UNIVERSITY OF CAPE COAST

INFLUENCE OF PERSONALITY TRAIT AND LEARNING STYLE ON ACADEMIC PERFORMANCE OF DIPLOMA IN BASIC EDUCATION DISTANCE LEARNERS OF UNIVERSITY OF CAPE COAST, GHANA

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ..... Date: 07-05-19

Name: JOHN EKOW LAMPTEY

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

The purpose of the study was to investigate the influence of personality trait and learning style on academic performance of Diploma in Basic Education (DBE) distance learners of University of Cape Coast (UCC), taking into consideration, the mediating effects of academic self-discipline and academic self-confidence. The quantitative research approach and descriptive survey design were adopted for the study. The sample size was 763 level 200 DBE students. The study centres were selected using purposive sampling technique while the stratified sampling procedure was used to select the students. Questionnaire was the instrument used to collect the data. The data were analysed using both descriptive and inferential statistical tools. The study revealed that openness to experience trait that students demonstrate contributes more to their likelihood of obtaining high level academic performance. Also, students prefer using read/write and visual learning style when studying. Furthermore, students' personality trait and learning style have significant influence on their academic performance. However, this influence becomes stronger through the mediating effects of students' academic self-discipline and self-confidence. The study recommended to course tutors of the College of Distance Education (CoDE), UCC to ensure that appropriate learning materials are used in their facilitation to promote diversity among students during face-to-face interactions.

KEY WORDS

Academic self-confidence

Academic self-discipline

Academic performance

Counselling services

Distance learners

Learning style

Personality trait

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DEDICATION

To my late brother in-law, Samuel Kweku Wie-Jonah, my brother, Kweku Apempey Laryea, my uncle Albert Kobina Koomson and my wife, Augustina Rhule.

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LIST OF ACRONYMS

ASD	Academic Self-Discipline
ASC	Academic Self-Confidence
BFM	Big Five Model
BFP	Big Five Personality Trait
CCE	Centre for Continuing Education
CGPA	Cumulative Grade Point Average
CoDE	College of Distance Education
CoL	Commonwealth of Learning
DBE	Diploma in Basic Education
DQAE	Department of Quality Assurance and Enhancement
FFM	Five Factor Model
GCE	General Certificate Examination
GCSE	General Certificate in Secondary Education
GES	Ghana Education Service
GoG	Government of Ghana
GPA	Grade Point Average
IRB	Institutional Review Board
LSS	Learning Style Survey
MEE	Mature Entrance Examination
MoE	Ministry of Education
NAB	National Accreditation Board
NEO-FFI	Neuroticism-Extroversion-Openness-Five-Factor Inventory
OBE	Outcome Based Education
PAS	Predictive Analytic Software

RRT	Regional Residential Tutor
SPQ	Study Process Questionnaire
SSSCE	Senior Secondary School Certificate Examination
TAFS	Test Analysis for Surveys
TMT	Teacher-Made Test
UCC	University of Cape Coast
UNESCO	United Nations of Educational, Scientific and Cultural Organisation
VAK	Visual, Auditory and Kinaesthetic
VARK	Visual, Auditory, Read/Write and Kinaesthetic
VIF	Variance Inflation Factor
WASSCE	West Africa Senior Secondary School Certificate Examination

CHAPTER ONE

INTRODUCTION

Distance education is one of the significant means of reducing challenges with regard to limited facilities in our universities. Distance education can also be seen as a catalyst for providing higher academic and professional education to learners whiles on job. In view of this, their academic performance has become a key issue in the recent times, demanding social and psychological/counselling interventions for appreciable performance. Some of the critical areas of distance learners which have not received scholarly attention are their personality trait and learning style, and their influence on learners' academic performance (Agyemang, 2014; Dankyi, 2016). Research findings reveal that distance learners exhibit various kinds of personality trait that are not consistent with their learning style (Ahn, 2013; Su, 2012; Vaishnav, 2013). This may be due to their low development of academic self-confidence and academic self-discipline. Therefore, it is appropriate for researchers and practitioners in the education sector to give scholarly attention to the influence of personality trait and learning style on academic performance of distance learners.

Background to the Study

The introduction of distance education into general education started in the western world over a century ago and later in Africa (Mensah & Owusu-Mensah, 2002). About seven decades ago, it used to be known as correspondence course in Britain, where course materials were mailed to learners (Renwick, as cited in Irani, Telg, Scherler & Harrington, 2012). This type of education really helped many workers and professionals in the then

Gold Coast to upgrade themselves for promotions, and increases in salaries or wages. However, the programme "died" naturally as a result of the slowdown in the country's economy after independence (Graham, as cited in Saani, 2014).

The idea of resurfacing the distance learning programme in Ghana came about in the year 1994 when the universities in the country started denying a good number of qualified applicants admission due to limited facilities. Based on this and other factors, the government of Ghana charged all public tertiary institutions to find an alternative means to offer tertiary education to applicants to avoid wastage of the needed human resource (Mensah & Owusu-Mensah, 2002). Since then, five public universities in Ghana (University of Ghana, Kwame Nkrumah University of Science and Technology, University of Cape Coast, University of Education, Winneba, and University for Development Studies) have adopted distance education as an alternative means to complement the conventional system of education (Jannatul-Firdaos, 2014).

The definition and difference between distance education and other education approaches have been the subject of debate. The Quality Assurance Agency (as cited in Akrofi, 2010) defines distance education as a means of providing higher education which involves the transfer, the facilities that make up the main basis for learning to the students' location, rather than the students moving to the location of the institution. Irani et al. (2012) also explain distance education as the delivery of learning to people who are separated in most cases by time and space from facilitators. Therefore, the concept of distance education can be seen as the separation of students from facilitators

by distance and in some instances, by time which necessitates the introduction of an artificial communication medium that will deliver information and also provide a channel for interaction between the facilitator and the students.

As University of Cape Coast (UCC) was established to train graduate teachers for second cycle institutions, it was also mandated to create unlimited opportunities for many non-graduate teachers throughout the country, not only to update their knowledge but also to upgrade themselves professionally (Mensah & Owusu-Mensah, 2002). Based on this mandate and recommendation made by Commonwealth of Learning (CoL) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) on a survey conducted on the orders of the government of Ghana through the Ministry of Education (MoE). UCC established distance education programme in the year 1995 and took off fully in 2001 in all the ten regional capitals of Ghana, to absorb applicants who could not gain admission to the mainstream due to limited facilities such as lecture halls and halls of residence (Mensah & Owusu-Mensah, 2002).

Distance education programme is in three modes, namely: single mode, dual mode and consortium. The single mode institutions, also known as purpose-built institutions, are created for the purpose of providing quality education via distance education. These institutions prepare their own detailed instructional packages for use by their students in pursuit of specific academic and professional programmes (Akrofi, 2010; Koomson, 2006). The consortium is seen as a group of institutions devoted to distance education as a means of broadening or sharing their programmes. In this respect, students

register with their own institutions, but use centrally-developed learning materials with credits being easily transferable (Akrofi, 2010).

According to Akrofi (2010), the dual mode approach is where distance education institutions provide both on-campus conventional residential education and off-campus courses by distance via correspondence and other electronic media. The main feature of the dual mode is that the courses offered in the conventional system are mounted for learners on the distance education programme. Institutions like UCC, Deak University in Australia, Simon Fraser University, Vancouver, Canada, University of Lagos, Nigeria and University of Zambia were all initially established as conventional residential universities, but have now included the distance education component to meet the pressing demands of university education by the populace (Akrofi, 2010; Irani et al., 2012).

In view of the fact that UCC adopts a dual mode approach of distance education, almost all the courses offered by the University are mounted for learners on the programme to run concurrently (Akrofi, 2010). The reasons, among other things, are to ensure that comparable standards are met on both programmes. To ensure uniformity of standards, students on both programmes use the same curriculum, the same format of general operations, follow the same rules and regulations in writing quizzes and examinations, the same monitoring and evaluation system and graduates on both programmes are awarded the same certificate of diplomas, degrees and masters (Akrofi, 2010). Besides, the grading system ranges from "A" with a score of 80 and above as its corresponding mark implying excellent or first class, and "E" also with a score below 50 as its corresponding mark implying fail. The Cumulative

Grade Point Average (CGPA) attached to these are 3.6-4.0 and below 1.0 respectively.

Mode of entry into the Diploma in Basic Education (DBE) programme is in two folds just as for the conventional system. These are direct and indirect admissions. For the direct admission, applicants must possess any one of the following: (i) West Africa Senior Secondary School Certificate Examinations (WASSCE) passes (A1-C6) in five (5) subjects comprising three core subjects including English Language and Mathematics plus two elective subjects. (ii) Senior Secondary School Certificates Examinations (SSSCE) passes (A-D) in five subjects comprising three core subjects including English Language and Mathematics plus two elective subjects. (iii) General Certificate Examinations (GCE) Ordinary Levels and Advance Levels with passes in Two (2) subjects with grades not lower than D. In addition, applicants must possess credits at G.C.E. 'O' Levels in Mathematics and English. (iv) GCE Ordinary Levels with a minimum of five credits in five subjects including English and Mathematics. (v) Holders of Teacher's Certificate A (UCC, 2014).

For the indirect admission, on the other hand, applicants who do not satisfy the aforementioned requirements gain admission into the programme through Mature Entrance Examinations (MEE). By this means, applicants are made to sit for examinations organised by College of Distance Education (CoDE), UCC, in four main subject areas namely English Language, Mathematics, Elementary Science and Religious and Moral Education; where a candidate is expected to pass in all to gain admission (CoDE, UCC, 2016).

By way of its operations, distance learning programme in UCC is designed to run four months intensive academic programme making a semester. Course tutors are made available to learners to facilitate the learning process during face-to-face interactions on Saturdays and Sundays. Students are also provided with print modules, time tables, academic calendars and other relevant study materials at the beginning of every semester to help them make advance preparations for face-to-face interactions. Also, they are provided with counselling and other support services to aid them in their studies (Makoe, 2006). Finally, face-to-face interactions in lecture halls and classrooms throughout the country are monitored by officials from the University to ensure strict compliance with rules and regulations of the University.

Notwithstanding all these inputs, academic performance of the majority of the students has not been encouraging as their CGPA fall below satisfactory (CoDE, UCC, 2017a). This appears to be a great source of concern to the University in general and the College in particular for some years now since lasting solutions to the problem have not yet been found empirically. For example, available records as presented in Table 1 show that in the 2015/16 academic year, the CGPA of majority of level 200 DBE students were below satisfactory (which is 1.50) at the end of the second academic year.

As good academic performance does not occur in a vacuum, Demirbas and Demirkan (2016) and Hassan (2017) are of the view that it is largely influenced by several factors, including personality trait and learning style with other mediating variables, such as academic self-discipline and academic

self-confidence, which also have been identified to have a part to play in influencing academic performance significantly. These factors have been identified as determinants of academic performance as Karalliyadda (2017), sees learning style as visual, aural/auditory, and kinaesthetic/tactile as determining factors on how students learn when they are properly and effectively applied. Busari (2017) also describes personality trait as factors which can enhance learning to promote performance academically, with academic self-discipline and academic self-confidence serving as mediators.

Table 1: Academic Performance of Level 200 DBE Students by Regions

Regions in Ghana	No. of centres	Above barely satisfactory students (CGPA>1.50)		Below barely satisfactory students (CGPA<1.50)		Total	
		No.	%	No.	%	No.	%
Ashanti	10	1270	45.1	1544	54.9	2814	100
Brong-Ahafo	5	650	43.9	831	56.1	1481	100
Central	7	731	42.8	975	57.2	1706	100
Eastern	5	306	51.2	292	48.8	598	100
G-Accra	5	339	44.0	431	56.0	770	100
Northern	2	147	40.9	212	59.1	359	100
Upper-East	1	129	52.4	117	47.6	246	100
Upper-West	3	179	52.5	162	47.5	341	100
Volta	3	246	49.5	251	50.5	497	100
Western	5	271	37.5	451	62.5	722	100
Total	46	4268	44.8	5266	55.2	9534	100

Source: CoDE, UCC (2017a; 2017b)

Besides, De Feyter, Caerse, Vigna and Berings (2012) indicate that personality trait combined with learning style have been identified as determinants of students' academic performance and academic motivation which can constantly influence students' academic achievements. This undoubtedly implies that there is a linear correlation between the influencing

variables (personality trait and learning style) and criterion or outcome variable (academic performance).

As students differ in their personality, so it is with their personality trait and their level of understanding things in general. It is often argued that a blend of personality trait is necessary for people to be successful in their career, and that psychologists have been constantly searching for a parsimonious set of variables that influence patterns of students' behaviours that relate to academic achievements (Abidin, Rezaee, Abdullah & Singh, 2011). Also, many researchers (De Feyter et al., 2012; Furnham, Monsen & Ahmetoglu, 2009; Guntern, Korpershoek & van der Werf, 2017) have recognised and noted personality as a determining factor on how students learn using the Big Five Personality trait (BFP). The BFP which is also known as the Five Factor Model (FFM) is a widely examined theory of five broad dimensions used by some psychologists to describe the human personality and psyche (Busari, 2017).

