Physiological factors**: it is biological based modes of response, which depends upon the physical environment, gender differences, and the individual state of nutrition and health. It represents the way one efficiently adopt data. Individuals are different in biological make up that result in various methods to react to situations. For instance, in learning situation some student can sit and persist for a long of period at one place while studying, which are related to introvert personality type while others are unable to settle and need to get up and move around, these are related to extrovert personality type. In addition, light, sound, temperatures and other factors to which students respond differently are based on their psychological development (Carbo, Dunn, Dunn, 1991; Sadker, Sadker, 1997;James and Blank, cited in Sunny, 2001).

Hence, individuals exhibit diverse styles of learning created by cognitive, affective and physiological differences among people. Therefore, identifying single preferred educational climate is impossible; since individuals differ so markedly in their learning styles, which may depend on one's personality trait. Moreover, no one processes information in exactly the same way. So, discovering how one is best processing information may help one to learn things efficiently and effectively.

2.1.4. Models Used to Describe Learning Styles

Varieties of learning style models evolved from educational psychologist Jung with the seminal classifications. John Dewey and Jean Piaget are also early contributors to these varieties of models. Based on these three authors wide varieties of systems were developed. They attempted to classify learning method in well-organized system with ample explanations and examples of each "type" of learner in the form of methods or models.

Models are systems that consist of styles in which individuals adopt themselves to situations. To adapt to situations one relies on personally constructed filters to create his perception of the world. These filters, which include age, experience, maturity, processing styles, psychological factors and cultures are influential factors of learning styles (Dunn and Stevenson, cited in Sunny, 2001). Due to these various influential factors, individuals tend to have unique approaches to perceive and understand their world. This is to mean that the world is rich in information and people have different styles or models in selecting and processing this information depending up on their personal characteristics.

O'conner cited in Lara (2004) explains that, since there are a wide variety of models used to characterize learning style, it is helpful to divide these models into descriptive categories. In relations to this concept Curry as cited in O'conner(2004) categorize learning differences in to four different layers of

'onion' to understand human variations. Moreover,(Rudd, Matt and Hoven, 2004; Randall, 2004; Claxton and Murrell, cited in Badford, 2004) also suggested that learning style models could be analyzed according to their relative focus on four dimensions of learning styles viz., instructional preference methods, social interaction models, personality models, and information processing models.

These models consist of different learning styles in each. However, these identified learning styles models are not discrete and each influences the other. More specifically these models are stated briefly as follows:

- **Instructional and environmental preference models:** It is a preference for primary sensory input source and learning environment features. It describes the outer most layer of the onion, which is the most observable trait. For instance as it was stated by O'conner (2004), Dunn,Dunn identify different dimensions that mark various preferences:

  -environmental preferences regarding sound, light temperature, and class design.

  -emotional preferences addressing motivation, persistence, responsibility and structure .

  -sociological preferences for private peer, team, adult, or varied learning relation.

- **Information processing model:** It is a psychological construct, which is related to perception, it also deals with how people take in and process information that can be conceptual or factual. For example, Kolb's (1984) model is primarily based on dimensions of information processing proclivities of learners. It also utilizes concepts of perception and of individually preferred learning behavior patterns (Randall, 2004 and Hickock, 1975 cited in Badfod, 2004). According to Curry it describes the middle layer in which information is obtained, sorted, stored, and utilized (O'conner, 2004)
- **Personality models**: It is a widely used instrument that can be used in understanding individual differences. It describes the inner most layer of the onion, the level at which one's deepest personality traits shape the orientations we take toward the world (O'connre, 2004).
- **Social interaction model**: In social interaction style students learn better insetting that meets their social emotional needs and in social situations that are attended to their predominant patterns of behavior. It shows how college students developed through different intellectual maturation level as they went through college. It is how epistemological strategies used by students varies by gender and by maturity and is responsive to the teaching contexts the student finds himself/herself in (O'connre, 2004).

Learning style models are important not only for the learners, but also for colleges to be more sensitive to the diversity of students to design a broad range of learning experiences to meet the need of the varied learning styles of the students to match learning with teaching (Randall, 2004).

When mismatches exist between learning styles of most students in class and the teaching style of the instructor, the students may become bored and inattentive in class, do poorly on tests, get discourage about the courses, the curriculum, and about themselves; and in some cases change to other curricular, or dropout of schools. Hence, the society loses potentially excellent professionals (Felder cited in Lara, 2004). Therefore, considering a wide varied individual difference that result in existence of different learning styles is important to fulfill the need of each individual learner, which may in turn overcome problems of student in mismatching learning with teaching. There by it is possible to reduce loss of potential learners that could be professional workers.

2.1.5. Kolb's Model of Learning Style

Kolb's (1984) learning style inventory is based on John Dwey's emphasis on the need for learning to be grounded in experience; Kurt Lewins', work that stressed the importance of a persons being active in learning and Jean Piaget's theory on intelligence as the result of the interaction of the person and the environment (Clark, 2000).

It is obvious that there is individual difference in various ways of life including the ways of learning. Consequently, Kolb's experimental learning style has been influential in describing individual differences in modes of adaptation and adjustment in learning (Kolb, 1974, Kolb and Fry, 1975; Kolb, Rubin and McIntyre, 1971 cited in Deciantis and Kirton, 1996). As a result, Clark, (2000) theorized that, Kolb's learning style is a four different stage process that involves concrete experience (CE) or feeling, reflective observation (RO) or watching, abstract conceptualization (AC) or thinking, and active experimentation (AE) or doing. In the same way, Handy, (1994) categorizes (Kolb's, 1976, 1984) models in to two bipolar dimensions of cognitive growth. These are the active and reflective, which ranges from direct participation in situation to detached observation; and the abstract-concrete, which ranges from dealing with tangible objects to dealing with theoretical concepts

ideas through discussion with others and they tend to solve problems intuitively, relying on others for information. Therefore, they are likely to learn most effectively through group work, discussions, and seminars, programs of short activities, workshops and study networks. Hence, they like to be with people and tend to be extroverts (Tylor and Bonsall, 1997 and Champan, 2004).

These learners are also called kinesthetic or tactile because they want to touch every thing while learning. For instance, tracing hands on books while reading. They dislike taking passive role in learning. However, they are not enjoying tightly constrained tasks or tasks where they have to assimilate and interpreter a lot of complex information. As a result, they likely learn least effective from lectures, laboratory classes (where the experimental method is prescribed), and reading and writing on their own. These people are often found working in marketing and sales. This learner's educational background is often in technical or practical fields such as business (Taylor and Bonsall, 1997 and Champan, 2004).

Activists are in general risk takers, constantly involved with other, get new ideas from others and then try several points. They are enthusiastic and use gut reaction in here and now situation. But they have no organization or goal setting. They act first and consider later. Moreover, they employ many project alternatives so it is impossible to carry them out. On top of this, they do not always tie up they are loose ends and can be over gregarious (Cox, 2004).

2.1.5.2. Reflectors:

Reflectors are also called the diverger. They like to learn using reflective observation and concrete experience. They like to think over the implications of what they hear or read before they act. They adopt 'wait and see' approach. They are thoughtful people who like to consider all possible angles and implications before making a move. They tend to be uncertain about what to do and this leads them to confer with other people to see what their opinion are (Handy, 1994;Champan, 2004 and Niven, 2002).

Reflectors like to stand back to ponder experience and observe from many different perspectives. They collect data, and prefer to think about it thoroughly before coming to any conclusion. The thorough collection and analysis of data about experiences and events is what count so they tend to postpone reaching definitive conclusion for as long as possible (Handy, 1994).

They prefer learning through lecture method that allows role impartial objective observers than contributing themselves. They prefer the back seat in discussion and listen to others to get the drift of discussion before making their own points. They enjoy the opportunity to work independently. Hence, these individuals tend to be introverts. They are also considered visual and auditory learners since they likely to learn most effectively through listening and

observing lecture, individual project work and independent study (Taylor and Bonsll, 1997 and Cox, 2004).

They look for instructors who are task maker and a guide. Their philosophy is to be cautious. They are imaginative and when they act, it is part of a wide picture, which includes the past as well as the present and others' observations including their own (Taylor and Bonsall, 1997).

As a result, they dislike being forced to contribute to discussion with out carefully considering all the events first; and they also do not enjoy being rushed from one activity to another. The reflectors are likely to learn least effectively from spontaneous activity, which does not allow time for careful planning and preparation (Taylor and Bonsall, 1997; Handy, 1994 and Champan, 2004).

People with this learning style tend to become counselors, organizational development specialists and personnel managers. They have broad cultural interest and tend to be specializing in arts (Cox, 2004).

Generally these kinds of individuals seek alternatives to create options and can wait for the best timing by looking things introspective. They watch to see how others cope and also they recognize stress symptom .On the other hand they wait too long before acting and cannot see the trees for the forest. They have

many ideas but not share. They may prefer subjects like History, English and Psychology (Cox, 2004).

2.1.5.3. Theorists:

Theorists are also called assimilators. They adapt and integrate observations into abstract but logically sound theories. They assimilate disparate facts into coherent theories. They tend to perfectionists who won't rest easy until things are tidy and fit into a rational scheme. They learn most effectively when dealing with assumptions, principles, theories and models. In thinking through step by step, they question assumptions and make rules from different cases. They are often more concerned with abstract concepts, issues and ideas (Taylor and Bonsall, 1997; Cox, 2004; Handy, 1994 and Ninen, 2002).

Theorists thrive on understanding and participating in complex situations. Their philosophy is prizes rationality and logic. "If it's logical it's good." "How does this fit with that?" and "what are basic assumptions?" They dedicated to rational objectivity rather than anything. Their effort goes into coherent pictures of complex situations. In doing this, they try to detached themselves from emotions and personal opinions. Their approach to problems is constantly logical; but they are less concerned with practical application of knowledge (Taylor and Bonsall, 1997; Cox, 2004; Handy, 1994 and Niven, 2oo2).

Theorists like a clear and definite purpose for their work. They like to learn most effectively through class problem discussion and questioning theories with peers and tutors; and reading and evaluating books and articles. However, they dislike being involved in unstructured situations with no obvious theoretical or conceptual framework. Furthermore, they are highly suspicious of subject materials without a sound methodological base (Taylor and Bonsall, 1997).

Theorists prefer certainty or objective facts and feel uncomfortable with subjective emotions and feelings. They are likely to learn least effectively from open-ended questions, explorative project works, and skill training. These people are often found in research and planning departments. Hence, this type of learning style is more characteristics of basic science and mathematics than applied science (Taylor and Bonsll, 1997and Cox, 2004). In general, they gather all facts, organize, review alternatives and calculate the probabilities. Then apply their past experience. However, they need much evidence before acting. Moreover, they approach risks too cautiously. They can also affected by experience (Cox, 2004)

2.1.5.4. Pragmatist:

Pragmatists are also called converger. They like to learn using abstract conceptualization and active experimentation such as laboratories, fieldwork and observations. They enjoy seeing how theory relates to practice. They enjoy learning practical techniques, which may be relevant to their subject area and

future employment. They like to reinforce what they have learnt through practical problem solving and like a clear guideline to work. Even if they like to be shown how to do things, they need to put their newly acquired knowledge (Taylor and Bonsall, 1995; Champan, 2004 and Niven, 2002). Hence, they are essentially practical, down to earth people who like making practical decisions and solving problems. They respond to problems and opportunities' as a challenge; and their philosophy is "There is always a better way" and "if it works it's good" (Handy1994). They are best at finding particular use of ideas and theories (Cox, 2004).

The pragmatist are likely to learn most effectively through work based project, work experience, practical problem solving and laboratory experiments. On the other hand, they dislike theoretical based learning situation where they cannot see practical application. Therefore, they learn least effectively from theoretical discussion and debates (Taylor and Bonsall, 1997).

These people are relatively unemotional, and they prefer to deal with things rather than people. They tend to be narrow technical interests and quite often choose to specialize in the physical sciences (Handy, 1994). They may deal with the world in concrete and direct manner, and might do well as an engineer or plumber but may do less as philosopher (Beutler and Groth, 2oo3).

To sum up, they are keen in trying ideas, theories and techniques, in using detective skills to get facts and evaluate options. Furthermore, they take the opportunity to experiment, set goals and act to meet them. They also work well independently. Contrary to this concept, they act without cautious, under value personal feelings, impatient and need full control. Moreover, they do not use other people effectively. This kind of people most of the time prefers Physics subjects as their major course (Cox, 2004).

Thus, (Kolb, 1984 in Evans, Hamrick and Schuh, 2002) stressed the importance of developing each component to ensure that individual can effectively use whichever one adopts in most appropriate to one's personality type and particular situations. Moreover, understanding of preferred learning styles may assist the development of appropriate learning opportunities (Niven, 2002). Kolb's learning style theory could be used to understand, predict and eventually plan for individual differences involving the pedagogical requirements of students (Kolb, cited in Cornwell and Manferdo, 1994). A major hypothesis of Kolb's learning style theory is that individuals use and prefer different learning styles that cross-pond to how effective and comfortable they are when learning. The most efficient and preferred learning method should be one that corresponds to the individual's primary learning style (Cornwell and Manfredo, 1994). To measure these learning style preferences, Honey and Mumford, 1986 has prepared learning style questionnaire (LSQ) depending up

on Kolb's learning style. This LSQ is believed to be reliable than Kolb's learning style inventory (LSI). Moreover, Kolb's LSI has no clear factors structure.