The FFM of personality is one prominent model in contemporary psychology, which defines personality in terms of five broad factors, namely, openness to experience, conscientiousness, extroversion, agreeableness and neuroticism which are all replications of the work of Allport and Odgerg (as cited in Irani et al., 2012). According to Judge and Zapata (2015), openness to experience refers to a general appreciation for art and emotion, while conscientiousness refers to predisposition to be organised, exacting, disciplined, diligent, dependable, methodical and purposeful. Extroversion refers to sociable, talkative or communicative, friendly, active, assertive, exciting and stimulating, while agreeableness expresses good-natured, gentle,

co-operative, flexible, tolerance, generous, sympathetic, courteous and striving for common understanding and maintaining social affiliation (Judge & Zapata, 2015).

Lastly, neuroticism is described as high score-experience effects such as fear, sadness, embarrassment, disgust, anger, impulsiveness and vulnerability. A low score usually calms down an individual, makes him or her confident and relaxed at work without any tension in personal life (Komarraju, 2012). These are conceptualised as stable individual different characteristics, explaining not only individual difference characteristics, but also explaining an individual's disposition to particular patterns of behaviour, cognition and emotions (Roberts, Wood & Caspi, 2016). The researcher is of the view that all these combined with learning style, can yield results in academic performance of students, especially with the support of academic self-discipline and academic self-confidence of students.

Learning style, on the other hand, can be seen as an individual difference factor that represents enduring and stable approaches to processing information (Adey, Fairbrother, Wiliam, Johnson & Jones, 2012). They, therefore, act as regulators to students' learning and they are purposeful, strategic and persistent in the learning process (Aragon, Johnson & Shaik, 2012). As a strategy employed by students in their learning process, learning style helps students to self-evaluate, organise, transform learning materials, set-goals and seek information. Besides, it also helps students keep records of work, self-monitor their learning process, rehearse and memorise learning materials, and finally, help to seek interventions from peers, teachers, significant adults or review of notes and books. In effect, self-regulated

learning style enable students to generate and direct their own learning experiences rather than act in response to external controls (An & Carr, 2017).

Similarly, academic self-discipline which can be equated to "self-discipline" also helps in enhancing students' learning experience. It refers to behaviour emanating from discipline. It entails perseverance, meeting time schedule, goal-setting and planning for goal-achievement and completion of an unpleasant task. According to Aragon et al. (2012), these characteristics of academic self-discipline have a positive influence on students' academic performance. What this means is that a well behaved, academically self-disciplined student is most likely to perform better academically than disciplined problem students, as their behaviour is a potential factor to contribute to a decline in academic performance. Also, a student with a high level of self-confidence ends up performing better in his or her academic activities (Yahaya & Nordin, 2016).

General self-confidence refers to individual characteristics which enable them to have a positive or realistic view of themselves or situation that they find themselves in (Aragon et al., 2012). Academic self-confidence on the other hand, refers to a person's self-confidence in the context of academic achievement, meaning that people who have a high level of self-confidence tend to have a realistic view of themselves, and their capabilities which make them persistent in their endeavours to perform better academically (Park, Lawson & Williams, 2012).

According to De Feyter et al. (2012), self-esteem and self-efficacy in combination is what constitutes self-confidence. Neill defines self-esteem as a general feeling of self-worth or self-value. This means that a person with low

self-esteem has a belief that he or she is worthless or inadequate to perform when confronted with a challenge while the one with high self-esteem, believes otherwise. Self-efficacy on the other hand, is the belief in one's capacity to succeed in a given task (Guntern et al., 2017). This, according to Busari (2017), can be either general or specific. It is general when it is a belief in one's general capacity to handle tasks, and it is specific when it is a belief in one's ability to perform specific tasks on certain things. Academic self-confidence may stem from sources like mastery experience, vicarious experience, verbal persuasion and psychological states. It is, therefore, proposed as a mediating variable between individual's inherited abilities, his/her learning style and the opportunities afforded by the academic environment of higher education (Hematian, Rezaei & Mohammadyfar, 2017).

The above assertions show that both personality trait and learning style have some incremental effects on students' academic performance, especially when effectively combined with academic self-discipline and academic self-confidence, as mediating variables (An & Carr, 2017; Busari, 2017; Rahbar, Vellani, Sajan, Zaidi & Akbarali, 2011; Yahaya & Nordin, 2016). In this regard, it is hypothesised that the result of the study will establish the degree to which these assertions are true among distance learners of CoDE, UCC; hence the need for the study.

Statement of the Problem

Globally, educators are concerned with methodologies that improve students' performance. Recognising that students are different and that teachers need to respond to these differences are not new concepts in education (Abidin et al., 2011). The introduction of multiple learning

environments opens questions about effective course design based on students' individual differences. Given the financial benefits and possibility of enrolment increase, it is not surprising that colleges and universities are offering more courses utilising distance education formats (Akrofi, 2010). Many universities agree that their campuses are not big enough to accommodate this increasing number of senior high school graduates (Busari, 2017).

The distance education programme of CoDE, UCC, is one of the solutions that the university has adopted to contain the capacity pressure that increasing registration has on higher education in Ghana. CoDE, UCC, was established to run Education, Business and Maths and Science programmes at the diploma and degree levels, and has now incorporated master's programmes. Since its inception, the entire programme has run steadily to meet the purposes for which it was established (CoDE, UCC, 2017b).

However, academic performance of most of the DBE learners has not been encouraging. Records retrieved from the Students' Records Management of CoDE, indicate that in 2011/2012 academic year, the grades of 1000 out of 2300 students, representing 43.5 percent, were below satisfactory (which is 1.50) in Introduction to Measurement and Evaluation (CoDE, UCC, 2017a). In the same vein, in Mathematics for Basic School Teachers, Methods of Teaching Basic School Science and Physical Education, 664 (28.9%), 599 (26%) and 466 (20.3%) students respectively obtained grades below 1.50. Recent evidence of this trend of low-performance is indicated in Table 1, where the majority (55.2%) of DBE level 200 students' CGPAs were below satisfactory (CGPA<1.50), (CoDE, UCC, 2017b). This trend of performance

appears not to be encouraging as the expectation of the college and, for that matter, the university, is to graduate the majority of its intake of students, obtaining not less than second class lower (CGPA of 2.5 – 2.9).

In view of the low-performance trend in the college among DBE students, some interventions have been made by the Department of Quality Assurance and Enhancement (DQAE) of CoDE to avert the trend. Some of these interventions include sharing end-of-semester examinations report findings with members of top-management committee of CoDE, monitoring the administration of quizzes and end-of-semester examinations, developing instruments for the assessment of course tutors by students in the various study centres and reviewing and developing instruments for the monitoring of study centres throughout the country (UCC, 2016). Notwithstanding all these, it appears that more needs to be done as the problem continues to occur.

Some of the several factors which relevant literature identifies to be responsible for academic performance include personality trait and learning style (Aragon et al., 2012; De Feyter et al., 2012). In view of this, there has been a general argument among psychologists that failures and low academic performance of students cannot completely be attributed to poor instructional methods of teachers and lack of teaching and learning materials, but also to other factors which take into account, students' negative application of personality trait and ineffective learning style (Irani et al., 2012). This position has been confirmed by some other studies (Busari, 2017; Jannatul-Firdaos, 2014; Guntern et al., 2017) that some students on distance education programme lack good learning style as well as effective study skills, leading to low-academic performance in school. Guntern et al. are of the view that the

influencing variables in question (personality trait and learning style) when properly and effectively applied, help students do self-evaluation, transform learning materials, set goals, seek information and keep records of work, and review notes or books which eventually lead to better academic performance.

Yahaya and Nordin (2016) aver that with positive personality trait and effective learning style, students will be able to process and synthesise feedback information from sequences of events over long intervals about the situation, circumstances and the patterns of actions that are necessary to produce given outcomes. This means that there is a linear association between the two independent variables (personality trait and learning style) and academic performance (Guntern et al., 2017). Thus, if students can perform well in class assignments, quizzes and subsequently in examinations, the positive influence of personality trait and learning style are *sine qua non*. Incidentally, all these findings were reported from the Western research studies.

In the Ghanaian context, studies (Koomson, 2006 & Akrofi, 2010) on UCC distance learners, identified a combination of workload with academic work, family interference at home, church and other societal responsibilities, inability to organise well for quizzes and examinations, and lack of confidence which tend to concentrate on memorizing facts to write examinations, as some of the causes which militate against academic performance among learners of CoDE. As issues concerning the influencing variables (personality trait and learning style) have not yet been given scholarly attention in any of the research works on students of CoDE, served as a great concern to the researcher, to investigate their influence on academic performance of CoDE

students, taking into consideration, the mediating effects of academic self-discipline and academic self-confidence on their academic performance.

Assumptions of the Study

The study was carried out based on the following assumptions:

1. Both students' personality trait and learning style influence their academic performance.
2. Students who are self-disciplined academically would have high levels of academic self-confidence to excel in the college.
3. Students' personality trait and learning style influence their level of academic self-discipline and self-confidence.
4. Students with similar personality trait and learning style would have different levels of academic performance if their self-discipline and self-confidence differ.

Purpose of the Study

The purpose of the study was to investigate the influence of personality trait and learning style on academic performance of diploma in basic education distance learners of UCC, taking into consideration, the mediating effects of academic self-discipline and academic self-confidence.

Research Questions

Based on the purpose of the study, the following research questions were formulated to guide the study:

1. What are the personality trait and learning style of DBE level 200 students of CoDE, UCC?
2. What are the effects of gender of DBE level 200 students on their personality trait, learning style and academic performance?

3. What are the effects of age of DBE level 200 students on their personality trait, learning style and academic performance?

Research Hypotheses

In line with the purpose, the following hypotheses were formulated and tested to help strengthen the argument as discussed under the conceptual framework:

Hypothesis one

H_0: There is no statistically significant relationship between students' personality trait and their academic performance.

H_1: There is a statistically significant positive relationship between students' personality trait and their academic performance.

Hypothesis two

H_0: There is no statistically significant relationship between students' learning style and their academic performance.

H_1: There is a statistically significant positive relationship between students' learning style and their academic performance.

Hypothesis three

H_0: Academic self-discipline and academic self-confidence do not significantly mediate (serial) the relationship among students' personality trait and learning style, and academic performance.

H_1: Academic self-discipline and academic self-confidence significantly mediate (serial) the relationship between students' personality trait and learning style, and academic performance.

Significance of the Study

The beneficiaries of the study will be all students of CoDE, UCC as well as distance learners in other institutions throughout the country. Recent uses of knowledge relating to personality trait theory and learning style theory range from improving learner outcomes to the development of alternative instructional strategies (Day & Silverman, 2015). Perhaps the most important implication of research in these areas is the relationship between individual differences and performance outcomes. Designers and instructors of distance education may benefit from the use of this research by creating more effective learning environments specifically designed to accommodate a variety of individual differences. Also, it is envisaged that the findings of the study will contribute to the existing and related literature on distance learners' personality trait and learning style.

It is also envisaged that the study, will aid lecturers, course coordinators, course tutors and other stakeholders to see the need to support students with the provision of relevant educational materials and some other supporting services that can facilitate their learning. Besides, teaching "study skills" will also be seen as very necessary component of education delivery in our universities to bring about improved academic performance among students. Through dissemination of the outcome of the study, the researcher can organise seminars and workshops for course tutors on the need to go the extra mile in helping students not only to develop good and effective learning style but also develop their personality trait for improved academic performance.

Also, the results may help academic advisers in the various study centres across the country to be more proactive and innovative to design comprehensive and relevant educational programmes for students to enhance various learning style in order to yield results in academics. The findings will further broaden professional and intellectual horizon of Counsellors and thereby sharpen their professional skills to render effective counselling services to students to improve performance academically. It will further be expected that the study report will serve as a guide or study manual for the Ghana Education Service (GES) to organise in-service training and workshops on learning style for teachers in general. Besides, it will also provide strategies for instructional alternatives to complement students' revealed learning style for effective academic achievement.

Furthermore, studies have been conducted investigating similar predictive elements of personality trait and learning style. However, findings have been inconclusive. Moreover, many of these studies contain multiple achievement variables, making it difficult to correlate elements of trait or style with specific performance objectives. By examining individual gender differences within a distance education setting, results may assist designers, instructors, trainers, and developers in improving instruction and better serving the individual needs of their students. By exploring and contributing to the knowledge base of personality trait theory and learning style theory, De Fruyt and Mervielde (2013) "acknowledges their existence in the teaching and learning process and, when possible, permits the tailoring and improvement of instruction" (p. 410). The significance of individual gender differences research as it applies to the construct of distance education is monumental.

Busari (2017) suggests that college-age populations are continuing to grow in most African countries since their campuses are not physically large enough to accommodate the new numbers of students. Distance education allows campuses the physical flexibility of being able to accommodate students' needs without structural modifications as well as the ability to increase enrolment by reducing the barriers associated with physical proximity. The findings of this study may, therefore help enhance the output of distance education in the country which in the long run will narrow the problem of not being able to admit students into the mainstream system as a result of the inadequate facility.

Finally, the outcome of the study may help students to make new and more flexible arrangements that will aid them in their prioritisation of daily activities, particularly studying of modules, time spent on work, hobbies, friends and family members, and decision making on how to manage time judiciously. Also, results will assist instructional designers, trainers, educators, and developers of distance education in increasing the effectiveness of distance education curriculum and design.

Delimitation

There are many constructs/variables which can serve as determinants of students' academic performance, but the study was delimited to personality trait and learning style, taking into consideration the mediating effects of academic self-discipline and self-confidence. This is because some studies have shown their influence on academic performance of students from the western culture and not in the Ghanaian context, especially in CoDE, UCC, where the researcher's interest lies. Geographically, the study was delimited to

all the study centres of CoDE in all the ten Regions in Ghana, and covered only DBE students. This is because they constitute the highest rate of failures in the college (CoDE, UCC, 2017a).

Furthermore, the choice of level 200 DBE students for the study was as a result of the fact that the level 100 students were new in the system and had not done much academic work to have enough data on them. Level 300 students were also about to exit and as a result were more concerned about their off-campus teaching practice. Therefore, level 200 DBE students were the accessible population for the study. In view of the fact that the target group runs on the same format of operation with other groups of students in the college, the findings of the study can objectively be generalised to cover all DBE learners in CoDE.

Limitations

Although every effort was made in the study to reduce the effect of every extraneous variable, some limitations were encountered. With these limitations in mind, explanations regarding the significance of the study should be handled cautiously. In the first place, it was assumed that the selected students had sufficient knowledge and understanding of the issues raised in order to answer the items in the questionnaire accurately and truthfully, but this was not verified. Also, the study relied on self-reported data. As a result, the data were prone to distortion to the extent that the findings might not reflect actual fact on ground. Also, the study did not control extraneous variables. This can influence the potency of the independent variables on the dependent variable.

Additionally, the findings of this study were derived from a sample of only level 200 DBE students of CoDE, UCC; therefore, generalisation of the findings is limited. Also, this study covered only CoDE, UCC, which is a public university; however, other private universities such as Valley View University, Islamic University College and others which also run distance education model in Ghana were not covered. Therefore, the result may have restricted generalisation to distance learners in other public universities and also those in private universities. The degree at which the results were representative of the population could reduce the validity of the conclusions drawn from the results of the instruments as they apply to the entire population.

Operational Definitions of Terms

For the purpose of the study, the under listed terminologies were defined operationally to enhance full understanding of the study:

Academic performance: It is the outcome of education. It is the output or effort a student makes in the field of academics. In this study, academic performance was measured using the CGPA of the students.

Academic self-confidence: The belief one has that he or she can perform well in the field of academics.

Academic self-discipline: It is a behaviour that a student possesses to enable him or her become persevering in all it takes to properly behave academically.

Dual mode: It is a form of distance education that replicates almost all the courses offered in the mainstream of the university.

Influence: It is the capacity or power to cause change(s) without directly forcing them to happen. In this context, it is the capacity or power of the independent variables to cause a change(s) on the depending variable.

Learning style: They are individual difference factors that represent enduring and stable approaches to gaining, processing, and storing information. Basically, they refer to how individuals learn.

Personality trait: They are the consistent traits or characteristics of an individual which make him or her different from others. It is determined by an individual's preferred way of dealing with new information as well as how he or she views situations.

Respondents: They constituted the students sampled for the study to respond to the items in the questionnaires during the data collection.

Organisation of the Study

The study is organised into five chapters. Chapter One is the introduction which covers the background to the study, a statement of the problem, purpose of the study as well as research questions and hypotheses. It also presents the significance of the study, delimitation and limitations of the study. Chapter Two focuses on the review of existing relevant and related literature on the study. The review is organised under three major areas, namely the concept, theoretical and empirical reviews of both predictor and criterion/outcome variables, including academic self-discipline and academic self-confidence as mediating variables. Chapter Three also describes the methodology that is used in the study. This includes the study institution, approach to the study, research design, the population, sample and sampling

procedures, research instruments, validity and reliability of instruments, ethical issues, data collection and data analysis procedures.

Chapter Four presents the analysis of data, results and the discussion of the findings. The final chapter, which is chapter five, presents the summary, conclusions, recommendations and implications of the findings to both CoDE academic advisers in the various study centres and indeed Counsellors in CoDE as well as those in the main University. The chapter further presents the suggestions for further study.

Chapter Summary

The purpose of the study through examination of background research regarding personality trait, learning style, and distance education were identified in this chapter. Along with the purpose and scope of the study, a statement of the problem was reviewed. Major research questions and hypotheses were outlined. The significance of the problem was discussed and operational definitions of terms were listed. On these foundations, the study proceeded with a detailed description of the research which is a complete review of literature as provided in chapter Two.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter deals with the review of existing relevant and related literature on the concepts of personality trait and learning style as influencing factors of students' academic performance, with academic self-discipline and academic self-confidence serving as mediators in the study. The chapter is, therefore, categorised into three main areas, namely conceptual, theoretical, and empirical reviews which capture the views and ideas of different authors and researchers that are relevant to the problem under study.

The Concept of Personality Trait

Personality trait as a concept is the relatively enduring pattern of thoughts, feelings and behaviours that distinguish individuals from one another (Roberts & Mroczek, 2012). The main view in the field of personality psychology today holds that personality emerges early and continues to change in meaningful ways throughout the lifespan of the individual (Rothbart, Ahadi & Evans, 2012). Adult personality trait are believed to have a basis in infant temperament, meaning that individual differences in disposition and behaviour appear early in life, possibly before language or conscious self-representation development (Robert et al., 2016). The Five Factor Model (FFM) of personality has been found to map onto dimensions of childhood temperament (Koseoğlu, 2016; Putnam, Ellis & Rothbart, 2016), suggesting that individual differences in levels of the "Big Five" personality trait (extroversion, openness to experience, agreeableness, conscientiousness and neuroticism) are present from young ages. The current study adopted these

dimensions of personality trait in order to assess the level of personality trait exhibited by distance learners of CoDE, UCC.

Classic theories of personality, such as Freud's tripartite theory and post-Freudian theory, including developmental stage theories and type theories, have often held the perspective that most personality development occurs in childhood, and becomes stable by the end of adolescence period. As recently as 2012, modern personality theorists concurred to this assertion that by age 30, personality is "set like plaster" (Klimstra, Luyckx, Germeijs, Meeus & Goossens, 2012). The lifespan perspective of personality is based on the plasticity principle, that personality trait are open systems that can be influenced by the environment at any age (Roberts et al., 2016). This instructional model of development emphasizes the relationships that exist between an individual and his or her environment, and suggests that there is a dialectic between continuity and change throughout the lifespan of the individual.

Large-scale longitudinal studies have demonstrated that the most active period of personality development appears to be between the ages of 20-40 (Roberts et al., 2016). According to Roberts et al., personality grows increasingly consistent with age and plateaus sometime around age 50, but never reaches a period of total stability. Most psychologists implicitly seem to endorse a simple set of assumption about the way personality is put together in humans (Yahaya & Nordin, 2016). According to Allport (as cited in Yahaya & Nordin, 2016), there are three distinguishing components or layers of personality which is: the persona, the self and the unconscious process.

In the first level of personality, people use masks or external layers, perhaps several of them for different occasions and this is the personality an individual shows the world. The word persona was, therefore, used to describe this layer especially in ancient Greece, where theatrical masks were worn by actors to indicate emotion (Ormrod, 2008). There is, however, awareness that the appearance that is put on is distinct from the underlying the true self. Different masks or roles can be assumed depending upon the context, a person does not necessarily act the same way in class, as a part, or at home. So it is normal to have a variety of masks or personas for different social settings. This shows that it is normal for distance learners to exhibit different learning style and behaviours at a particular time since they are encountered with different situation and circumstances as students and social beings.

With the second level, behind the mask is the private self or ego which is also called the personal identity, and for most people, this is the personality. It is the part that switches around in dissociative identity disorder or "multiple personality". Whatever it is called (me, myself, I, ego, identity) it forms part of the personality which dominates conscious experience and it is closely tied to our memory for personal episodes in our lives. It seems to have something to do with controlling other mental processes and is often called an executive process, because it sets up plans to be executed (Zhang, Sternberg & Rayner, 2012). The third component distinct itself from both the persona and the conscious self, is the realm of unconscious processes in the mind. These processes include everything not normally accessible to conscious awareness. Modern cognitive psychologists are aware of many different unconscious

processes, and they now regard the executive process as a small part of the total cognitive system (Roberts et al., 2016).

The discussion so far shows that the personality of distance learners can be seen as all the relatively stable and distinctive forms of thought, behaviour, and emotional responses that represent their ability to adjust to surrounding conditions. For the purpose of this study, an adaptation of Carl Jung's definition of personality type will be used. Jung defined personality as dispositions and preferences that make seemingly random behaviours, not random at all (as cited in Ainlei, 2008). Jung (as cited in Berry & O'Connor, 2009) also hypothesised that these seemingly random behaviours were in fact quite orderly and consistent and are a function of different ways in which people prefer to use their perception and judgment. As indicated earlier, the five dimensions of personality trait were adopted to make it easier in measuring the consistent traits or characteristics of an individual which make him or her different from others.

Personality traits are important variables in the learning process of students, especially distance learners. Awareness of personality type in the formulation of teaching and learning strategies is essential to distance learners, educators, and designers (Rimmerman, 2016). Kretovics and McCambridge (as cited in Koseoğlu, 2016) also support the importance of the variables of personality type, specifically in distance education environments. According to Rimmerman (2016), personality attributes can enhance the content aspects of performance and may also distort and interfere with functioning, depending on the nature and intensity of the personality characteristics. Enhancement of distance learners' performance is also determined by the appropriateness of a

learning style adopted by students. The next subsection to consider therefore is the concept of learning style.

The Concept of Learning Style

Quite a few definitions of learning style have emerged from the review of literature. Terry (2011) reviewed a variety of interpretations and revealed learning style definitions based on "self-views, needs, personalities, individual strategies, differences, processes, temperaments, autonomies, modalities, aptitudes, values, ideal environments, personal touches, motivations, behaviour sets, characteristics, preferences, patterns and nature and make-up" (p. 68). Although an exhaustive definition has not evolved, there are commonalities in the suggested definitions that can be used as a foundation in the examination of learning style.

Other researchers perceive learning style to be how individuals process and organise information (Lawrence, 2010). Kolb (as cited in Arthurs, 2013) refers to learning style as the characteristic ways each individual collects, organises and transforms information into useful knowledge. Bhatti and Bart (2013) agree with Kolb and state that the focus is on the schematisation and management of approaches to learning and the addition of knowledge. The type of things students want to learn about, how they will approach learning situations, and the settings in which they prefer to learn are all influenced by individual learning style preferences (Clark, 2014). This shows that learning style are a student's consistent way of responding to and using stimuli in the context of learning. It tends to be fixed characteristics affecting a variety of learning behaviours. These observable behaviours provide clues to the way individuals' process and perceive information.

According to Adey et al. (2012), learning style are individual difference factors that represent enduring and stable approaches to processing information. In recent decades, the concept of learning style has steadily gained influence and elicited among professional educators at all levels of the educational system. Besides, the concept appears to have wide acceptance not only among educators, but also among parents and the general public. This acceptance is perhaps not surprising because the concept is actively promoted by vendors offering many different tests, assessment devices, and online technologies to help educators identify their students' learning style and adapt their instructional approaches accordingly (Abidin et al., 2011; Mohanna, Chambers & Wall, 2014).

As described earlier, the concept of learning style encompasses not only a large body of written materials, but also what seems to be thriving set of commercial activities. These commercial activities related to learning and are largely centred in the publishing and selling of measurement devices to help teachers assess individual learning style; although, not always, these devices classify the learner into different style categories (Coffield, Moseley, Hall & Ecclestone, 2014; Corden, 2013; Vaishnav, 2013).

Furthermore, the concept is embraced in a number of current educational literature. For instance, Ormrod (2008) wrote "some cognitive styles and dispositions do seem to influence how and what students learn" (p. 26). Some students seem to learn better when information is presented through words (verbal), whereas others seem to learn better when it is presented through pictures (visuals). Also, learners with kinaesthetic preference often take notes during the lecture, play with a pen or draw some pictures (Riding &

Rayner, 2013). They need to be physically involved, and learn best by manipulating objects (kinaesthetic). Deduction from the discussion so far shows that distance learners have particular learning style and therefore, there is the need for course tutors to adopt appropriate pedagogical skills and strategies that are tailored to those learning style.