2.1.6. The Educational Importance of Learning Styles

The potential educational importance of information about students' learning style in college education is indicated in the conclusion drawn by (Marton, 1986 cited in Badford, 2004) from the result of several research studies. As identified, there are different relationships between the way in which an individual conceptualize learning, the process of attempting learning and the outcome of the individuals attempts.

Marton as cited in Badford (2004) described phenomenography as a research methodology for mapping qualitatively different ways in which people experience, conceptualize, perceive and understand various aspects, and phenomena in the world around them. This description of phenomenographic studies have considerable potential to yield in sight into how individuals have constructed particular aspects of their lives experience, or how individuals interpret their experience in a particular aspects of their lives such as their experience of studying or learning.

In college education, phenomenographic studies of how individual students engage with their study programs have potential to provide lecturers with in sight into the meaning that their students attribute to various aspects of the

programs. These insights may inform the lecturer on a range of matters, including the extent and value of interaction between specific aspects of the students learning styles and particular features of the study program (Badford, 2004).

The finding of (Marton, as cited in Badford, 2004) indicated that aspects of individual students learning a style relating to the way in which the individual conceptualizes learning and to specific learning process that individual characteristically attempts to use are interrelated, and that both of this aspects influence the learning outcomes that the individual achieves. With regard to this concept, some studies verified that students learn best when they can address knowledge in ways that they trust. This is to mean that individuals are different in various ways. Therefore, if students' orientation to the world draws theory from concrete experience, and active experimentation, they will like to learn best through doing by active participation rather than reflecting by watching. If the students' personal style is oriented around abstraction, conceptualization and reflective observation, then, they will learn best abstractly through reflecting.

Thus, educators should pay attention to different types of learning styles and tries to ensure programs that strike all psychological levels. This is because; individual learning style has a great influence on academic success. Therefore,

with in the fact that the existence of individual difference it is advisable to allow varieties of learning style that may fit each individual learner.

When learning something new or difficult one naturally tends to use the learning styles of one's preference. Hence, it is good to know what this learning style is so that one can respond most effectively to the material being presented. Even when the material is not presented in the way preferred prior knowledge of learning style is used flexibly to adjust, no matter who the instructor or what the topic is (Hopper, 2004).

To sum up, learning style preference in relation to personality type has an impact on academic success in that it may help students succeed in their interest if their learning style may match their preferences. Therefore, it is important to build an adaptable learning environment that present the material in a variety of methods than try to determine each learner's personal style. Likewise, recognizing the existence of different style in reference to different personality type will help to minimize intentionally force one learning method up on the learners. Hence, the more styles to be addressed, the easier the instruction to be received by the learner (Clark, 2000).

2.2. Theoretical Background of Personality Types

Psychologists developed several theories of personality to attempt to understand the recurrent patterns of human behavior. Some theories categorized people

according to their personality types, which are distinct patterns of personality characteristics. In a typology approach, people has been classified in terms of sociable behavior, value, interest, attitude and various features of biological constitution of particular similarities (Corsini, 1984 and Eysencks, 1997).

This theory contends that each individual has natural preference, which fails in to two categories and believed that each individual has a constitutional predisposition towards one of the two categories. In relation to this idea, Jung theory of typology is a widely known and most frequent in the literature surveyed categorize people in to two dimensions. According to this theory, men are all born with innate tendencies to be concerned primarily either with one's inner feeling or without side of the world (Baron, Earhard and Ozier, 1995).

Depending up on the above stated concept Jung categorizes personality into extrovert and introvert types. Then, he labeled extroverted personality type to the outward flowing personal energy (libido). Such people have an interest in their relationship with an event, people and things; and are dependent on them. Extroverted people are usually motivated by outside factors and greatly influenced by environment. They are socially engaging, active and confident in unfamiliar surrounding. They tend to be optimistic and enthusiastic. However, they show dependence on making a good impression, easily make and break relationships. They also have seen as superficial insincere (Jarchic, 2001 and Pervin, 1993).

On the other hand, introverted are labeled as an inward flowing personal energy, which is with drawl concentrating on subjective factors. Introverts are usually happy and also with a rich imagination and prefer reflection to activity. But they lack confidence in relation to people and things. Moreover, they are cautious because of this they are hesitant and tend to be unsociable, shy; and seen as egotistical and self-centered (Jarchic, 2001 and Prvin, 1993).

Jung's introversion- extroversion typologies, which he tended to think in terms of opposite polarities, arise from his conviction that there are stable patterns of personality characteristics. For the extroverts the outer world is the most important and they are active rather than passive. Introverts, on the other hand, resort more to the inner personal world and are given to introspection rather than action (Child, 1993; Aggarwal, 1995; & Danial, 1996).

Hence the dimension of introversion-extroversion seem to be a basic one and continuous to be subject of considerable amount of research, since both dimensions of personality types are different and have their own characteristics.

2.2.1. Description and Assessment of Personality Types

Personality type refers to categories that are distinct and discontinues. It has to be understood as individual form or a point of reference useful for describing and understanding individual to the extent they approximate (Corsini, 1984).

According to (Cohen et al., cited in Daniel, 1992), personality type is defined as, a constellation of traits and states that is similar in pattern to one identified category of personality with in taxonomy of personalities.

This definition shows that a group of individuals display distinct types of overt behavior that manifests their inward flow of energy or outward flow of energy. Hence, the classification of personality according to this definition is based on external and observed behavior of individuals. Basically one's personality type is derived from one's psychological preferences. This can be determined by the pattern of behavior that develop over time such as: how one reacts to one's environment, the style of communication, the way of interaction with friends and family, and the way one reacts to problems (Jannica, 2000). Hence, one's personality types can be assessed depending up on traits that are relatively permanent.

Traits are relatively enduring qualities of response tendencies of a person that forms a basic unit structure of an individual's personality. A person's personality then, can be viewed as a pattern of trait that are recognizable across situation and transcend varying situational demands. Therefore, traits are basic elements of personality and are vital to any attempt to assess or predict behavior (Schultz, All theories of 1986; Beutler and Groth, 2003).

Theories of personality assume that individual differences exist and these differences can be measured through personality assessment. This assessment procedure is done through gaining information about an individual through systematic devices under specified conditions in relation to specific stimuli (Pervin, 1970). Therefore, relevant data of an individual who is to be assessed is essential to know the effect of various components of situation on the behavior to identify the type of personality that individual possess.

Therefore, to assess extrovert and introvert personality type Eysenck (1982) personality type questionnaire is designed to be used. Hence, after identifying these personality variables it is possible to relate personality type of learners with their learning style preferences.

2.3. Learning Styles and Personality Types Relationships

Students have different learning styles. Different individual learner preferably focus on different types of information tends to operate on perceived information in different ways and achieve understanding at different rates. The match or mismatch between the instructors teaching and the way student learn has its own impact for level of student satisfaction in college (Hilliard, 2001).

Students whose learning styles are compatible with the teaching style of a course instructor tend to retain information longer, apply it more effectively, learn more, and have a more positive attitude toward the course and can be successful academically. It is obvious that students encounter different

teaching styles. Though, one cannot change the preferred style of learning to match a teaching style, one can take steps to actively increase one's ability to be successful in that course. Therefore, developing awareness of one's learning style preference that may best fit one's personal character can help to recognize strength and weakness of oneself. Hence, it is possible to work collaboratively with others more effectively. This in turn may lead for more academic success by developing strategies for more effective study, better time management, smooth communication, successful relationships and selecting courses. (Hilliard, 2001 and: //www. glendare. 2004).

Jung's theory of psychological type categorizes people into introvert extrovert dimension that can help to understand individual differences. Hence, this dimension may be essential in learning since personality type plays a role in identifying learning style (Danial, 1996, Cox, 2000). These personality types have different styles of learning and it is presented as follows.

2.3.1. Introvert Personality Type Learners

Introvert personality type students tend to focus on internal thought, feelings, or impressions. They draw their energy from their inner world of ideas, concepts, and abstractions. They are concentrators and reflective thinkers with the motto of "ready", "aim", aim, ... For introverted learners there is no impression without reflection (Harvey, 2004; Briggs, 2004). Introverted learners want to develop a framework that integrate or connect the information they learn to see the interaction of material (Handerson, 2002 and Clark, 2000). For

them knowledge means interacting materials, not disconnected chunks, which is merely information (Harvey, 2004).

Introvert personality type students learn best through quiet mental reflections. This is because their attention will naturally flow inward to their own thoughts, ideas and impressions, since they become aroused to action by what goes on in their own mind. They tend to enjoy reading, lecture and written over oral work in the classroom. They do well at verbal reasoning and need time for internal processing. When they study they enjoy listening to others talk about topics being studied and often feel uncomfortable in-group discussion and hesitate to speak (Williard, 2001, Lawrence; 1993 and Randall, 1995). This is because, they prefer to process ideas by thinking to themselves rather than by speaking to others. In classroom situation, they tend to speak only when they have process an idea rehearsed it and prepared to offer their idea to the group, since they are unable to formulate idea quickly enough to interject in the conversation. Moreover, they feel that their idea may be unconnected and make no sense in the conversation (Briggs, 2004).

However, by listening and internally processing what others say, they can summarize discussion or articulate an aspect that has been left out. They excel when they can work independently with thought through listening, observing reading, writing and independent laboratory work. They do well in courses requiring attention to detail activities requiring diligence and planning. They need sufficient time to complete their work and to think before answering a

question. They are more comfortable if they are not required to speak in class but allowed to voluntarily contribute (Handerson, 2002 and Hilliard, 2001). They actually enjoy participating in lovely, thought, provoking discussion as long as it is structured in away that it allow, contributing introvert learners (Briggs, 2004).

Though introvert learners have positive relationship with academic success at secondary and post-secondary school than extroverts, they are weak in social relationship, avoid others and secretive so that they may be misunderstood by others. They also may perform poorly in study group learning activities, in task requiring interpersonal communication, in social situations or in job requiring extensive contract with public (Handerson, 2004).

In general, introverted type students are cautious to avoid risks; think thoroughly before act, prefer silence than speaking, in most cases they dislike to be interrupted when working and prefer solitary activities. Hence, the reflective learning style of Kolb's (1984) type is the most comfortable type of learning style for them. Moreover, Kolb's pragmatist learning style in some extent can also relate to introverted learners learning style. The reason is that pragmatist learners enjoy learning through experimentation in laboratory work, which shares the same characteristics with reflective learners. Moreover, pragmatist learners are also less concerned with people as that of reflectors, having more attention to things that they are doing.

2.3.2. Extrovert Personality Type Students

Extroverted type individuals are attuned to the culture, people and things around them. They are out going, socially free, interested in variety and in working with people (Handerson, 2004 and Coates, 2001). They tend to focus on outer world of people, things, activity and energized by interaction with others. Extroverted types are like talking, participating, organizing and socializing. They are people of action and on the 'fly' thinkers, with their motto of "ready", fire "aim". For them, there is no impression with out expression. But they are impatient with slow tedious job and complicated procedures (Harvey, 2004 and Handerson, 2004).

Extroverted type students usually prefer to communicate more by talking than by writing and to learn by experiencing. Since talking helps their thoughts to become clear and understand the subject by explaining it to themselves or others. Moreover, their attention will naturally flow to wards external things and events, so that they learn by teaching others (Clark, 2000, Harvey, 2004). They do well with friends and will learn best if they study as if they are preparing to teach some one else (Hilliard, 2001; Lawrence, 1993 and Randall, 1995).

Extroverted personality type students work best in classrooms that allow them for discussion, talking and working with groups. Since they are action oriented, they do well with activities involving some type of physical activity. As they are

pulled in to social life, they may find it difficult to settle down, read or concentrate on homework. They sometimes find listening difficult and need to talk to work out their ideas. Therefore, they will find many college tasks such as reading and writing which is a solitary activity as a challenging task. It seems that for this fact academically they are not successful as introverts at secondary and post secondary school levels (//:www. glandale,2004 and Hilliard, 2001).

Extroverted personality type learners tend to plunge into new materials as their tendency is to act first and think later. They are also the first who act in answering questions in the classroom (Lawrence, 1993). In classroom extroverted type students are thrive when they are allowed time to think things through talking such as in classroom discussions or when working with another student. They excel with learning activities that have visible result and involve people in interaction. Since they are open-minded, they are well understood by other and performs well in study group learning activities, class participation, task requiring interpersonal communication or "hands on" work, social situations, or job requiring extensive contact with the public (Handerson, 2004 and Hilliard, 2001).