Zhang, Sternberg and Rayner (2012) see learning as the way in which each learner begins to concentrate on, process, absorb and retain new and difficult information, the interaction of these elements occurs differently in everyone. Therefore, it is necessary to determine what is most likely to trigger each student's concentration, how to maintain it, and how to respond to his or her natural processing style to produce long term memory and retention. To reveal these natural tendencies and styles, it is important to use a comprehensive model of learning style that identifies each individual's strengths and performances across the full spectrum of psychological, sociological, physiological, emotional and environmental elements (Gokalp, 2013; Riding, 2014).

The argument of this study adds dimensionality to the influence of learning style on students' academic performance by adding the role of structure to the definition of learning style, asserting that individuals require a certain amount of structure, which may be high or low, in order to meet their individual learning needs. These definitions suggest that learning style is a preference an individual has for processing and perceiving information in a distinct manner specifically related to learning. Most learning style theorists agree that these traits are observable, fixed characteristics that are consistent

across a variety of learning situations (Busari, 2017) since students' learning style are influence of many factors.

In general, three main factors that contribute to the modification of learner's preferred learning style and these can be mentioned as: organizational setting of students' environment during the instruction which may include lighting of the room, temperature, sound level, time of the day or seating arrangement etc. as some of the first factors (Dunn, 2012). Dunn highlights the importance of organisational setting in her learning style model which she developed. Secondly, learning styles are altered through social interaction. As Mares (as cited in Su, 2012) points out, the individual learning style of each person is formed under the influence of his or her parents, teachers, siblings and life experiences. Moreover, the cultural factor must be taken into account as the manner people interact with one another is shaped by their culture, customs and social norms required by the given society.

Mares (as cited in Zou, 2015) identified six case studies of style conflicts between students and teachers and found that most of them were culturally related. Zou reminds that it is universally agreed that culture and thought patterns are strongly linked, and learning style thus reflect the cultural needs and values. Finally, school policy and the teacher's approach to classroom management also play their role as each student tries to adjust to the requirements set by the school. Learning style and strategies might be direct or indirect outcomes of teaching. Learning style preferences vary in relation to subjects since specific subjects require specific approaches and methods to be adopted (Ibe, 2015; Mrunal & Krishnakant, 2017).

Application of Learning Style in Classroom Instruction

In relation to designing learning interaction in the classroom, Akbari, Kiany, Naeeni and Allvar (2009) indicate that students can be grouped together on the basis of their learning style. These learners will form a kind of self-help group within collaborative or cooperative learning groups. An example of a situation in which verbal learners facing a task involving extensive use of language patterns are supported by the teacher whilst visual learners who find this activity less demanding, are expected to get on with the task with less support (Elsevier, 2012). The second form of learning style based upon instruction, a technique which has been developed in the United States and is known as 'style flexing'. The core of this approach is in pairing differing or complementary styles. It is used mainly in the context of specific group or team work with the element of competition being involved. Elsevier believes that such arrangement is more likely to ensure better motivation and everyone's attention.

Doyle (as cited in Breckler, Teoh & Role, 2011) acknowledges that learning style is an important dimension of individuality and one that is likely to affect classroom behaviour and achievement in significant ways. However, Breckler et al. posit that learning style clearly cannot be a sole basis for designing instruction. They warn that matching programmes require different groups to operate simultaneously. This type of classroom management is rather time consuming as it demands a lot of time to be spent on lesson preparation which might prove to be problematic as many teachers are often time limited and may not have all the resources for designing such programmes. One of the ways that learning style theory can be implemented in

the classroom environment is by focusing on tasks and activities that are dealt with within the classroom and which reflect the way the students are asked to work and learn. Doyle (as cited in Ishak & Awang, 2017) is also interested in classroom management, especially in the grouping of students for segments of time, seatwork, lecturing, discussions or group work.

Khalid et al. (2013) assert that individuals may become intellectually short-sighted and tend to avoid learning situations not falling within their personal learning range. Bearing in mind various arguments in favour of the implementation of learning style theory into everyday classroom practice. there should be some attempts to avoid being locked up into any particular learning style. On the other hand, students should be informed about the variety of learning style, informed about their own learning preferences and be given an opportunity to increase their ability to develop additional learning style and even modify their existing learning patterns through teaching implementation of a wide range of activities that would involve students with as many different learning style as possible. This shows that distance learners should be given opportunity to adapt or adopts different learning style that meet their needs and capacity as learners since this can help boost their academic performance. The next issue to consider is the concept of academic performance.

The Concept of Academic Performance

Performance is defined as the observable or measurable behaviour of a person or an animal in a particular situation, especially for experiment (Simpson & Weiner. 2012). This means that performance measures the aspect of behaviour that can be observed at a specific period of time. and to

determine it, a performance test is conducted. Singer (2013) defines a performance test as the type of mental test in which the subject is asked to do something rather than to say something. This shows that it is a type of test which throws light on the ability to deal with things rather than symbols.

In relation to educational research, academic performance of a student can be regarded as the observable and measurable behaviour of a student in a particular situation (Reznitskaya, Anderson & Kuo, 2012). For example, the academic performance of a student in English language as a discipline includes observable and measurable behaviour of a student at any point in time during a course. In English language students' academic performance consists of their scores at any particular time obtained from a teacher-made test. Therefore, academic performance can be equated with the observed behaviour or expectation of achieving a specific statement of or statement of educational intention in a research. Academic performance of students consists of scores obtained from teacher-made tests, terminal examinations, mid-semester examinations among others.

The most critical measure of any educational system is the assessment of its students. The aim of any research is to determine the extent to which this objective is achieved. If not, why and what can be done to achieve it? The fact that modern education has different levels of aims suggests that we must measure the extent of its success in a variety of ways. One of the major ways to do that is to examine students' academic performance (Wigfield & Eccles, 2012). According to Wigfield and Eccles (2012), learning outcome can be measured by academic achievement and accountability. Missions and goals of the education system usually determine learning outcome. This suggests that

learning outcome transcends cognitive assessment which includes attitudes and values. In research, learning outcome dwells on academic performance and attitude of the students.

For example, among the purpose of CoDE, UCC's outcome assessment plan for students is to obtain quantitative and qualitative information for use in evaluating and ultimately improving the quality of teaching and learning to meet its stated goals in academic programmes (National Accreditation Board [NAB], 2015). Also, these colleges have as its outcome, the ability to write, interpret, develop positive attitude and speak clearly and effectively which will enhance students' learning throughout their lives after graduation.

Thus, it is becoming very clear that learning outcome is a comprehensive plan for measuring academic performance and attitude. It is observed that the majority of studies avoid the use of outcome and this may be due to its generic nature or vagueness. Measurement of outcome is considered the most effective means of finding out information about students. Probably that is why Outcome Based Education (OBE) is developed in Ghana and other countries. Mueller (2012) stated that OBE was developed in response to the deteriorating performance of students in public examinations. According to Mueller, OBE is easy to identify by phrases that go along with it, namely, performance outcome, learning outcome, exit behaviour and whole-child development, authentic assessment, learner outcome certificate of mastery, holistic education, critical thinking and lifelong learning.

In conclusions, an attempt has been made in this study to highlight the interrelationship among academic performance, academic achievement and

learning outcome so that a consensus can be reached among researchers on the appropriate use of these terms. These terms serve as the basis of making decisions on the direction of research, the methods to adopt in a study and instruments to employ so that conclusions will be valid. However, good use of these terms mostly rest on the intention of the researcher and what areas or levels of objective he or she wants to cover. In Wanner's (as cited in Atkinson, 2014) view, learning outcome can be satisfied only if the research study covers measurement of cognitive aspect of behaviour and attitude. Atkinson (2014) stated further that a research will satisfy academic performance if the study is limited to standardised achievement test and teacher made test respectively. That is, if a researcher wishes to conduct research study of learning effectiveness using teacher or researcher made test score, it is considered a good practice to make use of the term academic performance. Therefore, it is appropriate to use the term academic performance in this study since distance learners' CGPA is a summation of their written end-of-semester examination grades/scores.

Distance Education

Historically, the term *distance education* has been used to refer to everything from tile courses to interactive video to correspondence courses to computer-assisted and computer-mediated instruction (Aktan, 2010). Distance education can be seen as a kind of formal education that takes place when a student and instructional source are separated by physical or temporal distance, and a combination or voice, video, data, and/or computer technology are used to facilitate the instructional process (Badu-Nyarko, 2010). Most of the literature supports definitions similar to the one above. For the purpose of

this study, distance education refers to education delivered to a location via face-to-face in a synchronous and asynchronous instruction format based on recognizing course model on the weekends.

Trends in Distance Education

From recent studies, we know that more students are choosing distance learning formats than ever before, at least at the postsecondary level, and that the demographics of distance learners are changing to reflect that of the typical university student (Dankyi, 2013). According to the Pew Learning and Technology Programme (as cited in Dankyi, 2013), 94 percent of all colleges and universities are currently (63 percent) or planning (31 percent) to offer distance and distributed learning. The reason for this is to contain the preponderance number of senior high school graduates who have qualified to pursue university education, but due to lack of space and capacity they are not offered admission by these institutions.

According to Dankyi (2016), growing enrolments in higher education are forcing the demand for increases in distance delivery methods. With the increases in college-age populations, many facilities and institutions agree that their campuses are not large enough to accommodate this growing number of students. Therefore, distance education programmes may be one solution to the capacity pressures that increasing registration may have on higher education. Rapid developments in technology have made it increasingly easy for colleges and universities to take advantage of distance delivery methodologies. Institutions are able to offer instructional programmes to students who need scheduling flexibility, such as individuals living in remote areas, holding full time jobs, or those with family needs (Rimmerman, 2016).

With these issues in mind, students are beginning to look for courses that can meet their personality trait, individual needs and learning style. As more distance education opportunities become available, the need for quality competitive programmes will grow. Environments that target specific learner traits and styles may be one way to maintain quality instruction and provide the most effective global learning situations (Dankyi, 2016).

Characteristics of Distance Learners

Usually, distance learners are seen as practical problem solvers who are motivated to take courses for a practical purpose such as professional advancement or interest in the subject matter (Berge & Mrozowski, 2011). Berge and Mrozowski believe that distance learners have certain common lifestyle characteristics. They work full or part time and balance it with a variety of family roles. Often these students are restricted by region or some circumstances. Bayless (2012) adds that some dropouts, including students who decide to take a break, and those beginning a second career often choose distance education as an alternative to face-to-face traditional delivery.

Globally, the needs of learners within tertiary education are changing and that their demands include time scheduling, money and long-term commitment constraints (Ahn, 2013). They also tend to feel insecure about their ability to succeed in distance learning, find instruction that matches their learning style, and have sufficient instructor contact, support services, and technology training (Dankyi, 2016).

In terms of learning style and personality trait, the lack or narrowness of face-to-face interaction in distance education implies that certain characteristics must be present in the individuals who choose this

environment. Myers and McCaulley (as cited in Ahn, 2013) are of the view that achievement in academic settings requires the ability to deal with concepts or ideas which are mainly the zone of introversion. It also requires the capacity to work with abstraction, symbols, and theory, which are the zone of intuition. With limited or without the aid of face-to-face interaction, these traits could play significant roles in the determination of performance within distance education environments. Bostrom, Olfman and Sein (2014) discovered that learners with a converge style performed better than others when learning to use a computer. This implies that by using specific learning style preferences educators and designers may be able to create more effective learning environments, such as that offered through computer-mediated course delivery systems.

There are some obvious implications of personality trait and learning style research as they relate to distance education. Snow, Corno and Jackson (2015) use the term *macro adaptation* to suggest the importance of individualised instruction through the design of alternate environments that engage students through different forms of information processing. Instructors and designers may find that understanding the application of student personality type and learning style may provide guidelines and solutions to the questions currently being asked regarding the quality of distance education programmes and how to improve them. Results of personality trait and learning style research could have serious implications for course design and the implementation of current curricula in distance education formats, especially among counsellors. The study, therefore, review guidance and counselling needs of students regarding the studied variables.

Guidance and Counselling Needs of Distance Learners

Generally, all learning requires a degree of motivation, self-discipline, and independence on behalf of the learner. However, these aspects are arguably more pertinent in the case of distance learning, where the student is largely self-directed and unsupervised, and expected to be more autonomous (Scott, 2012). According to Aragon et al. (2012), maturity, high motivation levels, self-discipline and self-confidence have been shown to be necessary characteristics of successful and satisfied students. Clack (2013) is of the view that on the whole, distance learners are perceived to be satisfied with course materials, choice of modules, assignment feedback and length of time given to complete assignments. However, significant problems surfaced regarding issues of student support, and access to and provision of resource materials. Arguably, these are issues intrinsic to the successful provision of distance learning courses, and the results both concord with aspects of the research literature (Agyemang, 2014, Clack, 2013). This raises some interesting questions regarding the provision of distance education and its ability to meet the needs of learners.

Taylor and Buku (as cited in Wambu & Fisher, 2015) identify the following as the basic needs of students:

- Need for self-understanding, awareness of one's opportunities, special aptitude, interest and other personal traits, which are required for personal development and adjustment in life.
- Need for help in finding a suitable and gainful employment.
- Need to relate to colleagues and others in the cultural environment in order to enhance personal adjustment and relationship.

- Need to develop skills and improve performance in areas of specialisation.
- Need to develop the ability to make independent choices among alternatives and be able to take responsibilities for such actions.
- Need to build up a positive image of oneself after taking into consideration one's strengths and weaknesses.
- Need to select appropriate courses based on the needs, interest and abilities of the individual in order to aid educational progress and adjustment.
- Need to have adequate information on career opportunities within the environment so as to serve as a guide in the choice of a vocation that is suited to one's interest, aptitude and traits.

Dogar, Azeem, Majoka, Mehmood and Latif (2011) also had this to add to the list of counselling needs of students: educational needs, vocational needs, social needs, emotional needs and behavioural needs. Furthermore, Sekyi (2013) also categorised students' needs into study habits, educational information, interpersonal relationship, career information, employment, self-understanding, spiritual information, and financial information. Deductions from the list of guidance and counselling needs of students indicated by Dogar et al. (2011), Taylor and Buku (as cited in Wambu & Fisher, 2015), and Sekyi (2013) suggest a diversity of need for career counselling and guidance programmes. This is so because students exhibit different characteristics that require different needs. Research has consistently shown that almost one-half or more of university students' desire help with educational planning. (Litoiu & Oproiu, 2012). The identified guidance and counselling needs of distance learners can be met with appropriate face-to-face counselling sessions that

focuses on students' personality trait, learning style, academic self-confidence, and self-discipline (Aragon et al., 2012).

Students in distance learning systems face not only the problems of conventional students, but also those generated by the system itself. Robinson (as cited in Kangai, Rupande & Rogunye, 2011) categorises the problems as follows: those relating to study techniques and learning difficulties which may or well increase in complexity with the range of media being used, those arising from an individual trying to interact with a distant and sometimes impersonal institution, and personal problems which affect the student's work. Mishra (2014) added that distance learning students are usually older compared with typical students engaged in campus-based programmes. Hence, they encounter more psycho-social problems which might affect their academic progress necessitating the need for counselling that targets their personality trait, learning style, academic self-discipline and self-confidence in order for them to develop totally and also pursue their studies unhindered.

Distance learners face many challenges that militate against their studies. The challenges include how to combine their work with their studies, manage family and social activities (Owusu-Boateng & Essel, 2011). They are often misunderstood, isolated and finally drop out from the programme they embark on. They also feel burdened with studies and do not know where to turn for help (Agyemang, 2014). This is the very reason why there is the need to identify these needs and cater for them. This will help distance learners to be successful in their academic endeavours. Academic success in this context does not mean passing their various courses of study with good CGPA but to acquire the necessary skills for life and the world of work. Successful students

will always have the desire of coming back into the institution that trained them.

The challenges confronted by distance learners can be narrowed or eliminated through effective implementation of support services such as counselling to meet these needs of students. This, according to Rashid (2015), can take the form of counselling through correspondence, audio-cassette, telephone, and face-to-face counselling. Therefore, distance education providers should teach the new students time management and encourage the students to draw private timetables and discuss them with their counsellors (Rashid, 2015).

Also, the students should also be encouraged to form study groups and get in touch with their study group members through the e-mail and mobile phone whenever they are in need. Students living in the same vicinity should be encouraged to meet occasionally for discussions and studies. In addition, facilitators at distance education should be taught how to give diagnostic and prescriptive feedback. The facilitators should return marked assignments on time with the appropriate comments or feedback (Wambu & Fisher, 2015). In so doing the students could monitor their progress through the programme and make the necessary amends.

Counselling students to appreciate their strength and weakness with regard to their respective personality trait and learning style will help them develop positive academic self-discipline and self-confidence which in the long run will help them to know themselves better and find effective solutions to their daily problems. Also, guidance and counselling programmes help students develop life skills needed to deal with problems before they occur.

and enhance personal, social and academic growth. Also try to identify cases involving domestic abuse and other family problems that can affect a student's academic development (Jumana & Meera, 2016).

Theoretical Framework

Although there are numerous personality trait and learning style theories that have been classified in different literature and are all link to students' academic performance. However, this study focused on the Big Five Model (BFM) of personality trait and Visual, Auditory, Read/write and Kinaesthetic (VARK) learning style model. These two models were used to underpin the discussions and arguments of the study. Therefore, these models were reviewed to form the theoretical framework of the study. BFM and VARK learning style models are based on assessment of perceptual modalities of learners.

The Big Five Model

The Big Five is a five dimensional model of personality based on experience as opposed to theory. The model was identified by searching for the smallest number of synonym clusters that could account for the large variation in individual differences in personality (Vermetten, Lodewijks & Vermunt, 2011). These factors are dimensions, not types, so their measurement is changed regularly. They are also partly genetic and universal (Lounsbury, Sundstrom, Loveland & Gibson, 2013). Many researchers (Lawrence, 2010) have also recognized and noted personality as a determining factor on how students learn using the Big Five personality trait (BFP).

The BFP is also known as the Five Factor Model (FFM) is a widely examined theory of five broad dimensions used by some psychologists to

describe the human personality and psyche (Lounsbury et al., 2013). This FFM of personality is one of the prominent models in contemporary psychology and defines personality in terms of five broad factors, namely, openness to experience, conscientiousness, extroversion, agreeableness and neuroticism which are a replication of the work of Allport and Odgerg (as cited in Diseth, 2014). These are conceptualized as stable, individual difference characteristics explaining an individual's disposition to particular patterns of behaviour, cognition and emotions (Eysenck, 2014).

According to Goldberg (as cited in Eysenck, 2014), openness to experience refers to a general appreciation for art and emotion, while conscientiousness refers to predispose to be organized, exacting, disciplined, diligent, dependable, methodical and purposeful. Extroversion also refers to sociable, talkative or communicative, friendly, active, assertive, exciting and stimulating while agreeableness expresses good-natured, gentle, co-operative, flexible, tolerant, generous, sympathetic, courteous and striving for common understanding and maintaining social affiliation (Barkhi & Brozovsky, 2014).

Lastly, neuroticism assesses affective adjustment and emotional instability. It refers to high score-experience effects and individuals with such scores on this domain are prone to experiencing psychological distress, fear, sadness, embarrassment, disgust, anger and have unrealistic ideas. Individuals with low scores on the other hand, are emotionally stable, usually calm, even-tempered, relaxed at work, and in their personal lives, able to face stressful situations without becoming upset or rattled (Eysenck, 2014).

Openness to experience: This personality trait is seen as the degree to which a person is imaginative and curious as opposed to concrete minded and narrow

thinking. It reflects on the level of intellectual curiosity, creativity and preference for novelty a person possesses. This can also be described as the extent to which a person is imaginative or independent. It depicts a personal preference for a variety of activities over a strict routine. High openness can be perceived as unpredictable or lack of focus. Individuals with high openness are said to pursue self-actualisation specifically by seeking out intense, euphoric experiences, such as skydiving, living abroad, gambling, and so on (Borg & Shapiro, 2012).

Openness to experience personality trait also tend to develop a willingness to try and learn new things, consider new ideas and have an open mind in general (Eysenck & Eysenck, 2013). Those with low openness on the other hand, seek to gain fulfilment through perseverance, and are characterized as pragmatic and data-driven, and sometimes perceived to be dogmatic and closed-minded. There are two main facets under this category: "openness to cultural" which refers to the broadness or narrowness of one's own cultural interest and "openness to experience" which also refers to openness to different values and interest towards people, habits and lifestyle (Eyong & Schniederjans, 2014).

Conscientiousness: This can be described as the degree to which a person perseveres, being responsible and organized as opposed to laziness, irritable and impulsive. It further explains that a conscientious person concentrates on only a couple of goals and strives hard to achieve them. A student of this calibre is predisposed to be organized, exacting, disciplined, diligent, dependable, methodical and purposeful who manages his or her time and study very well with clear goals (Poropat, 2012). These students also have an

intrinsic motivation and positive attitudes. Students who score low in conscientiousness tend to be less careful, less focused and more likely to be distracted from the task. The opposite is those who score high (Poropat, 2012).

Conscientiousness is a helpful trait to have as it has been linked to educational achievement and particularly to the will to achieve (Vermetten et al., 2011). It has also been found to be of special interest to educators and in view of this, Blickle (as cited in Poropat, 2014) has demonstrated that conscientiousness is related to learning outcome mediated by learning strategies. Poropat (2014) believes that conscientiousness falls into two main facets: "scrupulousness", which consists of dependability, orderliness and precision, and "perseverance", the measure of which determines the capability of fulfilling one's own tasks and commitments.

Extroversion: Extroversion versus introversion is possibly the most recognizable personality trait of the Big Five. The more extroversion one is, the most social butterfly he or she becomes. Extroverts are chatty, sociable and draw energy from crowds. They are also described as assertive, active, bold and cheerful in their social interactions, and stimulating (Felder, Felder & Dietz, 2012). It also represents the quantity and power of interpersonal interaction that one needs for stimulation. Introverts, on the other hand, tend to be withdrawn, quiet, reserved, even-paced and independent (Poropat, 2012). Introversion is sometimes confused with shyness, but the two are different entities as shyness may imply a fear of social interactions or inability to function socially. Poropat (2014) puts this category into two facets namely: "dynamism", which refers to expansiveness and enthusiasm, and

"dominance", which also refers to assertiveness and confidence. Husch (2013) has found that extroversion is a factor that can influence academic success.

Agreeableness: This dimension of personality trait has been conceptualised to be associated with a tendency to be compassionate and co-operative rather than being suspicious, irritable, uncooperative, inflexible, unpleasant and antagonistic towards others (Maddi, 2012). It is also a measure of one's trusting and helpful nature, and whether a person is generally well-tempered or not. It reflects qualities such as social, warmth, likability, nurturance and emotional support as well as friendliness and trust.

According to Poropat (2014), the main two facets of this category are "cooperativeness/empathy" which refers to consideration to other people's needs, and "politeness", also referring to kindness, civility and trust. Poropat (2014) further asserted that more agreeable students tend to be extrinsically motivated due to a better compliance with educational instruction. This has confirmed earlier research that agreeableness was linked to compliance with teacher instructions and staying focused on learning tasks (Kahn, Nauta, Gailbreath, Tipps & Chartrand, 2014).

Kroeger and Thucsen (2015) also believe that students with high agreeableness have better time management skills and effort regulation. Whereas the high score in agreeableness is often seen as naive or submissive. the low score on the other hand, is often competitive or challenging others and this can be seen as arguing. Disagreeable individuals on the other hand, place self-interest above getting along with others. They are generally unconcerned with others, well-being, and are less likely to extend themselves for other

people. Sometimes their scepticism about others' motives causes them to be suspicious, and unfriendly (Gray & Mannahan, 2017).

Neuroticism: This type of personality trait also expresses the tendency to experience negative or unpleasant emotions (fear, sadness, embarrassment, guilt, anger, anxiety, depression and vulnerability) easily. In other words, high scores in neuroticism imply emotional instability, and when it is reversed, i.e. low score, it is referred to as emotional stability. The two main facets according Poropat (2014) are "emotional control" referring to one's capacity to cope adequately with one's own anxiety and emotionality, and "impulse control" also referring to one's capability of controlling imitation, discontent and anger.

According to Eysenck (as cited in Vermetten et al., 2011), in the theory of personality, neuroticism is interlinked with low tolerance for stress or aversive stimuli. Those who score high in neuroticism are emotionally reactive and vulnerable to stress. They are more likely to interpret ordinary situations as threatening, and minor frustrations as hopelessly. Their negative emotional reactions tend to persist for unusually long periods of time, which means that they are often in a bad mood. For instance, neuroticism is connected to a pessimistic approach towards work, confident that work impedes personal relationships, and apparent anxiety linked with work (Felder et al., 2012).

Furthermore, those who score high on neuroticism may display more skin conductance reactivity than those who score low on neuroticism (Eysenck & Eysenck, 2013). These problems in emotional regulation can diminish the ability of a person scoring high on neuroticism to think clearly, make decisions, and cope effectively with stress. Lacking contentment in one's life

achievements can correlate with high neuroticism scores and increase one's likelihood of falling into clinical depression (Diseth, 2014). Moreover, individuals who are high in neuroticism tend to experience more negative life events, but neuroticism also changes in response to positive and negative life experience (Diseth, 2014).