However, most extrovert cannot work without other people, need change, variety and impatient with routine activities. Extroverted personality type individuals may also have trouble in time management, following detailed or

extensive directions, independent study, monotonous or regimented tasks or task requiring planning like writing research paper (Henderson, 2004).

To sum up, extrovert personality students are the types of student that prefer activist learning style of Kolb's learning style since they can learn best through active participations. Furthermore, they are benefited by getting information from others since they are open-minded. On top of this, by charring discussions, delivering presentation and by being the center of attention, they learn much. Hence, though it is overlooked, knowing one's learning style preference and sharing that knowledge with others is important (Briggs, 2004).

2.4. Academic Success

Academic success is academic attainment that brings one closer to fulfilling one's goal and dreams. Success is not just reaching an end, such as being handed one's diploma. It is a process and occurs because it is aspired and worked to make it happen invariably it includes aspiration, effort and strategies for achieving better out come. Therefore, if one academically worked hard using different strategies for different subject and put his intellectual capability to full use one will succeed to his interest (Feldman, 2000 and Maden, 2001).

Success is a source of prestige, self-satisfaction and differential rewards, a means of evaluating performance and a goal toward which individual efforts is directed (Hurlock, 2001). Hence, the key to success is to make sure that planning is systematic, time management is crucial and organizing oneself is

essential. The best way to plan systematically is to use a goal setting strategies, which should be clear, direct, as well as realistic and attainable as to the capacity of an individual. This is because the perceived importance of task and the task importance related to future goal in the individual will increase the arousal of achievement motives, which leads to success (Halvari, 1997). Moreover, having a state of mind about things, attributing success to ability and hard work, and failure to lack of effort, talking appropriate risk level and persistent in the face of difficult tasks, curiosity and self-confidence including anticipation of success are the way to success and can contribute for improved performance (Daniel, 1992 and Feldmsn, 2000)

On top of this, self concept, which is one's view of one selfphysical, social and personal self are also other factors that affect one's academic success. Self-fulfilling prophecy, which is a tendency to act in accordance with one's expectation and belief, to increase the likelihood that event or behavior consistent with these expectation and beliefs will also has its contribution. In other words believing that something will happen can lead to actions that make it more likely it actually will happen (Feldman, 2000).

Researches have suggested that self-efficacy beliefs may play role in relation to cognitive enhancement. This might leads to increased use of cognitive strategies that in turn leads to improved performance to ward success. In relation to this

idea (Pajaroos, cited in Kinfe, 2004) has demonstrated that in college the beliefs students develop about their academic capabilities help determine what they do with the knowledge and skills they process. Consequently, their academic performances are in large part the result of what students actually come to believe they accomplished, are accomplishing and will accomplish in the future. Hence people with positive self esteem and positive perceived self-efficacy pursue a relatively high level of performance to ward anticipated success because they do not put off easily, even though they face difficult task (Slavin, and Ueruget, cited in Kinfe, 2004).

Self-fulfilling prophecy can have positive effect with one's view. A person who sees himself as a good student and prophesies will be motivated to study and complete assignments enthusiastically and his view of himself can therefore, bring about the expected behavior, in this case academic success (Feldman, 2000).

In reference to this concept (Davise, as cited in Daniel, 1992) stated that students perception of who he is , what he enjoy and what he can do or cannot do, his attitude and conduct in learning situation, affects his response on going learning which may affect the student performance and academic success. Therefore, regardless of intelligence, economic status and other social factors; interest, attitude engagement the desire to achievement with willingness to study constantly can also be the secret behind academic success.

Myers (1987) cited in Kinfe (2004) found that, students with academic achievement motivation tend to achieve higher grades to succeed with their sated goals. Apparently getting good grades is related to personality characteristics of need to achieve success academically. Individual with high need for achievement approaches achievement related activities so as to become successful in his/her academic work.

Motivation, the inner power and psychological energy that directs and fuels one's behavior is allow to persist even when the "guts rough". Therefore, the key to success in and out of the classroom is to tape in to harness, and direct that motivation (Feldman, 2000). Moreover, academic intrinsic motivation is positively related to success in achievement, since students who experience a great deal of academic intrinsic motivation should enjoy learning and show task persistence (A.E. Gottforied, 1985 cited in Workinhe, 2004).

McClelland, 1985 and Weiner, 1989 cited in Kinfe (2004) have showed that individuals who possess high academic achievement motivation have the motive to obtain high academic performance and show the need to manipulate their environment. These people are also action oriented. They have better planning ability and the interest to involve in demanding and challenging tasks. As a result, highly academic motivated individuals tend to obtain superior performance that leads towards success and satisfaction.

It is obvious that individual drive for achievement, one's belief and attitude towards learning can affect academic attainment toward success. The way in which one views the causes of success and failure is in fact directly related to one's academic success. Students who generally see effort work as the reason behind their performance are usually better in college. It is not hard to see why, when they are working on assignment, they feel that the greater the effort they put forth, the greater their chance of success will be (Feldman, 2000).

Students frequently explain outcome by referring to ability, effort, task factor, luck. Each of these factors has different motivational consequences. Of these attributions, the effort attribution is most likely to promote behavior learning to future academic success. Success and failure are believed to be controlled based on the effort on puts on tasks to be mastered. Therefore, a student who attributes his academic performance to the amount of effort invested would have the possibility of improving performance to reach at success (Weiner, 1989 cited in Kinfe, 2004). This is to say, perceived academic competence is a determining factor for academic success.

Similarly, (Gvay, Boivins and Hoges, and Mewman as cited in Workinhe, 2004) stated that students who perceive themselves as academically competent tend to display high level of task engagement that leads them to success academically. Here a student perception of himself, his ability, his needs to

achieve success and behaving in socially appropriate and responsible way such as being cooperative and helpfulness which may results in positive academic interaction with peers and teaches can also contribute for the student to be academically successful (Daniel, 1992). Therefore, success is not an easy task. It needs effort, strategies, patience and persistent in difficult tasks as well as responsibility to reach at it. Hence, individuals who are persistent and patient characteristics with tedious tasks may have positive relationships with academic success.

2.4.1. Relationship between Personality and Academic Success

Research shows that there is relationship between personality type and academic attainment. Predictions from Eysenck description of contrasting different personality type and from the experimental findings introverts show higher correlation with academic achievement based on the assumption that introvert learners would be more selfreliant and more prepared to study alone (Hoven, 2004). Moreover, introverts are more readily to maintain attention longer and to have better long-term recall than extroverts (Entwisthe, 1993).

Similarly, the early studies of (Furneaux; as cited in Entwistle, 1993) stated that introverts are more successful in higher education examinations. This advantage of introvert has been found mainly among older pupils and students in certain areas of study. While in younger age, extroversion is in variably related to academic success (Honess and Kline, 1974).

In primary school, Eysenck and Cookson found extroverts to be constantly ahead of introverts (Entwistle, 1993). Likewise, in a study of the relative advantage of extroversion and introversion at primary and secondary level (Wankoski, 1973 as cited in Hoven, 2004) found that, before puberty extroversion was associated with higher academic achievement with introversion being more dominant indicator after puberty. Furthermore, (Eysenck and Cook, 1969; Entwistle, 1972 cited in Anthony, 1977) stated that up to the age of 13-14 years extroversion score and ability score are positively correlated where as after that age the correlation becomes negative.

The explanation for the above reason was that after puberty or at high school and tertiary level, the nature of teaching-learning and testing approaches managed to favor introvert learners. In primary school, tasks were more often oriented towards group work, while at higher levels with greater subject specialization; the emphasis was more on individual work.

In relation to the above stated concept (Eysenck, 1972 cited in Entwistle, 1993) commented that, the informal 'bitty' nature of primary school instruction may suit extroverted students better; when instruction becomes more concentrated and serious, the extrovert interest begins to fade. In primary school where instruction was more formal, introverts were in fact superior to extroverts.

Therefore, from this evidence it is possible to guess that formal instructions are in favor of introverts. Besides, at secondary and college levels where the structure of teaching-learning process is more formal and emphasized on independent study it is expected to be more advantageous to introverts than extroverts.

Furthermore, Johnson, Pitt and Lane (2000) in their study of the relationship between personality traits, learning stile and academic achievement they found significant correlation between personality traits and academic achievement. Hence, more achievers were found to be more introverted, who are, mature, serious and socially precise than extroverted, who are warm, kind, willing to participate and expressive.

In like manner, from the study of psychological correlates of success in college. Balkin (1987) found that, the personality characteristics of successful students were described as responsible, confirming, independent and disciplined, which is more or less described the personality characteristics shown by introvert personality trait.

Another study that may confirm the superiority of introverts in academic success in secondary and post-secondary, as stated by (Harkin and Green, 1987 cited in Gleitman, 1996) was that introversion corresponds to higher level of central nervous system arousal than does extroversion. In effect introverts

are thought to be more awaken than extroverts. As a result, they are less distractible and better able to attain to task at hand.

As to Hayes (1998), extroverts are restless and find it hard to maintain concentrate for the task that need a long period of time since their attention fluctuates. (Lynnu Gordon, 1961 as cited in Daniel, 1992) stated that extroverts begin a task as efficiently as introverts but after sometimes they show a large amount of decrease when sustained attention is required. They are in short of vocabularies. Moreover, they are quick but inaccurate in tackling tasks or problems.

On the other hand, introverts are more likely to be concentrate for longer periods of time on boring vigilance tasks, since they have a longer span of attention and better long-term-memory than extroverts (Matthews and Deary, 1998; Child, 1993; Entwistle, 1993 and Hayes, 1998). The case of positive correlation between introversion and academic success at secondary or college level as measured by Eysenck scale is more substantial. Looking at the characteristics of extrovert, it is possible to imagine that he/she is at a disadvantage in academic pursuits. This is because if reactive inhibition is high, concentration in studious task will be taken over by involuntary rest periods while the vigilance suffers. As a result, during examination revision the extrovert will have difficulty in maintaining interest in what can be boring task (Child, 1993). It is thus, possible to argue that at least some of the association

between personality and academic success are worth serious consideration (Entwistle, 1993).

But contrary to this findings (Daniel, 1992; Halmaris and Power, and Heaven et al., as cited in Farsides and Woodfield 2003) reported that there is no significant relation ship between introverted personality type and academic success of undergraduate and second year students. As to their finding the reason behind was that personality variables alone without considering other factors such as intelligence and motivation can not be the best predictor of academic success.

Concerning gender, in primary school introversion is not as much advantageous for girls as it appears to be for boys. But in secondary education and higher education the connection has been established frequently. According to Cattell's personality scales, there is a tendency for academic success to be linked by age to certain introversion-extroversion traits (Child, 1973).

To sum up, it is important to be aware that personality characteristics play a significant role in the act of learning and in attitude towards the act of feeling. Hence, variation in performance are not entirely a question of intellect, motivation or thinking skills, but may also depend on the personal attributes which can enhance or inhibit the quality of that performance (Child, 1993). On

top of this, (Entwistle, 1972 as cited in Maqsua, 1980) suggested several variables such as ability, type of subject studied, classroom organization and size; teaching method and geographical area may have interaction with scholastic achievement and personality variables.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

This section describes the subjects included in the study: the sampling procedure, the instrument used, the procedure followed for data collection and data analysis.

3.1. Population and Sampling

3.1.1. Population

From data obtained in each college record office, the numbers of second year students were as follows: Nekemte 884 (463 males and 421 females), Adama 1170 (553 males and 617 females), Jimma 1016 (513 males and 503 females and Bale 853 (445 males and 408 females) and totally 3923 (1974 males and 1949 females).

3.1.2. Sampling

Out of the five teachers colleges of Oromiya region three were randomly selected. This is because students of each college have the same background since they are assigned proportionally to each college from each zone by OEB. Hence, it is believed that the selected samples can represent the population.

Before selecting the subjects included in the study, the population was stratified into four streams viz: language, mathematics, natural science and social science to get the representative sample of the population being studied. There is also assumption indicating personality type and learning style variation as a result of differences in the area of the field of study.

After such stratification, the sample was determined proportionally by the size of the population. Then, 360 students (180 males and 180 females) were randomly selected for the purpose of the study. Accordingly, Jimma 132 (66 males and 66 females), Nekemte 124 (62 males and 62 females) Adama 104 (52 males and 52 females) were selected randomly.However 329 questionnaries were properly filled.The three-semester cumulative grade point averages (CGPA) of 329 students those who properly filled the questionnaire were collected from each college record office.

Table 2: Distribution of the Sample of Students by Sex

	Target population			Sample		
	M	F	T	M	F	T
Nekemte	463	421	884	58	60	118
Jimma	513	503	1016	65	61	126
Adama	553	617	1170	40	45	85
Total	1529	1541	3070	163	166	329

Table 3: Streams and Sample Size

Streams	Sample		
	M	F	T
Language	38	46	84
Mathematics	41	39	80
Natural science	44	40	84
Social science	40	41	81
Total	163	166	329

The above table indicates no of samples taken from each stream.