On the other hand, individuals with low score in neuroticism are less easily upset and are less emotionally reactive. They tend to be emotionally stable, usually calm and able to face stressful situations without becoming upset or rattled. They are also free from persistent negative feelings and this does not only mean that low scorers experience a lot of positive feelings.

Personality can sometimes be flexible, and measuring the Big Five personality for individuals as they enter certain stages of life may influence their educational identity. Recent studies have suggested that the likelihood of individuals' personalities affect their educational identities (Zhao, 2011). Besides, learning style have also been described as "enduring ways of thinking and processing information". Even though there is no evidence that personality determines thinking styles, they may be intertwined in ways that link thinking styles to the Big Five personality trait (Lounsbury et al., 2013).

Visual, Auditory, Read/Write and Kinaesthetic Learning Style Model

Although numerous learning style theories have been classified in different literature and some of these theories are Dunn and Dunn learning style model which is concerned with four major elements: environmental, emotional, sociological, and physical which all affect the learning process. Visual, auditory, read/write and kinaesthetic (VARK) learning style model is based on assessment of perceptual modalities of learners. David Kolb's

Learning Style Model is designed to assess how individuals receive and interpret information, especially how they learn through experience.

The Myers-Briggs Type Indicator, which is based on the work of Carl Jung, identifies 16 personality styles. It discusses the impact of human personality on language learning process in general as different teaching approaches would appeal to different personality profiles. The Richard Felder and Linda Silverman model was initially designed to assess learning style that were particularly significant in engineering education. Finally, Grasha-Reichmann Learning Style Scales, an instrument which has been widely used in higher education and other educational settings and whose aim was to create a model that would be grounded in the classroom. Authors of each theory view learning style from different angles and classify them based on different variables. However, the current study focused on the VARK learning style model.

Learning style are related to patterns of individual thoughts, beliefs, attitudes, and behaviours. Although certain agreement exists regarding the general definition of learning style, the ways in which those styles are classificd depend largely upon individual theorists. Classifications are based on varying perceptions of the learning process. Kidanemariam, Atagana and Engida (2014) assert that theorists typically focus on the affective, cognitive, and behavioural components of the learning process. Affective behaviours are defined as those resulting from attitudes, opinions, or beliefs. Cognitive behaviours refer to the ways in which people process information, and behavioural components consist of environmental or biological factors that influence the process of learning (Dunn, 2012).

VAK is the most popular model that identifies three learning style: Visual, Auditory and Kinaesthetic. Alternatively the model is referred to as Visual-Auditory-Physical (Kinaesthetic). Similarly, according to Aragon et al. (2012), the concept known as VARK (Visual-Auditory-Reading/Writing-Kinaesthetic) was designed by Neil Fleming. The model developed from Neuro-Linguistic Programming research which focused on how the human mind processes information. The original VARK concepts were first introduced by psychologists such as Fernald, Keller, Orton, Stillman and Montessori, starting in the 1920's (Aragon et al., 2012). It has been used in education since the 1970's (Adey et al., 2012).

VARK learning style uses three main sensory receivers: vision, auditory, and kinaesthetic (movement and tactile/touch). As Komarraju (2012) explains, all learners use all the three styles to receive information. However, one or more of these receiving styles is normally dominant. This dominant style defines the best way for a person to learn new information. Learning style can also vary depending on the assigned task, thus one learner may prefer one style of learning for one task, and a combination of others for another task. Throughout our lives, we are more or less exposed to one of the learning style depending on the institution we attend.

It is generally known that young children absorb new information more through kinaesthetic channel because primary school material is presented predominantly through a visual channel. Later, at the highest level in the college environment, most of the information is presented orally through lectures (JilardiDamavandi, Mahyuddin, Elias, Daud & Shabani, 2011). However, the best way to present new information is by using all sensory

styles to correspond with the general distribution of VAK preferences, especially students of CoDE, UCC. This is so because the programme of study is largely tactile and practical in nature.

Clark (2014) also states that 55 percent of the population falls into the category of read/write, 30 percent fall into the category of visual type, 10 percent of the population has a strong preference for auditory type and only about five percent prefer the kinesthetic style. Another study conducted by the Zou (2015) reveals that students retain 10 percent of what they read, 26 percent of what they hear, 30 percent of what they see, 50 percent of what they see and hear, 70 percent of what they say, and 90 percent of what they say as they do something. Teachers should, therefore, be aware of this diversity and allow all students to participate in the lesson equally.

Visual learners: Visual learners need to see what they are learning. Visual preference can be further divided into linguistic and spatial sub channels. Visual linguists are those who like to learn through written language, such as reading and writing tasks. They remember best if they learn from a written text even if they do not read it more than once. Sometimes, they may not be able to recall the information, but they will know exactly where to look for it. Visual spatial learners have difficulty with written language and do better with charts, demonstrations, videos and other visual materials. They seldom get lost in a new environment. Visual learners have been identified as students who are typically proficient in pattern recognition (Banner, as cited in Lawrence, 2010).

Auditory learners: Auditory learners need to hear whiles learning. They tend to enjoy activities which emphasize discussion, storytelling or some speaking

activity. Class-based research conducted by Arthurs (2013) has also suggested that students who verbalize often achieve good pronunciation. On the other hand, they may have difficulties with writing and reading tasks (Kidanemariam et al., 2014).

Read/Write: This dimension or preference is for information displayed as words. Not surprisingly, many teachers and students have a strong preference for this mode. Being able to write well and read widely are attributes sought by employers of graduates. This preference emphasizes text-based input and output: reading and writing in all its forms, but especially manuals, reports, essays and assignments. People who prefer this modality are often addicted to PowerPoint, the Internet, lists, diaries, dictionaries, thesauri, quotations and words, and so on (Abidin et al., 2011). Note that most PowerPoint presentations and the Internet, GOOGLE and Wikipedia are essentially suited to those with this preference as there is seldom an auditory channel or a presentation that uses visual symbols.

According to Blickle (2016), students with the tendency of reading prefer printed word and text as a method to gain information. They like list, glossary, textbooks, lecture notes, or circulation. These students like to arrange lectures notes in sketch form, paraphrase classroom notes, and study multiple choice exam questions (Corbin, 2017). Besides, Corbin indicates that these students are note takers. They study better through note taken from a lecture or from different reading materials.

Kinaesthetic/tactile learners: Kinaesthetic learners learn best if they can move, touch or manipulate objects. They find it extremely difficult to concentrate if no movement is involved and they are asked to sit still

throughout the whole lesson. Kinaesthetic style has also two sub channels: kinaesthetic, which refers to movement and tactile which is linked with touch (Zou, 2015). Learners with kinaesthetic preference often take notes during the lecture, play with a pen or draw some pictures. They need to be physically involved and learn best by manipulating objects.

Learning style theories, including VARK model, have a number of significant problems that make them useless for explaining learning or achievement. Specifically, the VARK model describes and categorises behaviours, but fails to explain the developmental processes and causal mechanisms that underlie these behaviours. Another problem is that learning style measures often use rank ordering which forces individuals to rank one style higher or lower than another, creating differences that are not evident in measures that separately assess the different styles (Robotham, 2014). Furthermore, many of the measures of learning style lack reliability and validity. Finally, the work on learning style assumes that the gearing instruction to learning style produces better achievement, but the research either does not exist or does not support that assumption (Busari, 2017; Rimmerman, 2016).

The discussion so far shows that *visual learners* usually like graphs, brochures, charts, highlighters, designs, pictures etc. Visual preference could have been called Graphic. *Aural/Auditory learners* prefer discussions, seminars, jokes, lectures, seminars, debates, conversations, etc. They have preference for information that is heard or spoken. *Read/write learners* prefer textbooks, essays, taking notes, bibliography, manuals, web pages, readings and printed handouts. They like information displayed as words. *Kinaesthetic*

learners prefer examples, laboratories, field trips, role play, hands-on approaches, trial and error solutions to problem, guest lectures, using their senses etc. They like learning through practice and experience. Individuals who do not have a strong preference for any of above mentioned modes are called *multimodal*. They possess mixtures of preferences for learning style (Corbin, 2017).

The arguments of BFP and VARK models were used to underpin the study. The discussion that emerged from these two models show that the individual difference factors that represent enduring and stable approaches to gaining, processing, and storing information among students have a relationship with the consistent traits or characteristics of students which make them different from others. This means that the most essential relationship between type and learning style can be seen in the nature of the dominant mental processes in personality. According to Rimmerman (2016), relationships exist between dominant thinking types and logical, analytical, well organized learning style. Similarly, individuals with dominant feeling types prefer learning environments in which relationships are formed and attachments to the subject matter are made.

Personality Trait and Academic Performance

One of the earliest applications of trait-based personality assessment was the prediction of academic performance (Conrad & Patry, 2012). Conrad and Patry proposed the existence of a construct they labelled "W" representing a will factor, which Spearman (as cited in Diseth, 2014) later argued that alongside the general intelligence factor as a contributor to academic ability. Consistent with this, research by Diseth found that personality measures were

correlated with academic performance. Unfortunately, early research was beset by inconsistent research findings and methodological problems. In one of the earliest reviews of the field, Harris (as cited in De Raad & Schouwenburg, 2016) expressed the view that personality contributed to academic performance, but acknowledged that this was unsupported by evidence because research up to that point was marred by inconsistencies and flawed methodologies.

Later, De Raad and Schouwenburg (2016) emphasized the difficulty of making sense of research based on diverse theories and measures, while Busari (2017) noted much creativity in methodology, but findings did not show any clear trends. The next major review of the field (De Raad & Schouwenburg, 2016) still highlighted the scattered nature of this research and its lack of an overarching framework or paradigm. In brief, reviews of research on the relationship between personality and academic performance have generally presented equivocal conclusions, largely due to the use of variable research methodologies and theoretical bases.

Just as with academic performance, early research on links between personality and work performance found varying results, leading to the conclusion that the general dimensions of personality were largely unrelated to work performance (Ahn, 2013). Two methodological advances helped reverse that conclusion: the advent of meta-analytical techniques for effectively combining results from previous research and the growing acceptance of broad factorial models of personality, which provided a framework for comparing personality studies (De Fruyt & Mervielde, 2013).

In particular, the FFM of personality, which is made up of the dimensions of agreeableness, conscientiousness, emotional stability, extroversion and openness, have been important in this regard. The value of the FFM is that it encompasses most of the variance in personality description in a simple set of dimensions, thus bringing order to the previous chaotic plethora of personality measures (Diseth, 2014). Diseth used the FFM to organise their meta-analysis, thus providing a broad-ranging estimates of the relationship between personality and academic achievement.

The discussion so far shows that it is important to consider why personality should be expected to be correlated with academic performance when most measures of personality, including the FFM, were not designed to predict academic performance. The idea that intelligence, socio-economic status and personality, each affects socially-valued behaviours are consistent with the proposal that performance in both work and academic settings is determined by factors relating to capacity to perform, the opportunity to perform and willingness to perform (Mlambo, 2012; Vermetten et al., 2011). Capacity incorporates knowledge, skills and intelligence; opportunity to perform is affected by environmental constraints and resources, including socio-economic resources; while willingness to perform reflects motivation, cultural norms and personality (Ackeman & Heggestad, 2012). Factors associated with willingness to perform, such as attendance, initiative, involvement in non-academic activities, and attitudes to study, have been shown to provide additional prediction of academic performance beyond that provided by mental ability (Osborne, 2012).

With respect to willingness to perform, the dimensions of the FFM may contribute directly, but have been indirectly linked through their associations with motivation. Personality and academic performance may be associated due to common links with intelligence. Consistent with this, Vermetten et al. (2011) argued that correlations between academic performance and personality measures would mirror corresponding correlations of intelligence with personality. The measures of personality based on the FFM should be correlated with academic performance. This also relates to the evidence supporting the importance of personality factors that influence socially valued behaviours and on the recognition of personality as a component of an individual's willingness to perform (Komarraju, 2012). At the same time, intelligence should be considered in order to adequately assess these relationships.

Extroversion/introversion and academic performance

Extroversion is the tendency to look to the outside world, especially people, for one's pleasures, whiles introversion on the other hand, refers to a tendency to prefer the world inside oneself (Howard & Howard, 2012). According to Howard and Howard, extroverts are characterized by sociability, assertiveness, emotional expressions and excitability. Those who are high in this trait are often described as being out-going, talkative and enjoy social activities but do not like to be alone. However, those who are low are described as quiet and reserved, shy, distaste for social functions, and love of privacy. Research examining extroversion as an influencing factor on students' academic performance has produced mixed results.

Many research findings revealed that extroversion negatively correlated with academic performance (Chamorro-Premuzic & Furnham, 2013; Furnham et al., 2009; Eysenck, 2014). Eysenck (2014) added extroverted students would be more likely to socialize and participate in other activities, rather than studying, resulting in lower levels of performance. In addition, Nijhuis (2017) also found in his investigations that extroverts tended to be poorer in reflective problem solving due to their reaching cognitive closure prematurely.