3.2. Pilot study

A pilot study for the purpose of revising and determining the specificity, relevance and clarity of the instrument to create favorable working conditions in the study site was carried out on 48 students. The subjects were randomly selected from four streams and equal numbers of students were taken from each stream: language, mathematics, natural science and social science of Nekemete 2nd year students.

Out of 48 student responses, two were not returned and four failed to provide complete information and were rejected from the sample. Thus, the pilot study was conducted on 42 students.

The main study was conducted on 329 randomly selected 2nd year student from three colleges. The sampling was stratified in to four streams to minimize bias and, as much as possible, to get relevant information from these different streams. Then equal number of samples in sex from each stream was randomly selected. Hence, learning styles questionnaire (LSQ) and personality types questionnaires of self-inventory were administered within 50 to 65 minutes

3.3. Instrument

Two self-report questionnaires were administered to gather information concerning the independent variable under study. Namely, learning styles and personality types. The instruments were presented in Afan Oromo with the

consultation of individuals from the department of language and educational psychology regarding the agreements on both forward and backward translations. The questionnaires were translated into Afan Oromo and then back to English. Translation was made mainly to avoid language barrier and to make it easily understandable by students. Then to minimize response bias the items in both learning styles and personality types were put in random order.

3.3.1. Learning Style Inventory

To investigate the better preference of learning style of the learners, a Likert-type five scales ranging from very accurate of me to not very accurate of me that holds a score of 5 to 1, respectively, was prepared. The questionnaires were constructed by the researcher adopting the items from Honey and Mumford's 1986 learning style questionnaires (LSQ). Honey and Mumford's LSQ was based on Kolb's models that measures four types of learning styles and it was found to be preferable to Kolb's learning style inventory (LSI) for the following reasons: Honey and Mumford's LSQ has clear factor structure, more reliability, able to differentiate similar cognitive dimensions in to independent samples and also has better face validity (Allnson and Hayes, 1988, cited in Handy 1994). (Kirton, 1994 cited in Deciantis and Kirton, 1996) calculated Crombach Alpha for each scale and found modest coefficient: activist 0.76, reflector 0.76, theorist 0.67 and pragmatist 0.64 by further item analysis and removing the items that failed to contribute significantly to the homogeneity of sub-scales.

Table 4: Norms of the Raw Scores of learning style instruments

Learning Styles	Very strong preference	Strong preference	Moderate preference	Low preference	Very low preferenc e
Activist	43-50	37-42	28-35	16-20	12-14
Reflective	48-50	46-47	31-40	19-30	15-16
Theorist	40-50	34-38	22-32	10-21	10-13
Pragmatist	40-50	34-38	25-32	13-24	11-13

Source Handy (1994)

However, the preferences used in this study to categories pupil to their preferences are most of the "very strong preferences" and some of the "strong preferences". The scoring was done by adding the raw scores of all item in each scale and taking the highest score depending up on the stated scale boundaries of preferences. Hence, the maximum score was 50 in each case while the minimum was 44 for reflective, 41 for pragmatist and 36 for activist and.

Initially 56 items were adapted for the study but were reduced to 48 after expert comment on the usability of the items. After pilot test, 40 items that are most reliable ten for each sub-scale were selected and made ready for the main study.

Based on the response of the pilot group the psychometric adequacies of the four sub-scales were computed using Crombach alpha. The reliability of each sub-scale was found to be as follows: activist r = 0.66, reflector r= 0.64, theorist r=0.60 and pragmatist r=0.67.

3.3.2. Personality Type Inventory

Personality type questionnaires were developed from Eysenk (1982) personality trait. The scale has two sub-scales, introvert and extrovert with three scale points: yes, may be and no. Hence, appropriate items was selected adapted and improved to five scale points that ranges from all the time to not at all having the score of 5 to 1, respectively. This improvement was done to get more reliable information about an individual from each item.

For the first draft 54 items were developed and given to two graduate students from Educational psychology for their comment. Then after critical evaluation of the items they were reduced to 42 items and made ready for the pilot test. Based on the response of the pilot group 36 most reliable items whose reliability measures .71 were selected and used for the main study.

3.4. Data Collecting Procedure

After briefing the purpose of the questionnaires for the respondents, the two Afan Oromo version instruments were administered to the selected sample of students with the help of lecturers from each college. At the same time, the students' three-semester cumulative grade point average was collected from the record office of each college.

3.5. Data Analysis

To summarize the finding, the variables included in the study were described; and the method of data analysis was also explained as follows.

3.5.1. Variables Included in the Study

1. Personality types	X_1 – extrovert
	X_2 – introvert
2. Learning styles	X_3 – activist
	X_4 – reflective
	X_5 – pragmatist
	X_6 – theorist
3. Streams	X_7 – Language, Mathematics, Natural and Social Sciences.
4 . Academic success	Y- CGPA.

3.5.2. Method of Data Analysis

The response obtained from the students and their academic performances were analyzed using SPSS program. Hence, the completed questionnaires were marked and scores were assigned to each sub-scale of learning styles and personality types. Following the procedure of Honey and Mumford (1986), raw scores were computed for each sub-scale and individuals are differentiated to each sub-scales depending up on their high score, where as for personality type questions the mean score was used as a cut of point to differentiate the two personality types. The minimum score was 36 while the maximum score was

180, and 108 was the mean that was used as the cut of point between the two personality types.

Each and every question was scored on the extroversion sub-scale point. Scores above the cut of point were assigned to be more extroverted while those below the cut of point were assigned to be more introverted. Those individuals whose scores were exactly on the cut of point were rejected from the data since they were not part of one of the two categories.

- In order to describe the data descriptive statistical values such as mean, standard deviation minimum and maximum scores were obtained.
- To investigate the extent of the relationship between and among variables the Pearson product moment correlation coefficient was calculated.
- To examine whether or not there is significant difference in academic success on the basis of learning style one-way analysis of variance was computed.
- To know the most preferred learning style at college level percentage was used.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. Results

This chapter presents the result of the main study in terms of the basic questions, which the study has set out to test.

Table 5: Descriptive Values of the Independent Variables with respect to Dependent Variables

Variables		N	CGPA Mean	Minimum score	Maximum score	SD
Sex	M	163	3.1967	2.18	4.00	.4275
	F	166	2.767	2.07	3.94	.4599
	Total	329	2.9799	2.07	4.00	.4929
Learning styles	Activist	37	3.0732	2.12	3.93	.5321
	Reflector	122	2.9326	2.07	4.00	.5118
	Pragmatist	104	2.9666	2.12	4.00	.4827
	Theorist	66	3.0361	2.18	3.76	.4468
	Total	329	2.9799	2.07	4.00	.4929
Personality types	Introvert	172	2.9884	2.09	4.00	.5031
	Extrovert	157	2.9706	2.07	4.00	.4829
	Total	329	2.9799	2.07	4.00	.4929
Streams	Language	84	3.1666	2.25	4.00	.5233
	Mathematics	80	2.8766	2.21	4.00	.4722
	N. Science	81	2.9901	2.09	4.00	.4789
	S. Science	84	2.9065	2.07	3.93	.4407
	Total	329	2.9799	2.07	4.00	.4929

As it is seen from the table, the mean score of male sex 3.2 is greater than the mean score of female sex, 2.8. However, in the case of measure of learning styles, the four sub-scales were not far apart and each was nearer to the average mean.

In the case of streams, language and natural science were above the average mean while mathematics and social science were below the average mean. The standard deviation in the stream was similar except language, which was a little bit different from the rest as that of activist from the measure of learning styles. This indicates that there exists difference among the subjects regarding their cumulative grade point average. However, in most cases the distribution based on their standard deviation shows homogeneity of grade point average.

Table 6: Descriptive Values of Independent Variables (Personality Types and Learning Styles) on the basis of their Scores

Variables	Measures of scales	Mean	SD	N
Personality Types	Extrovert	116.9172	5.2452	157
	Introvert	101.9012	4.9425	172
Learning Styles	Activist	43.8378	2.4666	37
	Reflective	45.9508	2.5579	122
	Pragmatist	44.9808	2.8794	104
	Theorist	45.5152	2.8460	66

.As it can be observed from the table, the standard deviations of extroverts and introverts indicate the existence of relative difference among the subjects with regard to their responses to the items on the scales. But in the case of learning style measure scales relative homogeneity is observed.

Table 7: Intercorrelation among Independent Variables of Personality Types (Introvert and Extrovert) and Dependent Variable (Academic Success)

Variables	X_1	X_2	Y
X_1 (extrovert)	1.000		
X_2 (introvert)	-.020	1.000	
Y	.128	.067	1.000

The test for significance of correlations for N = 157, 172 and 329 with df = N - 2 at α = 0.05 of directional t-test revealed that there is no significant correlations between personality types and academic success. This shows that none of the personality type (introvert or extrovert scores) are significantly correlated with cumulative grade point average of the subjects. Hence, the result shows, no significant relationship between personality scores and the dependent variables (r_{x_1y} = .128, p > 05 and r_{x_2y} = .067, p>0.05, respectively. This implies that being introverted or extroverted is not a factor for success.

Table 8: Intercorrelation Matrix between Independent Variables of Learning Style Sub-Scales (Activist, Reflective, Pragmatist and Theorist) and Personality Types (Extrovert and Introvert) With Dependent Variable (Academic Success)

Variables	X_1	X_2	X_3	X_4	X_5	X_6	Y
Extrovert X_1	1.000						
Introvert X_2	-.020	1.000					
Activist X_3	-.074	-.028	1.000				
Reflective X_4	.094	.169*	.064	1.000			
Pragmatist X_5	-.068	.099	.242	.070	1.000		
Theorist X_6	.013	-.074	.218	-.018	-.310*	1.000	
Academic success Y	.128	.067	.248	.044	-.077	.004	1.000

*P< 0.05

The Intercorrelation among the independent variables for n = 157, 172, 37, 122,104, 66 and 329 with degree of freedom of N = 2 and alpha, α = 0.05 of directional t-test depicts that a significant relationship between introverted personality type and reflective learning style ($r_{x2x4=}$ .169, p<. 05). The two learning styles, theorist and pragmatist were also significantly correlated but negatively (r = -.310, P<. 05) which implies inverse relationship between them. The remaining independent variables are not correlated significantly hence none of the learning styles are related to either of the personality types except for reflective learning style and introvert personality type.

Table 9: Intercorrelation among Learning Styles (Activist, Reflective, Pragmatist and Theorist) and Students Academic Success By their streams

	1	2	3	4	5	6	7	8	9
1. Activist	1.000								
2. Reflectivist	.064	1.000							
3. Pragmatist	.242	.070	1.000						
4. Theorist	.218	-.018	-.310*	1.000					
5. Language	.105	-.106	-.110	.111	1.000				
6.Mathematics	-.265	.163	.060	-.166	-.162	1.000			
7. N. Science	-.185	-.073	.225*	-.007	-.124	.110	1.000		
8. S. Science	-.065	-.094	.178	.079	.057	.165	.102	1.000	
9. Academic success	.248	.044	-.077	.004	.077	-.021	-.005	-.304*	1.000

* P< .05

The result shows significant relationship between pragmatist learning styles and natural science stream (r = .225, p< .05). This implies that most of the natural science students were pragmatist in their learning style preference. The relationship between two learning styles (theorist and pragmatist (r= -.310, p <. 05) shows significant but negative relationship. This indicates the existence of difference in both learning styles. Hence, they are inversely related to each

other. Moreover, the correction between social science and academic success (r= -.304, P < .05) also reveals a negative but significant relationship, which implies inverse relationship between them.

Table 10: Learning Style Preference

Learning style measures	N	%
Activist	37	11.2
Reflective	122	37.0
Pragmatist	104	31.7
Theorists	66	20.1

As the distribution reveals, among the total respondents 37 percent were found as reflective, 32 percent were found as pragmatist, 20 percent were found as the theorist and 11 percent were found as activist.

As it indicated in the result, reflective is the most preferred style and pragmatist was second while activist is the last. This shows that at college level reflective learning style preference is the most preferred, while activist is the least preferred.

Results of One-Way ANOVA

One-way analysis of variance was carried out in order to see whether there is significant difference between learning styles on the basis of their academic success.

Table 11: **Summary of One-Way Analysis of Variance on Learning Style and Academic Success**

Source	SS	df	MS	F	W^2
Between groups	.822	3	.274	1.128	0.0012
Within groups	78.866	325	.243		
Total	79.687	328			

The result indicated that there is no significant difference (F (3,325), 0.05 = 1.128) between learning styles and academic success of student. As it can be seen from their mean four of the sub-scales are very nearer to each other. Hence, the variance accounted for academic success is 0.12 percent, which is very small.

4.2. Discussion

The main concern of this study was to examine the impact of personality types and learning styles on academic success of college students. Hence, depending up on the result it is presented in line with the major questions raised early in this study.

4.2.1. Personality Types and Academic Success

The result of this study regarding the relationship between personality types based on Eysenck's (1982) introvert/extrovert personality questionnaires and second year college students' cumulative grade point average is found not significant. The study discovered almost similar academic success and good result above average cumulative grade point and also an excellent cumulative grade point average (4.00) in both personality types. Moreover, each subject who grouped under both personality types do not significantly differ in terms of their cumulative average grade points.

Different researchers have also reported different findings on this issue. For instance, researchers like, (Fumeaux as cited in Entwistle 1993; Entwistle, 1993; and Vernon as cited in Daniel 1992; and DeBarbenzna and Montoya as cited in Farsides and Woodfield, 2003) suggested that introverts are at a head of extroverts and more successful in higher education examination. However, the result of this finding is not in line with the result obtained by these researchers.

But on the other hand, other researchers with whom this finding relates reported that no significant relationship was found between introvert personality type and academic success. For example, Daniel (1992) in his study of Kotobe teachers college, Halmandaris and power, 1999 cited in Farsides and Woodfiled 2003; Heaven et al., 2002, cited in Farsides and Woodfield, 2003 have found no significant relation ship between introverts and academic success of under graduate and second year clinical school students.

Furnham and Mitchell (1991) cited in Farsides (2003) similarly found that no significant relationship between introverts and a wide measure of academic success over four year among their samples of occupational therapy study. Moreover, (Ackerman and Heggestad's, 1997 cited in Farsides and Woodfield, 2003) also revealed no significant relationship between introverts and knowledge and achievement in his seven relevant meta-analysis studies.

Thus, from those researchers finding one can say that personality type alone with out considering other factors that can be the cause for success may not be the determinant of academic success. For example, Farsides and Woodfield (2003) in their finding stated that:

> *Intelligence and motivation are generally accepted as determinants of academic success. It has been Proposed recently that personality traits might also Predict such success, although to date empirical support for this proposition has been at best mixed." p: 1238.*

This implies that since intelligence and motivation are essential factors, they are accepted as determinants of academic success; but recently personality

variables might have been also considered as the predictors of academic success even though the issue of this personality trait is not clear.

In general as to researchers like Entwistle (1993), personality variables are among the factors that determine academic success of the learner. On the other hand, researchers like Daniel (1992); Halamandaris and Power as cited in Farsides and Woodfield,(2003) including this finding are not in line with personality types alone as determinants of academic success even though personality variables have their contribution depending on one's attitude, habit and preference. Since one's personality type is derived from one's psychological preferences, habit, attitude or idea that has been learned in an individual life, it is who, and how an individual reacts to his environment. Hence, different individuals have different personality types and different ways in which they react to their environments.

Accordingly, different individuals learn and acquire knowledge differently through their different ways of learning depend upon their personality type. For instance, extrovert personality type can learn by involving himself in conditions and by being active participants, while introvert can learn from the same thing through observation and reflection. Therefore, both can learn and acquire knowledge differently from the same thing. Hence, they both can succeed through their different mechanisms of learning even though their personality is quite different.

Moreover, since personality types are determined by the patterns of thinking and behavior that develop over a period of time, there may be different psychological preferences and patterns of thinking which are important in different academic areas. Therefore, students with different personality styles have different abilities for different activities. For instance (Clanch cited in Pervin, 1993) in his study of cognitive style and examination performance stated that abstract students were superior to concrete students in performance on essay examination, but not on multiple choice exam.

This implies that different personality types with different learning styles can have the ability to react to different activities differently. In other words, one may have more ability in something while less in another. Hence, different individuals who are different in personality type can succeed by applying their knowledge differently as their styles and preferences to the same activity and can be more successful in one activity while less in another.

4.2.2. Relationship of Learning Styles and Personality Types

The result of the finding shows that there is significant correlation between reflective learning style and introverted personality type. i.e. (r_{x4x2}= 0.169, p< 0.05). While the rest independent variables have no significant correlation with the dependent variables and with each other.

This indicates that reflective learning style learners are introverts in their personality type. Hence, this finding is in line with the literature, and Handerson (2001) supports it and Clark's (2000) ideas, which stated that, students with reflective learning style preferences, are introverted personality types. This is because they prefer to work with ideas and mental reflections rather than with people. Similarly, they prefer depth to breadth thought; rely heavily on careful observation and reflective thinking. Moreover, they prefer learning through lecture method, which allows them to observe and listen since they are more of visual and auditory. Such type of student with reflective preferences is independent and prefers independent study; self placed instruction and would prefer to work alone on courses than with others (Diaz and Cartnal, 1999).

This implies that learners who are reflective in learning style preferences are introverted personality types those who feel comfortable being alone and prefer solitary activities. Moreover, they prefer learning through reading the written materials, listening and observing lecture method of teaching and in dependent laboratory work.

As indicated in the result, the rest learning styles especially activist was not statistically significant and related to either of personality types. This is partly not in line with Clark's (2000) idea, which stated that learning style such as activist, and reflective preferences are related to extrovert and introvert

personality types, respectively. However, in this finding the result shows no significant relationship between activist and either of personality types. Hence, partly it is not inline with what the literature says.

In the case of the rest two learning style preferences, the literature did not categorize them under any of personality types. However, the researcher was tried to see whether they are categorized under either of personality types in his finding. But as it was indicated in the result non-of them are statistically significant. However, there was negligible relationship between theorist learning style and extrovert; ($r = .013$, $p > .05$) and pragmatist learning style and introvert personality type ($r = .099$, $p > .05$).

As a whole as to the literature introvert and extrovert personality types are related to reflective and activist learning style preferences, respectively. But this finding is partly failed to identify the relationship between activist learning style preference and extrovert personality type. This failure may be due the following reasons that could be explained as follows.

The failure of activist learning styles to have statistically significant relationship with extrovert personality type may be explained in relation to the limitation of learning styles questionnaires (LSQ) to measure these various learning style variables due to:

- Cultural factors. It is obvious that culture is different from country to country and from society to society. Moreover it governs one's reaction toward something and influences one's personal character by regulating an individual. In relation to this concept Previn (1993) stated that one's life is regulated by culture from the moment of birth to death whether one is conscious of it or not. Hence, there is constant pressure to follow certain type of behavior that others have created. For this reason using the learning style questionnaires that is constructed and standardized in one culture may not be effective in other cultures.
- Adaptation and translation: adaptation and translation of one language to the other language also may have its own impact and can cause lack of similarity of direct meaning and concepts.
- Reliability of the instrument: it is true that reliability is the most important factor to make one instrument valid. As it is indicated in the methodology part the reliability of these learning styles were not high from their origin. After a pilot test was given and even if items that were not in consistent with the majority of items were dropped, the reliabilities did not go beyond substantial level. Therefore, it may have its own influence for the result.

- Respondents. The response of respondents may also have its own problem. Hence, lack of sound judgment and insight in answering the questions can be considered as a cause. Moreover, unwillingness of

respondents to be frank and reveal anything they suspect that may put them in a negative light might have contributed for such result.

Moreover, the researcher is in lack of findings that associate learning styles, personality types and academic success to compare with or to relate to the result. However, the partial difference between what the literature says and this finding may be attributed to the stated reasons.

4.2.3. The Relationship between Learning Styles and Streams

As the result of the finding indicates, there is a significant relationship between pragmatist learning style and natural science stream ($r = .225$, $p < .05$). This implies that students in the natural science stream were more of pragmatist in their learning style preference. Hence, this finding was related to (Handy, 1994; Tylor and Bonsall, 1997; and Beutlers Groth's 2003) which stated pragmatist were like to learn most effectively through practical problem solving and laboratory experiments and they prefer to deal with things rather than people. Moreover, they deal with the world in concrete and direct manner and most of the time they prefer physics subjects as their major course (Cox, 2004).

According to the literature most learning styles like reflectivist, theorist and pragmatist were related to social science, basic science and natural science streams, respectively. Thus, as it was stated above, natural science stream and pragmatist learning style were significantly correlated. But the other streams

and learning styles are not significantly correlated; rather they are negatively correlated.

Thus, this finding was partially not in line with what the literature says. Therefore, though it is difficult to judge because of the lack of other research findings concerning the specific area to relate or to compare with the partial inconsistence of this finding with what the literature says may be due to the limitation stated above.

4.2.4. Learning Style Preferences

The result shows that out of 329 second year samples of college students, a large number of samples were found to be as a reflective and pragmatist which is 122 (37%) and 104 (32%) respectively. But a small number of samples 37 (11%) was found to be as activist.

This finding shows that reflective and pragmatist learning styles were the most types of learning styles that were preferred by college student population, while activist was the least.

Similarly, (Cornwell and Pamela, as cited in Ronan, 1996) also found in their study that being activist or feeling is not preferred by college students, so that the number of samples who preferred to be activist were very small. According to

their finding abstract conceptualization (theorist) was the most preferred style than others. But in this study theorist was found to be third stage.

Diaz and Cartnal (1999), in their study of learning styles and preferences on 227 third year students found that 102 (45%) were classified as pragmatist while 48 (21%) were classified as activist. Ronan (1996) in his finding out of 97 college students 71 of them were reflectors while activist is the least of all.

As it was seen in most findings, activist learning style was not much preferred by college student population. This may be due to the reason that at college level, the work is more of individual than in-group and it may need deep and thorough thinking than tri-and error and acting by feeling. Therefore, it seems that the extroverted learners have adapted themselves to the college situation to sustain and to succeed in their interest.

This implies that some learning style were more preferable than others at some areas of educational level. Moreover, this different distribution of samples in different styles confirms the fact that there is individual difference. Furthermore, the large number of samples of reflective compared to activist implies that most of college students are reflective in that they are cautious and think thoroughly rather than being impulsive and interact with things by feeling to be successful.

4.2.5. Learning Style and Academic Success

The result of this study shows that there is no significant difference among learning styles on the basis of academic success. One-way analysis of variance shows that there is no significant difference. This indicates that there was no wide difference among sub-scales of learning styles on the basis of their academic success.

From the observation of their means, it is also possible to check whether or not there is a significant difference. The means of each subscale: activities 3.07, reflective 2.93, pragmatist 2.97 and theorist 3.04 were not far apart from each other and also from the average mean. The maximum and the minimum mean differences from the average mean are 0.09 and 0.04, respectively. Hence, the variance accounted for the academic success on the basis of learning styles is 0.12 percent and is very low.

In relation to this finding, William et al (2004) in their study also stated that there was no significant difference among learning styles of students on the basis of their academic success. Similarly, a study of meta- cognitive regulation made by (Boyle et al., 2003 cited in Badford, 2004) also found low positive association between students' academic performance and learning styles. Moreover, Ronan (1996) from his study of average academic scores of final two years prior to graduation found non-significant correlation between academic success and learning styles.

The literature also confirmed that no learning style is better or worse than anther. However, what is important is to have varieties of learning styles that may use in different situations. Therefore, no one can speak of style of learning, as generally one is preferable than other since it is a matter of fit (Balets and Staudinger, 1996).

This implies that individuals have their preferences and can succeed in their needs if they develop and adopt the style that may fit their character. Therefore, the proportionality of the mean of these four sub-scale learning styles shows that students learn best through different styles depending upon their individual differences. Hence, learning styles provide different learning environments and teaching strategies for different students. Moreover, it is necessary to vary teaching styles so that every student finds the learning situation compatible with his cognitive style at least part of the time or help students to develop conducive learning style for effective learning of the content and for teaching style used in the school (Clark and Star, 1991).

In like manner, Uasxton and Urrele as cited in Bedford (2004) also claimed that the concept of learning styles is potentially useful for the improvement of teaching and learning practice in colleges and higher educations and in assisting educators in higher education institutions to identify issues concerning their roles and their culture of their organizations. Moreover, they

suggested that information about learning styles may enable educators to be more constructively responsive to individual differences among students.

In general, students will learn better when using preferences in which they are successful, when they can expand their preferences, and when teaching accommodates various preferences. Hence, teachers should have an awareness of these different learning styles that have proportional contribution for academic success. In like manner, (Sarasin, 1999 cited in Badford, 2004) also suggested that to teach more effectively, instructors need to know more about differences in learning and better appreciate the variety of learning styles. So that they can vary their way of teaching style to accommodate these various learning styles by constructing activities that include specific and multiple learning preferences that can participate every students according to their preferences.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary

The central purpose of this study was to assess components of personality types and learning styles on the basis of academic success in Oromiya Colleges of education. This was done through investigating whether or not there is relationship among these variables and by examining whether or not there is significant difference in academic success due to different learning styles. With this main objective in view, the following specific research questions were formulated.

1. To what extent do different personality types correlate with academic success?
2. How far do learning styles and personality type correlate to each other?
3. Which learning style is mostly preferred by college student?
4. Is there any significant difference among learning styles on the basis of academic success?

To conduct the research based up on these basic questions three colleges out of five were randomly selected. From these samples of colleges four streams were taken to make the information relevant. From each stream two sections were randomly selected from which equal number of sex were taken to be used as a sample for the study.