On the other hand, Rothbart et al. (2012) found a positive association between extroverted behaviour and academic outcomes. Besides, other researchers have also indicated that there is a meaningful correlation between extroversion and academic performance (Rothmann & Coetzer, 2015). Rothmann and Coetzer (2015) argued that this was due to extroverted students interacting more with their teacher and so being able to increase their learning and achieving higher academically. Blickle (2016) further found out that gender and age have no effect on people's extroversion traits. Blickle also confirmed a positive correlation between extroversion and academic performance, however, believed this was due to higher energy levels and enthusiasm, leading to a desire to learn and understand.

Neuroticism and academic performance

Neuroticism is a long term tendency to be in a negative emotional state. According to Day and Silverman (2015), people who score high on the scale of neuroticism tend to be nervous, have more depressed moods, anxious, angry and vulnerable. However, those who score low are often called emotional stability. Studies have found a negative association with

neuroticism and academic performance (Day & Silverman, 2015; De Fruyt & Mervielde, 2013; Ghazi, Shahzada & Ullah, 2013). Zhao (2011) also indicated that less emotionally-stable students' focus on worrying about errors rather upon the errors themselves, which impede learning from those errors. On the other hand, it has also been found in some other studies to be positively related to academic performance (De Raad & Schouwenburg, 2016; Eysenck, 2014). Besides, it has also been confirmed by Nijhuis (2017) that students who are more emotionally stable have greater focus and so are able to concentrate more on learning activities.

In terms of relating emotional stability to academic achievement, Poropat (2012) found in his study that there was a negative correlation between neuroticism and academic performance at primary level. This shows that students with high emotional stability achieve higher academically. Poropat (2012) did not however find any significant correlations at secondary or tertiary levels of education. He suggested that the reason behind this was that if it is only the more capable students who continue to higher academic levels, then they should automatically be able to cope with the negative consequences of low emotional stability, resulting in a smaller effect on academic performance.

Chamorro-Premuzic and Furnham (2013) also indicate that emotional stability is associated with self-efficacy, which was found to be positively correlated with academic performance. According to Blickle (2016), emotional stability should have a similar correlation, thus confirming the points argued by Poropat (2012). Osborne (2012) gives evidence that neuroticism can help increase motivation and effort expenditure for students,

in anticipating failure, then gear up their efforts to pre-empt it. On the other hand, Poropat (2014) believes that less emotional stable students are renowned for getting distracted or avoiding learning situations. The two points raised above, could arguably support the conclusion made by Blickle (2016) that individuals with high neuroticism are more likely to have a surface approach to learning instead of achieving deeper and meaningful understanding of the material.

Agreeableness and academic performance

Agreeableness is the tendency to be pleasant, compassionate, cooperative and accommodating in social life situations rather than being antagonistic and suspicious of others. According to Husch (2013), those who score high on this scale are good, well nurtured, cooperative functioning and accommodating, and that has found to be positively related to academic performance. These positive relationships associated with high agreeableness are believed by Poropat (2014) to help facilitate learning. Again, in relation to the effect of agreeableness on learning, De Raad and Schouwenburg (2016) argued that agreeableness may have some positive effect on academic performance by encouraging teamwork and discussions within the learning processes. This relationship was later confirmed by Guntern et al. (2017), who identified a positive relationship between agreeableness and effort and surface learning. However, Busari (2017) reported a negative association between agreeableness and academic performance.

Openness to experience and academic performance

Openness reflects the degree of intellectual curiosity, creativity and a reference for novelty and variety. Investigations on openness as an influencing

factor of academic performance have also produced mixed results. On one hand, a number of studies have identified a positive association between openness and academic performance (Vermetten et al., 2011). In view of this, other researchers named this trait "intelligence" (Rahbar et al., 2011). However, Rimmerman (2016) disagreed with this assertion because he argued that intelligence may be a result of openness. In relation to the relationship between openness and intelligence, Ackeman and Heggestad (2012) also found out that openness had the highest correlation with intelligence. Simultaneously, however, they also found that openness did not have the highest correlation with academic performance (Ackeman & Heggestad, 2012).

Also, Poropat (2014) found in a research that openness had a stronger correlation with academic performance compared to measures of general intelligence. Poropat (2014) further speculated the relationship between openness and academic achievement through stating that the "thinking and curiosity" aspects of openness are expressed in a deep approach to learning in which students follow their extrinsic interest in pursuit of intellectual satisfaction which mediates the correlation between openness and academic achievement. Blickle (2016) also found in his study that openness to experience is associated with academic performance. This is supported by the work of Hassan (2017) who found that openness is positively correlated with an open approach to learning. Hassan (2017) further found that a positive correlation exists between openness and learning motivation.

On the other hand, Koseoğlu (2016) did not find a significant relationship between openness and academic performance in his study.

Considering these two sides of the same coin in line with openness and academic performance, Nijhuis (2017) indicated that through assessing levels of openness amongst students, teachers should provide discovery learning to students high level of openness, of whom would therefore benefit most from that approach, but then provides more structured learning to those low in openness, in order to maximize their learning.

Conscientiousness and academic performance

Conscientiousness is a tendency to show self-discipline, act dutifully and aim for achievement amidst various challenges. It has been one of the big five factors most consistently linked to academic performance (Ahn, 2013; Barkhi & Brozovsky, 2014; Conrad & Patry, 2012; Day & Silverman, 2015). Diseth (2014) found a positive relationship between conscientiousness and academic performance. Diseth reported further in his study that consciousness was the strongest influencing factor of academic performance as compared to the rest of the traits. The two attributes of conscientiousness (sustained effort and goal-setting) have been found to contribute to academic success (Zhao, 2011), as well as learning-related time management (Borg & Shapiro, 2012).

Following this assertion, Poropat (2014) also found that conscientious students tend to have increased confidence which allow them to stay focused on educational activities, leading to greater learning. This was later confirmed by Blickle (2016) who added that this provides significant advantages in stressful situations. Of all the Big Five Factors, many studies have found that conscientiousness remains the strongest correlate of academic performance (Chamorro-Premuzic & Furnham, 2013; Conrad & Patry, 2012; Judge &

Zapata, 2015; Rothmann & Coetzer, 2015), and that in most cases it depends on the levels of both academic self-discipline and academic confidence.

Personality Trait and Learning Style

According to Messick (2014), the most essential relationship between personality trait and learning style can be seen in the nature of the dominant mental processes in personality. Relationships exist between dominant thinking types and logical, analytical, well organized learning style. Similarly, individuals with dominant feeling types prefer learning environments in which relationships are formed and attachments to the subject matter are made (Myers & Lewis, 2012).

Margerison and Lewis (2013) correlated work preferences and employee general characteristics with learning style. They indicated the following relationships of the general characteristics: (a) concrete related to feeling, (b) abstract related to thinking, (c) active related to extroverts, (d) reflective related to introverts, (e) abstract conceptualization related to judgment, and (f) concrete experience related to perception. Myers and Lewis (2012) relate that of all the learning style, (a) accommodators were associated with extroverted sensing, and assimilative with introversion and intuitive; (b) divergers were associated with introversion and feeling; and (c) convergers were associated with extroversion and thinking.

Further studies have been carried out using a variety of learning style and personality type instruments. Kulkarni and Husch (2015) found that extroverts had high scores in the social and people subset of the decision preference analysis and sensors scored high in practical and manual subsets. In the same study, they also revealed similarities between the thinkers and the

scientific and analytical subset. Kulkarni and Husch (2015) further determined that significant relationships exist between personality trait and learning style. In addition to this relationship, Kulkarni and Husch also found that reflective learners scored higher on exams in first semester college calculus courses than those categorized as sensing receptors on the selected personality trait.

Learning Style and Academic Performance

Thinking, processing information and accruing knowledge are processes that differ from student to student (Zhang, 2003). Each student comes with his or her preferred style. According to Zhang (2003), argentic styles such as methodical study and fact retention are conducive to higher grades and therefore, are favourites of some. On the other hand, there are other students who utilize reflective styles such as elaborate processing and synthesis-analysis which may lead to greater understanding and knowledge. According to some studies, these individual differences in learning style may be employed to influence the performance of the students (Brown, 2013). In general, some learning strategies have been found to be more effective for academic performance. Among these are elaborative processing, deeper levels of reflection, synthesis-analysis, and active thinking and organised studying (Khalid et al., 2013).

According to Wilson (2014), the deep-processing students may duly benefit from added values such as being receptive to feedback. They may also benefit from inadvertent learning through spontaneous assimilation of material. As can be surmised, students who are conscientious and analytical-minded will probably perform better academically. It has also been implied in the literature that if learning style are harmonized with teaching methods,

academic performance and achievement may increase (Smith & Renzulli, 2013). On the other hand, Komarraju (2012) revealed the lack of reliable and empirical support for adapting teaching styles to students' learning style. According to Brown (2013), instead of tailoring teaching techniques to specific learning style, investigating strategies that supplement learning and memory should be preferred. Numerous viewpoints seem to coalesce on this issue (Rimmerman, 2016; Zywno & Waalen, 2015). Enhancing academic achievement by matching learning style and teaching methods are not investigated in this current study. Instead, the significance of specific learning style in enhancing learning and the role that they play in mediating personality trait and academic performance are explored.

Learning Style, Academic Performance and Distance Education

When implementing technology in education and training, distance education allows for vast possibilities. However, certain considerations should be taken toward the observance of the type of individual that may benefit from computer instruction (Aderinoye, Siaciwena & Wright, 2009; Clack, 2013). According to Wilson (2014), some styles may be more effective than others in certain situations. Wang and Newlin (2015) examined learning style in a hypertext environment using the field-dependence and field-independence scales. The results indicated that field-independent students spent significantly more time on screen and covered more of the programme than the field-dependent students. As a result, field independent students generally outperformed their field-dependent counterparts.

Lyons-Lawrence (2015) investigated the relationships of learning style, computer usage and performance. Her findings showed notable differences in

visually perceptive and non-visually perceptive student achievement. The study also showed a correlation between post-test scores and visual perception, which helps to support the argument that students' learning style are related to their performance in instructional settings. Studies have shown that the use of multimedia technology as a performance neutralizer may greatly impact students with different learning style (Rimmerman, 2016). Rimmerman indicated that by matching certain types of technologies with specific learning style students are able to neutralize performance differences related to differences in learning style.

The role of learning style has been explored as a potential influencer of student achievement in myriad technological environments. Evidence exists linking specific learning style of performance in computer-assisted instruction (Ahn, 2013; Atkinson, 2014; Lyons-Lawrence, 2015). Lyons-Lawrence (2015) discovered that learners with a converge style performed better than others when learning to use a computer. This shows that by using specific learning style preferences, educators and designers may be able to create more effective learning environments, such as the one offered through computer-mediated course delivery systems. The discussion under this subsection so far suggests that learning style, performance, and distance education may be related as they apply to effective learning environments. In many of these studies, specific outcomes are not discussed in terms of their application to design. Implications for further research in the area of learning style and distance education might need to include a variety of different curricula and variable that support specific styles related to current performance data.

Academic Self-Discipline and Academic Performance

Many research findings in the social sciences, pedagogy and education argue for the strong relationship between academic self-discipline and academic performance, with lack of discipline considered as a factor in declining academic performance (Aragon et al., 2012). Scholars are fairly unanimous in their conclusion that the introduction of effective disciplinary practices in school is crucial to ensuring academic success together with a safe learning environment, cultural environment that retains the priority of knowledge and understanding the child's personality and giving great attention to the child's needs (Orvis, Brusso, Wasserman & Fisher, 2010; Ng & Rao, 2012).

According to Aragon et al. (2012), academic self-discipline which can be considered equivalent to "self-discipline", refers to behaviour springing from discipline. It entails perseverance, meeting time schedules, goal-setting and planning for goal achievement, and completion of unpleasant tasks. Concurrent with its explanation of academic performance, the results can provide teachers, principals and parents with the tools necessary to improve performance in school (Tought, 2012). These characteristics of academic self-discipline have a positive influence on students' academic performance (Adams, 2008; Corbin, 2017). This implies that a well behaved academic self-discipline student is most likely to perform academically as against discipline problem students since that behaviour is a potential factor to contribute to a decline in academic performance.

Academic self-discipline includes perseverance, meeting schedules, and completion of unpleasant tasks. The first to consider is perseverance. This

skill of academic self-discipline refers to the degree to which a person is able to perform a task over an extended period of time (Aragon et al., 2012). A task or assignment is completed only when the final objective is reached. Perseverance is, therefore, applied to every field of endeavour, beginning with games and continuing on to learning or employment. Academic excellence is the fruit of perseverance because learning is a lengthy process that demands continuous study and practice, beginning with the preparation of daily homework assignments and extending to the organised study of all subjects of the curriculum (Ng & Rao, 2012).