Excluding those who did not provide complete response, 31 (17 males and 14 females) 329, (163 males and 166 females) students participated in the study. Instrument that are employed to collect the data are personality type qustiionnaires and learning style questionnaires that were adapted and constructed from Eysenk (1982) and Honey and Mumford's (1986), respectively. The C ronbach alpha reliability of personality types was 0.713 while that of the learning styles: activist was 0.66, reflector was 0.64, theorist was 0.60 and pragmatist was .067. Statistical tools used in the study were pearson product moment correlation coefficient,one-way analysis of variance and percentage. The alpha level used to test the significance was 0.05. Based on the analysis the obtained results are summarized as follows.

- In the investigation of the relationship between personality types and academic success, the result of the study reveals no significant relationship between academic success and with either of the personality types. However, introverted personality type learners were a bit above the average mean while extrovert learners were a bit below the average mean
- In the assessment of differences between learning styles on the basis of academic success, non of the learning styles have been observed as having significant relationship with personality types except that of reflective learning style preference, which is significantly correlated with introverted personality type. From the rest of learning styles pragmatist and theorist learning style preference have negligible correlation with introverted and extroverted personality types respectively.

- Among the measures of learning styles, reflective learning style was the most preferred style to college students while activist learning style was preferred the least.
- Concerning the relationship between learning styles and streams, pragmatist learning style and natural science stream are significantly correlated while others are not.
- On the basis of learning styles, no significant academic variation was observed.

5.2. Conclusion

Based on the findings the following conclusion can be drawn:

- Individuals are different in various aspects with respect to their personality types. Depending up on these facts different researchers investigated and reached at different findings at different times. Similar to those researchers who disproved the significant, relationship between introvert personality type and academic success, this fining also has come up with the result of non-significant relationship between these variables. Therefore, from this finding one can conclude that though personality types may have their own contribution in learning, without considering other factors such as intelligence and motivation, personality types alone may not determine academic success. Hence, being an introverted alone may not be judged as academically superior to the extrovert.

- It is recognized that every individual prefers certain method of learning style to other styles. This means that each individual learner may have a dominant style of learning for less use of other styles, as far as one's personality is concerned. Thus, learning style depends on personal quality that influence one's ability to acquire information, to interact with peers and with teachers. Therefore, different individuals have different ways of acquiring information depending up on one's personal way. The learning style suitable for one individual may not fit equally to others. Hence, different individuals may use various styles that fit them according to their preferences. So, from this point of view it can be concluded that as far as there are individual differences, there is variation in learning styles in which every individual depending up on his personal preference can strive for success through his dominant as well as less dominant preference. Therefore, each and every learning style has a value and is equally worthy in performing academic success.
- Reflective learning style preference is one the learning style preferences that is cautious in character and prefer independent work than with people in which case it is related to introverted character. Thus, it is possible to conclude that those students who have reflective learning style preference as their dominant learning style may show more of introverted personality type character than other personality types.
- It is obvious that, as the level of education increases, the difficulty level of subject also increases and it invites for more work and deep thinking

than simple act of feeling toward phenomena. Therefore, college education needs thorough thinking and considerable concentration on matters with abstract conceptualization to be successful. Hence, from this point of view it is possible to conclude that among the learning style preferences reflective learning style preference could be the most while activist is the least preferred among college students.

- In general, the results of the present study seem indicative for further research.

5.3. Recommendations

In light of the finding obtained the following recommendations are forwarded:

- Based on the result of the study academic success is not determined by personality types alone. But it also depends on intelligence, the extent of motivation, teaching methods and other similar factors including personality types. Therefore, to be academically successful one has to strive for success as far as his ability allows him to act whatever his/her personality may be. Hence, through hard work one may attain his goal and interest.
- As far as there is individual difference, there are different ways of acquiring knowledge. Thus, understanding one's own personality type and learning style can help: to understand and appreciate diversity; to manage one's study style more wisely; and to develop sound relationship

with others. Moreover, it helps to identify one's own weaknesses and strengths. Therefore, appreciating this diversity adapting and developing different styles by compensating for weaknesses and capitalizing on strengths can result in improved and better success.

- Perhaps the most important thing is to be aware that people do not see the world in the same way. Therefore, teachers should have awareness that there are diverse learning styles among students. Thus, there should be as many ways of teaching as there are to learn. Hence, teachers have to appreciate the diversity of learning styles and use them in classroom situation rather than being confined to one style so as to benefit all type of learners. This in turn may reduce wastages.

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Appendices

Appendix –A

Addis Ababa University
School of Graduate Studies
College of Education
Department of Psychology

These questionnaires consists of three parts: Part one deals with the general background information of respondents, part two contains items designed to measure learning styles and part three contains items dealing with interest, feeling and acts of college student.

These questionnaires are to be filled out by Oromiya Teachers Training College students. The objectives of the questionnaires are to assess the learning styles and personality type of college student so that the information may be used in teaching learning processes. Therefore, you are kindly requested to fill out all the items honestly and frankly, since you responses have valuable significance for the successful completion of the study.

General Directions

1 There is no need to write you name.
2 Indicate your response by marking "x" to the appropriate response.

Part one

Background information.

1.1 I.D Number----------
1.2 Sex: Male--------
Female------
1.3 Age: 15 and below---------
16 to 20----------
21 to 25----------
26 to 30----------
31 and above------
1.4 Name of your College----------
1.5 Your Stream/Department----------
1.6 Your Major study----------
1.7 Your Minor study----------

Part two

Learning style questions.

There are some items about learning styles of college students listed below. Put an "x "sign in the appropriate box given after each statement indicating the degree to which each item expresses about you. The Items have no right or wrong answers. It is simply to measure your learning style preferences, so please complete it as frankly, honestly and quickly.

1	2	3	4	5
not very accu rate of me	not accurate of me	some what accurate of me	accurate of me	very accu rate of me

No	Item	1	2	3	4	5
1	I like to be absolutely correct about things.					
2	In reading books, I prefer something that tells me new facts and how to do something.					
3	For me, learning means acquiring knowledge and skill so that I can use it later in practical way.					
4	I prefer to solve problems using step-by-step approach rather than guessing.					
5	When I learn theoretically, I try to strengthen it with practical problem solving.					
6	I like to make coherent patterns for complicated things.					
7	I try things out by practicing to see if they work.					
8	In study group working on difficult material I am more likely to jump in and contribute ideas.					
9	When I solve problems, I rely upon others' information to get the main point of what I have learned.					
10	I do not often take what I have told for granted unless I check it out for my self.					
11	When I learn about a new idea, I immediately start working out to see how I can try it out.					
12	I prefer to jump in and do things as they come along rather than sticking to plan.					

13	In study group working on difficult material I am more likely to sit back and listen.					
14	When there is inconsistency between concepts of what I have learned consult textbooks and other reference books.					
15	If I were a teacher I would rather teach courses that deals with ideas and theories.					
16	I need a long time to think and understand what I have learned.					
17	If I were a teacher I like to teach subjects that have practical applications.					
18	I usually talk more than listening.					
19	I like to participate in complex situations to understand them. For example learning through puzzles.					
20	When a question is raised from the instructor in the class, I am the first to raise my hand to reply					
21	I prefer to study by my self rather than with groups.					
22	I can easily accommodate myself with new situations.					
23	I like to think things thoroughly before coming to a conclusion.					
24	I like to see and try something new and different.					
25	Before starting to solve problems I prefer to look it at in many different angles to get its real solution.					
26	I like subjects that have workout in more practical ways of doing things.					
27	I often irritated with people who rush in to things without careful consideration.					
28	I learn from the way other people do things.					
29	I enjoy learning through project work such as by collecting and observing leaves, insects, rocks and the like.					
30	I am open-minded and get ideas from others..					
31	What ever it is I need to try anything once.					
32	I like to be cautious to be effective in my work.					
33	There should be be logical and reasonable cases in any decision.					
34	I believe that there is always a preferable of doing things.					
35	I am usually the life and the soul in-group discussion.					

36	To solve certain problem I like to consider all the alternatives that can be solutions.					
37	It is best to look before leap (jump).					
38	In meetings I get very impatient with people who lose sight of the objective of the meeting.					
39	I usually do more listening than talking.					
40	I believe that careful logical thinking is the key to getting things done better.					

Part three

Personality type questions.

Here are some questions regarding your interest, feeling and act that you show toward Something or somebody. Make 'x' sign after each item depending up on the degree to which each item says about you. The questions have no right or wrong answer, it is simply to measure the way you behave, feel and act.

1	2	3	4	5
not at all	rarely	sometimes	often	all the time

No	Items	1	2	3	4	5
1	I tend to do things as quickly as I can.					
2	I like organizing people for activities.					
3	I am enthusiastic about starting new work.					
4	I get it difficult to go in to the room full of strange people.					
5	I am in a hurry to get to places even when there is plenty of time.					
6	I would rather watch sports than playing.					
7	I think that I talk more when I am with a group of people.					
8	I like mixing with lots of other people and to play with them.					
9	Unless I take time it is difficult to me to decide on something.					
10	I like to crack jokes with group of friends.					
11	I enjoy solitary activities such as reading or watching TV on my own.					
12	When I am walking with other people, they often get difficult to keep up with me.					
13	In-group work I like to be the leader (coordinator) of the group.					
14	I prefer to keep my feeling to my self rather than sharing to others.					
15	I would rather plan things than simply go a head and start.					
16	I need to use a lot of self-control to keep out of trouble.					
17	I can make decisions quickly.					
18	I calmly sit and watch competitive sports like race, football and the like.					
19	Frequently I make a careless mistake.					
20	Rather than having a plan for something in advance I prefer to do as they appear to me.					
21	I feel uncomfortable in company of other people.					

22	It is easy for me to discuss intimate and personal matters with my family.					
23	I hesitate to complain if I was served a test less food.					
24	I easily express my love to my partner.					
25	I would be able to speak my ideas in front of a group of people without the fear of any thing.					
26	If some one express an opinion with which I am disagree I tell him my idea immediately.					
27	Frequently I like to be alone with my own thought.					
28	Frequently I lost in thought that I do not notice what is going on around me.					
29	I easily make friends with members of my own sex.					
30	I like works that needs sustained concentration.					
31	It does often take me a long time to get started on something					
32	I live for today and let tomorrow take care of itself.					
33	I am more reserved than other people					
34	I am not bothered to keep the secret of someone.					
35	I make sure that I am on time for appointment.					
36	I am afraid to communicate with opposite sexes.					

Appendix –B

Yunvaristii Addis Ababaa
Barumsa digirii 2ffaa
Muummee Barnoota saayikolojiitti

Barattoota wagaa lammaffaan kan gutaman.

Gaaffileen armaan gaditti barreeffamanii jiran waan sadii of keessaa qabu.Isaanis, tokkoffaan Odeeffanno waa'ee barattootaa, lammaffaan akkaataa barattootni kolleejjii barnoota isanii itti baratan (learning styles) yoo ta'u inni sadaffaan gosoota sansakkaa barattoota (personality types) dha. Gaaffileen kunis kan guutaman barattoota Kolleejjii Mootummaa Naannoo Oromiyaan ta'ee

kaayyoon gaaffichaas akkaataa barattoonni kolleejjiichaa itti baratan(learning style)fi gosoota sansakka barattoota kolleejjichaa (personality type) qo'achuuf yoo ta'u firiin qo'anichaas barnootaaf bu'aa guddaa niqabaata.Kanaafuu, gaaffi tokkolle otoo bira hindarbin dhugaa irratti hundaa'uudhaan sirritti deebikee bakka duwwaa deebiif qophaa'etti mallattoo " √ " barreessuun deebisi!

Waan dhugaa irratti hundofteei deebii gaaffilee kana deebistuf dursaa galatoomi!

Qajeelfama

Maqaa barreessuun hinbarbaachisu.

Bakka deebiidhaaf qophaa'erratti mallattoo " √ " ka'uun deebikee agarsisi dagatta !

Kutaa tokkoffaa

1.Odeeffannoo waa'ee barattoota gaafilee kana deebisanii

1.1 Lakk. waraqaa eeynummaa----------

1.2 Saala:Dhi----

Dha-----

1.3 Umuri:15 fi 15 gadi------

16-20---

21-25-----

26-30-----

31 fi ol--

1.4 Maqaa kolleejjichaa----------

1.5 Muummee(Department)----------

1.6 Barnoota Ijoo/ your Major----------

*1.*7Qabxii kan qormaata biyoolessa kutaa 10----

kutaa 12----

1.8 Qabxii waligala kan semesteers sadi sadif hiramee avrajii isaa (Cumulative grade point or CGPA) --------

Kutaa lammaffaa

Gaaffilee akkaataa barattoonni itti baratanii(learning style questions)

Gaaffileen armaan gaditti barreeffamanii jiran waa'ee akkaataa barattoonni barumsa isaanii itti baratan gaafata.Gaaffileen kunis deebii sirri ta'ee fi sirri hintaanee of keessaa hinqaban.Wanni barbadamefis akkata batattotin itti baratan(learning style)safaruf qofadha.Kanaafuu akka yaadaketti bakka duwwaa fuuldura gaaffileewwaniitti deebikee mallattoo " √ " kanaan agarsiisi.

1	*2*	*3*	*4*	*5*
Takka iyyu Naan Ibsu	**Na hinibsu**	**Xqo xiqo na ibsa**	**Na ibsa**	**Baayyee na ibsa**

Lakk	Gaaffilee	1	2	3	4	5
1	Wanna hundatti dhibbaa dhibbatti sirri ta'uun barbaada.					
2	Yeroon kitaaba dubbisu akkaataa wanni tokko itti hojjeetamu kan natti agarsiisu barbaadeen dubbisa.					
3	Anaaf barumsa jechuun beekumsa fuula duratti hojjiidhaaf nagargaaru danda'u barachuu jechuudha.					
4	Gilgaala kanan hojjedhu sadarka sadarkan (step by step) malee akkasumatti akka natti fakatetti miti.					
5	Wannan yaad-hiddamaan (theory)baradhe tokko hojiitti jijjireen barumsichaa cimsachuu fedha.					
6	Wanna tartiba hinqabne tokko tartibaa qabsisuuf baayeen xaara.					
7	Wanni tokko akka hojjetufi hin hojjenne mirkanefachuuf qabataman shakalanaan ilaala.					
8	Yoo gareedhaan taanee barumsa ulfaata qayyabanu ani otto of hiqusatinaan sirritti irratti hirmadha.					
9	Rakkooleedhaaf yoon furmaata barbaadu waa'ee rakkichaa ilaalchisee yaada namoota naan fudhadha.					
10	Waanan dhagayee tokko akkuma natti himametti ottoo hinta'in sirri ta'usaafi hintaanee isaa ofiinan mirkaneeffadha.					
11	Waan haarawaan baradhe tokko battalumattin akka inni hojiitti jijjiiramuu danda'u ilaaluu yaala.					
12	Wantootaaf sagantaa baasee boodaaf(gulanaaf) kaa'uurra akkuman isaan na qunamanittin hojjedha.					
13	Yoo gareen taanee qayyabanu dafee dubbacchuraa yaadakoo naanefadheen yaada garees dhagefadheen yaadako kenna.					
14	Wanaan baradhe yaani isaa yoo walsimu baate kitaaba kankoo fi kitaaboolee wabii dubbiseen garagartuma isaafi walitti dhufeny isaan ilaala.					
15	Otoon barsiisa ta'ee gosa barnoota irra caala waa'ee hidaddama (theory) fi yaada (idea) irratti hundaa'een barsiisa.					

16	Wannan baradhee tokko sirritti hubachuudhaaf yeroo fudheen ilaalu fedha.					
17	Otoon barsiisa ta'ee gosa barnoota irra caala hojiiratti (practical) hunda'anin barsiisa.					
18	Yeroo baayyee wanaan dhageeffadhuraa waanaan dubadhutu caala.					
19	Wanna ulfaatafi walxaxa ta'ee tokko irratti hirmadhee waa'eesaa barun natti tola.fkn,waan akka hibbo(hippo)					
20	Yeroo barsiisan kutaa keessatti gaaffii gaafatu, deebii isaa deebisuudhaaf durseen harka baasa.					
21	Gareedhaan ta'uuraa kophakoo ta'ee yoon qayyabadheen irra natti tola.					
22	Ani haalaa haarawwatti dafeen itti bara ykn dafeen of madaqsa.					
23	Waa'ee waan tokkoo yaada dimshaashaa tokkorra osoon hinga'in dura gadi fageesseen xiinxala.					
24	Wanna haaraawa ta'eefi adda ta'ee tokko ilaale yaalun baayyee nitti tola.					
25	Rakko tokko hiikuuf otoo hinjalqabin dura furmaata ta'uu kan danda'an kallattiiwwan jiran hundaanin barbaada.					
26	Gosi barnoota ani fedhu irra caala kan hojin hojjetama baraman(practical) ofkeessaa qabanidha.					
27	Namooni otoo hinxinxalin wanna tokkotti arifatan baayyee na'arsu.					
28	Namooni biroo waan isaan hojjeetan ilaaludhan irraa barachun nati tola.					
29	Barnoon hojiratti hunda'an kan akka dhakaa,baala fi lubu-qabayyii xixiqaa (insects) walitti qabudhaan garagartumma isaniifi walitti dhufenyaa isaani ilaalan baradhaa.					
30	Ani namootatti baayyeen dhiyaadha, yaada isaaniis nan fudhadha.					
31	Ani kanaan jedhu "waan fedhe iyyu haata'u takka hinumaan yaala."					
32	Ani kanaan jedhu "of eeggannoon dogoggora irra nama eega."					
33	Ani kanaan jedhu yeroo hundaa murtoon tokko "sababa (reasonable)qabachu irra iyyu kara sirri ta'ee (logical) ta'u qaba."					
34	Ani kanaan jedhu "yeroo hunda wanna tokko hojjechuudhaaf karaan fooya'aan ni jira."					
35	Yeroo hundaa maree kutaa keessatti ani lubbuufi lafeedha.					
36	Rokkoo tokko hiikuudhaaf furmaata kan ta'u filanowwan adda adda naan ilaala.					
37	Otoo hinutaalin dura ilaalun gaariidhan jedha.					
38	Walga'ii kesatti namooni ijoo dubbin(ajenda)ala waan fedhan hasa'anif obsa hinqabu.					
39	Yeroo baayyee wanaan dubbadhuraa waanaan dhageeffadhutu caala.					
40	Of eeggannoodhaafi yaada xiinxaluudhaan wanni hojjetamu tokko firii gaarii akka qabu nan amana.					

Kutaa sadii

Gaafilee waa'ee sansakkaa

Akkatatti barattootin yaada fi fedhi isaani yokas gosoota sansakkasaanii (personality type) kan ilaalu gaaffileen armaan gaditti barreeffamanii jiru gaaffileen kunis deebi"iisirrifi sirri hintanee hinqabani waan barbadamefis gosoota sansaka (personality type) barattoota safaruf qofadha.kanafu dubisitti mallattoo " √ " kanan fayadamudhaan akkata inni sansakakee waliin deemutti gaaficha deebis.

1	*2*	*3*	*4*	*5*
gonkuma takaiyyu	**darbe darbe yeroo tokko tokko**	**yeroo tokko tokko**	**yeroo baayyee**	**yeroo hundaa**

La kk	Gaaffilee	*1*	*2*	*3*	*4*	*5*
1	Yeroon hojii hojjedhu daddaftaan hojjedha.					
2	Namoota hojiidhaaf walitti qindeessuu nan jalladhaa.					
3	Wanna haarawaa tokko hojjechuudhaaf kaka'umsa(si'aayina) nan qabda.					
4	Kutaa namoonni baayyee anaaf keessummaa ta'an jiran seenuun natti ulfaata.					
5	Bakka tokko deemuf yoon jedhu yeroo ga'aa yoon qabadhellee hangan achi ga'utti nan ariifadha.					
6	Ispoortii adda addaa taphachuurra ilaalutu natti tola.					
7	Namoota baayyee waliin taanee yoo odeessinu(haasofnu) ani namoota waliin odeessinu caalaa waanan odessee (haasa'ee) naitti fakkaata.					
8	Namoota baayyee(danuu) ta'anii jiranitti makamee hasa'uu nanjaalladha.					
9	Wanna tokko murtessudhaaf yeroo fudhadhe yoon ilaale male battalumatti murtesuun natti ulfaata..					
10	Hiriyoota koo waliin ta'ee baacoo baacuu nan jaalladha.					
11	Qopha taa'uun kitaaba dubbisuu ,TV ilaaluuf kkf gochuu nanjaalladha.					
12	Namoota walin ta'udhaan yoon karaa adeemu namoonni ani walin adeemu naqaqabuun isanitti ni'ulfaata.					
13	Hojjii tuuta(garee keessatti durabu'aa(qinddessa) ta'uu naanjaladha.					
14	Yaadakeesakoo (my internal feeling) basee namatti dubbachuraa chalisee ofuma xinxaluun fedha.					
15	Wantoottini akkuman naaqunamanitti hojjechuurraa durseen sagantaa itti bafachuu filadha.					
16	Wanni rakkina ta'e gonkuma akka natti hindhufneef baayyeen of tiksa.					
17	Wanna tokkotti dafee murtoo itti laachuu nan danda'a.					

18	Tapha waldorgomii kan akka figichoo fi kubaa milaa yoon ilaalu caluma jedheen ta'ee ilaala.					
19	Wanna tokko otto hinbeekin irra deddeebi'een dogoggora.					
20	Wanna tokkof saganta basee fuula duratti eeguraa akkuman argetan hojjedha.					
21	Hiriyoonni koo wan tokko yoo dogoggoran akka isaan dogoggoran itti nan hima.					
22	Wanna ana ilaallatu iccitii ta'e tokko baasee warra koo ykn maatii koo waliin nan haasaya.					
23	Nyaata hintaane tokko yoon naaf dhiyeessanii nyaatichii akka naaf hintane warra naaf dhiyeessanitti himu nanleeya'a.					
24	Jaalallee koo akkan jaalladhu otoo hindhiphatin salphaatti itti nan hima.					
25	Yaada koo namoota baayyeefuula dura dhabadhee waatokko otto hinleya'iin naandubbadha.					
26	Namni tokko yaada kan koo waliin kan wal hinsimne tokko yoo dubbate/tte yaadni namichaa kan koo waliin akka wal hinsimne battalumattin itti hima.					
27	Yeroo tokko tokko yaada koo waliin qofaa ta'uu nan fedha.					
28	Yeroo tokko tokko yaadni nafudhatee badee bakkan jirullee nanwallaala.					
29	Namoota saalaan nafakkaatan waliin akka salphaatti hiriiyummaa nan uummadha.					
30	Hojii obsaafi yeroo dheera barbaadu hojjechuun nati tola.					
31	Wanna tokko hojjechuu jalqabudhaaf yeroo natti fudhata.					
32	Harr'a yoon jiraadhee kan boruu akka fedhe baayyee nan cinqu.					
33	Ani naamotatti badaa hinsiqu (hidhiyaadhu).					
34	Iccitii nama tokkoo eeguun baayyee nandhiphisu.					
35	Yoon nama waliin beellama qabaadhe otoo yeroon isaa hindabarsin bakka beellamichaatti nan argama.					
36	Namoota salaan anaraa adda ta'an waliin taphachuu naan leeya'a.					

Appendex-C

Reliability

****** Method 1 (space saver) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics Theorist

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
VAR00001	37.2619	14.4907	.1595	.6034
VAR00004	36.4286	12.2509	.4660	.5286
VAR00006	36.5714	13.8606	.3094	.5730
VAR000010	36.4286	13.7631	.2146	.5941
VAR000014	36.5238	14.5970	.2162	.5915
VAR000015	37.3333	12.3740	.2759	.5850
VAR000019	36.3333	14.3252	.2469	.5858
VAR000033	36.5238	12.5482	.4518	.5350
VAR000038	37.4286	13.9094	.1104	.6036
VAR000040	36.2381	13.4053	.4794	.5447

Reliability Coefficients

N of Cases = 42.0 N of Items = 10

Alpha = .6039

****** Method 1 (space saver) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Item-total Statistics Reflector

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
VAR000013	38.1190	15.7172	.2492	.6342
VAR000016	37.7381	16.0517	.2580	.6306
VAR000021	38.5952	14.6370	.2348	.6440
VAR000023	37.6667	15.6423	.5005	.5940
VAR000025	37.8095	14.9872	.5174	.5828
VAR000027	37.8333	14.8740	.4186	.5964
VAR000032	38.2619	16.5395	.0908	.6315
VAR000036	37.6667	15.2520	.5076	.5876
VAR000037	37.3571	16.8693	.3625	.6216
VAR000039	38.0238	15.5848	.2996	.6223

Reliability Coefficients

N of Cases = 42.0 N of Items = 10

Alpha = .6448

RELIABILITY ANALYSIS -SCALE (ALPHA) of Learning Style

Activist

VAR00008	34.6429	18.8693	.2352	..6614
VAR00009	34.7381	18.1980	.4549	.6196
VAR000012	35.5714	18.7143	.3653	.6345
VAR000018	35.5952	18.1005	.3600	.6355
VAR000020	35.2381	17.4053	.5022	.6069
VAR000022	35.1429	18.6620	.3839	.6325
VAR000024	34.6905	20.1214	.2969	.6501
VAR000030	34.8810	18.4489	.4899	.6176
VAR000031	35.1429	19.6864	.1888	.6623
VAR000035	35.1429	19.4425	.1448	.6569

Reliability Coefficients
N of Cases = 42.0 N of Items =10

Alpha = .662

Pragmatist

VAR00002	37.8095	14.4019	.3121	.6568
VAR00003	37.5476	14.0587	.4158	.6330
VAR00005	37.0952	17.0151	.1271	.6726
VAR00007	37.5714	14.6411	.6255	.6139
VAR000011	37.6429	15.3571	.3294	.6516
VAR000017	37.1905	14.7921	.5275	.6239
VAR000016	37.4286	14.7875	.3935	.6396
VAR000028	37.1905	16.8409	.0726	.6617
VAR000029	38.5000	13.9146	.2122	.67O8
VAR0000[illegible]	37.6667	13.2520	.5694	.5996

Reliability Coefficients

N of Cases =42.0 N of Items =10

Alpha = .6738

Appendex-C

RELIABILITY OF PILOT TESTS

PERSONALITY TYPE QUESTIONNARIES.

Reliability Analysis -- Scale (Alpha)

	Scale mean if item Delited	Scale Variance if item Delited	Corrected item total correlation	Alpha if item Delited
VAR00001	89.3810	112.6806	-.1072	.7133
VAR00002	88.9524	109.1684	.1520	.7110
VAR00003	88.9048	106.2346	. 3215	.7033
VAR00004	89.9286	102.4948	.2309	.7065
VAR00005	90.2406	112.0043	.3768	.6985
VAR00006	90.5714	102.3362	.3465	.6984
VAR00007	89.6002	103.0867	.2769	.7031
VAR00008	89.5952	103.0761	.2892	.7023
VAR00009	91.1190	107.5221	.1508	.7114
VAR00010	89.2119	105.0874	.2925	.7042
VAR00011	90.4762	110.0604	.0052	.7125
VAR00012	90.1190	103.9123	.2294	.7070
VAR00013	89.6667	102.1301	.3661	.6971
VAR00014	89.7143	103.4774	.2828	.7028
VAR00015	90.9286	111.6289	-.0484	.7119
VAR00016	90.8810	109.7660	.0342	.7108
VAR00017	90.1429	101.9303	.3868	.6958
VAR00018	89.5000	105.7683	.1979	.7088
VAR00019	89.4617	103.8754	.2607	.6975
VAR00020	90.5952	110.0029	.0222	.7126
VAR00021	89.0000	102.4390	.4185	.6951
VAR00022	89.6667	106.4228	.1330	.7115
VAR00023	90.2619	103.0273	..2822	.7028
VAR00024	89.6428	101.0645	.3O21	.7010
VAR00025	89.1667	102.8740	.4519	.6947
VAR00026	89.9048	107.6005	.1148	.7126
VAR00027	90.2857	1O2.8432	.3862	.6969
VAR00028	89.5476	101.6296	.3971	.6950
VAR00029	89.3095	107.1945	.1400	.7126
VAR00030	89.4213	106.3243	.3251	.7108
VAR00031	89.5238	101.6702	.4055	.6947
VAR00032	91.4524	107.4733	.1376	.7125
VAR00033	89.4048	100.7834	.3450	.6975
VAR00034	90.2134	113.6541	.4537	.7015
VAR00035	91.2381	112.0395	-.0688	.7108
VAR00036	89.5000	94.6460	.5647	.6774

Reliability coefficients

N OF cases = 42 N of items = 36

Alpha = .7134

Appendix - D

Classification of Instruments

The learning style preferences and personality types questionnaires items were classified in to sub scales as follows:

Learning style sub scales

Activist learning style sub scales: 8, 9, 12,18,20,22,24,30,31 and 35.

Reflactivist learning style sub scales: 13, 16, 21,23,25,27,32,36,37 and39

Pragmatist learning style sub scales: 2, 3,5,7,11,17,26,28,29 and 30.

Theorist learning styles sub scales: 1, 4, 6,10,14,15,19,33,38 and 40.

Personality type (introvert/extrovert) sub scale

Introvert personality type sub scales: 4,6,9,11,14,15,16,18,23,27,28,30,31,33,35 and 36.

Extrovert personality type sub scales:

1,2,3,5,7,8,10,12,13,17,19,20,21,22,24,25,26,29,32 and 34.

Appendix – E

Natural Science				Social Science							
Cod	Sex	ID. NO	GPA	Cod	Sex	ID. NO	GPA	Cod	Sex	ID. NO	GPA
01	M	R/1902/96	2.61	28	F	R/1917/96	2.56				
02	"	R/1901/96	3.04	29	"	R/1916/96	2.44				
03	"	R/1905/96	3.25	01	F	R/1795/96	2.11	26	F	R/1765/96	3.94
04	"	R/1909/96	3.07	02	F	R/1769/96	2.53	27	F	R/1790/96	2.65
05	"	R/1936/96	3.59	03	M	R/1688/96	3.28	28	F	R/1791/96	2.58
06	"	R/1915/96	3.40	04	M	R/1693/96	3.47	29	F	R/1784/96	2.81
07	"	R/1921/96	3.75	05	M	R/1906/96	3.18				
08	"	R/1928/96	3.12	06	M	R/1947/96	2.36				
09	"	R/1944/96	3.21	07	M	R/1718/96	2.87				
10	"	R/1945/96	3.39	08	M	R/1711/96	3.36				
11	"	R/1900/96	3.44	09	M	R/1715/96	2.94				
12	"	R/1912/96	3.23	10	M	R/1839/96	2.75				
13	"	R/1938/96	3.40	11	F	R/1831/96	2.74				
14	F	R/1899/96	2.29	12	M	R/1835/96	3.36				
15	"	R/1904/96	2.88	13	F	R/1858/96	2.60				
16	"	R/1898/96	2.32	14	M	R/1817/96	3.60				
17	"	R/1903/96	2.54	15	F	R/1846/96	2.50				
18	"	R/1906/96	2.46	16	F	R/1821/96	2.91				
19	"	R/1937/96	2.65	17	F	R/1825/96	2.73				
20	"	R/1923/96	2.65	18	M	R/1811/96	3.11				
21	"	R/1914/96	3.09	19	F	R/1847/96	3.14				
22	"	R/1934/96	2.91	20	M	R/1813/96	3.50				
23	"	R/1943/96	2.47	21	F	R/1830/96	2.89				
24	M	R/1940/96	2.51	22	F	R/1806/96	2.32				
25	F	R/1897/96	2.07	23	M	R/1815/96	3.36				
26	"	R/1925/96	2.44	24	M	R/1816/96	3.61				
27	"	R/1931/96	3.40	25	M	R/1804/96	4.00				

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Science

Cod Sex	SD. No:	GPA
01	FR/751/96	2.53
02	FR/750/96	2.48
03	FR/752/96	2.55
04	FR/716/96	2.33
05	FR/730/96	3.31
06	FR/735/96	2.60
07	FR/729/96	2.34
08	MR/724/96	3.14
09	MR/719/96	3.14
10	MR/743/96	3.60
11	MR/738/96	3.45
12	MR/718/96	3.24
13	MR/727/96	3.34
14	MR/717/96	3.53
15	MR/755/96	2.97
16	MR/592/96	3.14
17	MR/603/96	3.46
18	MR/568/96	3.16
19	MR/688/96	2.78
20	FR/693/96	2.47
21	FR/746/96	2.20
22	MR/581/96	2.45
23	FR/605/96	2.54
24	FR/578/96	3.54
25	MR/557/96	2.67
26	FR/588/96	2.83
27	FR/563/96	2.48
28	FR/589/96	3.14
29	MR/565/96	2.93
30	MR/560/96	2.79
31	FR/566/96	3.20
32	MR/600/96	3.21
33	MR/562/96	2.43
34	FR/590/96	3.33

Language.

Cod Sex	SD. No:	GPA
01	MR/105/96	3.98
02	FR/119/96	2.65
03	FR/138/96	3.14
04	FR/127/96	3.91
05	MR/134/96	3.23
06	MR/139/96	3.42
07	FR/142/96	3.79
08	FR/136/96	2.25
09	FR/147/96	2.28
10	MR/124/96	3.93
11	MR/146/96	3.56
12	MR/114/96	3.26
13	FR/131/96	3.02
14	MR/112/96	3.82
15	FR/114/96	3.44
16	FR/107/96	3.60
17	MR/079/96	3.40
18	MR/073/96	3.12
19	FR/048/96	3.33
20	MR/027/96	2.70
21	FR/009/96	3.12
22	FR/025/96	3.58
23	FR/043/96	3.14
24	MR/052/96	3.89
25	MR/010/96	3.79
26	MR/075/96	3.58
27	MR/003/96	3.63
28	FR/100/96	3.74?
29	FR/021/96	3.74
30	FR/016/96	2.82
31	MR/011/96	3.44
32	FR/035/96	2.61
33		
34		

maths.

Cad	Sex	ID. No	GPA
01	M	R/892/96	3.33
02	M	R 896/96	3.53
03	F	R/ 852/96	2.76
04	F	R/885/96	2.47
05	F	R/893/96	2.25
06	F	R/877/96	2.53
07	F	R/866/96	2.31
08	F	R/905/96	2.44
09	M	R/ 898/96	2.42
10	F	R/ 906/96	2.62
11	M	R/ 881/96	2.42
12	F	R/ 902/96	2.36
13	M	R/889/96	3.38
14	F	R/964/96	2.36
15	M	R/887/96	3.55
16	F	R/899/96	2.40
17	M	R/ 862/96	2.73
18	M	R/867/96	2.45
19	M	R/985/96	4.00
20	F	R/832/96	2.24
21	M	R/981/96	3.49
22	F	R/ 995/96	2.45
23	M	R/ 983/96	3.55
24	M	R/ 1006/96	3.33
25	M	R/ 973/96	2.89
26	M	R/ 971/96	2.95

Cad	Sex	ID. No	GPA
27	F	R/ 965/96	2.6
28	M	R/992/96	3.47
29	F	R/988/96	2.49
30	M	R/961/96	3.25
31	F	R/901/96	2.36

Social Science.

Cad	Sex	ID. No	GPA
01	F	R/387/96	2.42
02	F	R/393/96	3.32
03	M	R/384/96	3.05
04	F	R/397/96	2.91
05	F	R/394/96	2.09
06	F	R/390/96	2.12
07	F	R/359/96	2.63
08	M	R/355/96	3.12
09	M	R/362/96	3.56
10	F	R/400/96	3.63
11	M	R/361/96	3.58
12	M	R/407/96	3.96
13	F	R/404/96	2.89
14	M	R/357/96	3.78
15	M	R/362/96	3.56
16	F	R/386/96	2.51
17	F	R/369/96	2.68
18	F	R/357/96	2.49
19	M	R/349/96	2.84

Cad	Sex	ID. No	GPA
20	F	R/393/96	3.32
21	F	R/374/96	2.21
22	M	R/366/96	3.65
23	M	R/365/96	3.74
24	F	R/360/96	2.65
25	M	R/369/96	2.68
26	F	R/351/96	3.36
27	F	R/385/96	2.33
28	M	R/358/96	3.16
29	F	R/375/96	2.74
30	F	R/387/96	2.47

Maths :

cod	sex	ED. NO	GPA
01	F	R/1082/96	2.49
02	F	R/1053/96	2.57
03	F	R/1059/96	2.61
04	F	R/1093/96	3.17
05	F	R/1051/96	2.21
06	F	R/1047/96	2.79
07	F	R/1088/96	2.3
08	F	R/1071/96	2.39
09	F	R/1086/96	2.28
10	M	R/1080/96	3.31
11	M	R/1062/96	3.21
12	M	R/1057/96	3.77
13	M	R/1073/96	3.29
14	M	R/1052/96	3.01
15	M	R/1094/96	3.1
16	F	R/1110/96	2.4
17	F	R/1125/96	2.47
18	M	R/1136/96	3.28
19	F	R/1123/96	2.72
20	M	R/1122/96	3.39
21	M	R/1142/96	3.24
22	F	R/1100/96	2.7
23	M	R/1118/96	3.23
24	M	R/1132/96	3.16
25	M	R/1106/96	3.78
26	F	R/1133/96	3.02
27	F	R/1128	2.72
28	F	R/1071/96	2.64
29	M	R/1050/96	2.23
30	M	——	

Language

cod	sex	ED. NO	GPA
01	F	R/1407/96	2.62
02	M	R/1423/96	3.61
03	F	R/1431/96	2.81
04	M	R/1435/96	3.89
05	F	R/1419/96	2.81
06	F	R/1403/96	2.91
07	F	R/1413/96	2.86
08	M	R/1415/96	3.4
09	M	R/1410/96	3.65
10	F	R/1408/96	2.72
11	F	R/1404/96	3.76
12	F	R/1422/96	2.35
13	F	R/1430/96	2.54
14	M	R/1409/96	3.81
15	M	R/1413/96	4.00
16	M	R/1438/96	2.89
17	F	R/1510/96	2.71
18	F	R/1522/96	3.04
19	M	R/1501/96	3.18
20	M	R/1500/96	3.65
21	M	R/1573/96	3.57
22	M	R/1539/96	3.93
23	M	R/1516/96	3.91
24	M	R/1527/96	3.56
25	M	R/1523/96	3.45
26	F	R/1515/96	2.40
27	F	R/1541/96	2.93
28	F	R/1509/96	2.67
29	F	R/1542/96	2.44
30	F	R/1548/96	2.40
31	F	R/1508/96	2.63
32	F	R/1512/96	2.28
33		R/1543/96	3.19