The second academic self-discipline considered is meeting schedules. This type of academic self-discipline requires conscientiousness and the ability to complete assignments on time. Conscientiousness is a necessary but insufficient trait because in learning as in life, numerous tasks must be completed in a short period of time (Orvis et al., 2010). The trait used here is not being referred to as trait such as alacrity or speed, but rather the ability to execute tasks in designated periods of time. Students who take five hours to complete their homework, in the course of which they eat, talk on the telephone and watch television, are incapable of meeting schedules and often find it difficult even to copy information from the blackboard, let alone complete an assignment or finish an examination on time. A student's success in his or her studies is assessed according to his or her performance in a specified period of time.

The last academic self-discipline considered was the completion of unpleasant tasks. This is being referred to the ability to execute more or less frustrating or monotonous task, such as maths or spelling exercise (Ghazi et

al., 2013). Although deemed detrimental to the child-centered paradigm, this skill is crucial for successful learning. University education and distance education curricula for that matter encompass a broad range of subjects; it is reasonable to assume that not all subjects will be equally enjoyable to every student. Nonetheless, students are expected to successfully learn them all. The completion of unpleasant task can therefore, be expected to be an integral part of learning.

Lack of discipline is expressed as stated, by noncompliance with the lecturer's instructions in the lecture room and with the parents' rules in the home, with both reflecting each figure's loss of authority. As a result of this loss, the learner feels it unimportant to apply the discipline skills that are, in effect, components of self-discipline. He or she, therefore, does not respond to lecturer and parental demands to persevere in completing tasks, to abide by a time schedule, to set goals and, most importantly, to complete monotonous and unpleasant homework (Jeronimus, Riese, Sanderman & Ormel, 2014).

Focusing on causes of academic self-discipline problem, most researchers have indicated that school-environmental factors and student-related environmental factors are some of the major causes of discipline problems that can decline academic performance in our schools (Chen, Fok, Bond & Matsumoto, 2006; Ceci & Konstantopoulos, 2009; Jepsen & Rivkin, 2009; Sims, 2009; Worley-Davis, 2016). According to Sims (2009), there is a negative relationship between class size and academic performance as well as between class size and discipline. For Sims, there are more discipline problems and low academic performance in classes of large size. This further explains that discipline problems were found in his study to be prevalent in

larger classes already exhibiting low achievement levels. However, it appears that classes of small size provide better opportunities to prevent discipline problems (Januszka & Dixon-Krauss, 2012). This shows that CoDE, UCC problem of low academic performance on the part of its diploma students can be linked to the large class size they have. This is so because the review shows that large class size result to low academic self-discipline which in turn leads to low academic performance of students.

According to Church (2010), the culturally diverse environments that increasingly characterize modern society tend to intensify discipline issues. Studies, referring to the broader school environment argue that large, structurally complex school system such as distance education which usually deals with large class size are the locus for more numerous discipline problems than being regular schools, which are characterized by smaller structure and an intimate learning environment (Januszka & Dixon-Krauss, 2012). Adams (as cited in Worley-Davis, 2016) has also found that black students are 60 times more likely to have discipline problems than their white counterparts. Students from families of low socio-economic status exhibit greater difficulties with discipline as well as symptoms of aggression, emotional disturbances and other offenses (Worley-Davis, 2016). In addition, Deal, Halverson, Havil and Martain (2016) also found in his study, that discipline problems and poor achievement are more likely to occur among neglected and physically or sexually abused students.

Academic Self-Confidence and Academic Performance

Generally, confident can be seen as having strong belief, firm, trust or sure expectation; feeling certain, fully assured, self-reliant, bold; sure of

oneself, one's cause, etc.; having no fear of failure (Aragon et al., 2012). Experience tells that confidence differs between people who have differing levels of confidence in different situations. Thus, someone who is highly confident in a familiar setting, for example, may lose confidence in an unfamiliar and challenging environment. As part of its parent concept, self-efficacy and academic confidence may stem from the same four sources: mastery experience, vicarious experience, verbal persuasion and physiological states (Park et al., 2012). It is most likely to be subject to change as experience impinges upon expectation. The question now is to what extent it influences the nature of that experience? One may, therefore, ask that how might academic confidence interact with learning style and academic performance?

Academic self-confidence is, therefore, proposed as a mediating variable between the individual's inherited abilities, their learning style and the opportunities afforded by the academic environment of higher education (Jeronimus, Ormel, Aleman, Penninx & Riese, 2013). In order to explore this standardization further, it is necessary to develop an instrument to measure this specific construct. As the notion of academic self-confidence has its theoretical foundation in Bandura's work on self-efficacy, the guidelines for measuring self-efficacy are taken to be equally applicable in measuring academic self-confidence (Jeronimus et al., 2013). The current study, therefore, adapted these ideas to develop the academic self-confidence variable.

Selected Empirical Review of the Influence of Learning Style and Personality Trait on Academic Performance

Specifically, to understand the current concept under study much better, with regard to the influence of learning style and personality trait on students' academic performance, the researcher decided to review further the current study empirically. This helped gain knowledge by means of direct and indirect observation or experience of previous researchers or studies. The record of other researchers' observation or experience was analysed quantitatively to gain more information about the concept under study.

Research reveals the presence of intriguing links between personality trait and learning style. Considering, for example, the depth of processing, it has been established that deep-processing students are more likely to employ suitable study methods, draw conclusions effectively and are self-regulated when compared to the students who prefer to process in a shallow fashion (Furnham et al., 2009; Ghazi et al., 2013). Furnham et al. have both maintained that deep-processing students are more likely to be conscientious, intellectually curious and extroverted. They emphasize that such students are also emotionally stable. Zhang (2003) also suggests that if a student favours intuitive processing and a structured learning environment, then that student may be susceptible to anxiety and worry. Klem and Connell (2014) assert that students who prefer a vigorous and pragmatic approach generally turn out to be extroverted. Hence, it can be surmised that learning style and personality trait are inextricably linked.

The personality traits of the students and learning style have been investigated extensively in the literature. On the other hand, about the

combined effects of these two variables in explaining academic performance and achievement there seems to be little knowledge. Chamorro-Premuzic and Furnham (2013) suggest that learning style and personality trait together may influence academic performance of university students. Furthermore, it has been established that openness is related to certain learning style that appear to be positively associated with academic success (Gokalp, 2013).

Contrary to these, Guntern et al. (2017) convey diverse results about the association between personality trait, academic success and learning style among medical students. They reported that the personality trait of conscientiousness and openness correlated significantly with academic performance and learning style. On the other hand, according to their findings, there was no significant relationship between learning style and academic performance. Thus, there seems to be a scarcity of research and also inconsistent in describing academic success in terms of individual differences in personality trait and preferred strategies for learning.

Few people can deny that every student learns and responds to information uniquely. To better serve a student's learning needs, researchers have discussed the role of learning style and personality trait in students' learning. Many of those researchers support the view that matching learning style improves students' academic performance (Demirbas & Demirkan, 2016; Ghazi et al., 2013; Husch, 2013; Ibe, 2015; Poropat, 2014; Wilson, 2014; Worley-Davis, 2016).

Both abilities (measured by power tests) and non-ability (measured by preference tests) individual difference measures influence academic school outcomes. These include fluid as well as crystallized intelligence, personality

trait, and learning style. Furnham et al. (2009) examined the incremental validity of five psychometric tests and the sex and age of pupils to predict their General Certificate in Secondary Education (GCSE) test results. The aim of the study was to determine how much variance ability and non-ability tests can account for in predicting specific GCSE examination scores. The sample comprised 212 British school children; of these, 123 were females. Their mean age was 15.8 years (SD 0.98 years).

With regard to the methodology, pupils completed three self-report tests: the Neuroticism-Extroversion-Openness-Five-Factor Inventory (NEO-FFI) which measures the 'Big Five' personality trait; the Typical Intellectual Engagement Scale and a measure of learning style, the Study Process Questionnaire (SPQ). They also completed two ability tests: the Wonderlic Personnel Test a short measure of general intelligence and the General Knowledge Test a measure of crystallized intelligence. Six months later they took their (10th grade) GCSE exams comprising four 'core' compulsory exams as well as a number of specific elective subjects.

The correlation analysis performed by Furnham et al. (2009) suggested that intelligence was the best predictor of school results. Preference test measures accounted for relatively little variance. Regressions indicated that over 50 percent of the variance in school exams for English, Maths and Science combined could be accounted for by these individual difference factors. Data from less than an hour's worth of testing pupils could predict school exam results six months later. These tests could, therefore, be used to reliably inform important decisions about how pupils are taught (Furnham et al., 2009).

in introductory biology. Breckler et al. (2011) wanted to know whether factors affecting biology student performance might include learning style preferences and one's ability and confidence in self-assessing those learning preferences in order to engage in appropriate study strategies. In Breckler et al. (2011) study, students' self-predicted their learning preferences using their simple survey tool and then completed the online VAK learning style tool. Results showed a good match between the survey tool's self-predictions and the VAK tool, with auditory learners showing the least accurate match.

JilardiDamavandi et al. (2011) also investigated the impact of learning style on the academic achievement of secondary school students in Iran. The results of their analyses of variance showed that there was a statistically significant difference in the academic achievement of the Iranian students that correspond to the four learning style [$F(3, 285) = 9.52$, $p < .05$]; in particular, the mean scores for the converging and assimilating groups were significantly higher than for the diverging and accommodating groups. The works of Abidin et al. (2011), Breckler et al. (2011) and JilardiDamavandi et al. (2011) did not incorporate the role personality trait play in the interplay of learning style and academic performance of students, not to mention the impact of gender and age on the study variables. Also, the mediating role of academic self-discipline and self-confidence were not considered which this study is introducing the mediating effects of these two variables on the influence of personality trait and learning style and students' academic performance.

Introducing performance in an admission test and carefully conducted structured interviews provide a uniform basis for the assessment of applicants prepared in different systems of education for admission to an institute of

higher professional learning. Rahbar et al. (2011) studied the influence of the system of education followed by the students prior to entrance into the medical college, the admission test scores, and interview ratings on performance after trimesters at the Aga Khan University Medical College. A cohort of 374 medical students who were admitted during 1989 to 1994, were considered. The associations between the admission test score, interview ratings, system of education, and the scores obtained in anatomy, physiology, biochemistry and community health sciences examinations held after the trimesters were analysed using appropriate statistical procedures.

The findings of Rahbar et al. (2011) indicated the association between the system of education and performance in both the admission test and the examination after the trimesters. Students who followed the British school curricula for 13 years scored significantly higher than those who followed the 12 years of the Pakistani system. When controlled for the admission test score, the difference in mean scores of the two groups was still evident for two subjects; community health sciences and physiology. Rahbar et al. (2011) concluded by believing that the evidence indicates differences in learning methods inculcated by the system of education prior to entry into the medical college, notwithstanding the one-year difference in duration of education. This shows that the kind of learning style and personality trait adapted by students largely influence the way they approach exams which in the long run influence their academic performance.

High failure rates at tertiary institutions result in unacceptable levels of attrition reduced graduate throughput and increased cost of training a nation's labour force. It is imperative that diagnostic studies are carried out to identify

the major factors that are associated with a suboptimal academic performance with a view of instituting corrective measures. Mlambo's (2012) study was therefore designed to identify and analyse some determinants of academic performance in an introductory biochemistry course plagued by chronic high failure rates. There were significant ($P < 0.05$) associations between entry qualifications and both gender and age. However, since entry qualifications did not significantly ($P > 0.05$) affect academic performance, this association should be of limited concern. None of the investigated factors significantly affected academic performance.

This observation could be a consequence of an impressive performance in the coursework and exams by a large proportion of students resulting in less variation in the recorded grades. Learning preferences were found to be independent of both the age and gender of students. It was concluded that more determinants of academic performance need to be investigated and that students who are admitted based on a diploma in agriculture may need a remedial course, given that their coursework grades, though statistically insignificant were consistently lower than that of the other students (Mlambo, 2012). This recommendation was one of the factors that motivated the researcher to examine the influence of learning style and personality trait on students' academic performance, taking into consideration the mediating role of academic self-discipline and self-confidence.

Su (2012) also explored the relationships between the learning style preferences of students at a Taiwanese hospitality college and their characteristics and academic performance. The results indicated that hospitality college students were more likely to be reflective, sensed, visual,

and global, and that female students were significantly more sensed than their male counterparts, whereas both male and female students were more sensed than intuitive. Male students were significantly more visual than their female counterparts, whereas both male and female students were more visual than verbal. Results revealed significant differences in two of the four learning style among students who were enrolled by examination and students who were enrolled by application. Analysis of variance revealed no significant differences between the classes in any of the four learning style. Correlation analyses also revealed no significant differences between graduates of high schools and of vocational schools in any of the constructs measuring learning style (Su (2012).

Park et al. (2012) also examined the relations between technology, parent education, self-confidence, and academic aspiration of Hispanic immigrant students. The purpose of their work was to test a theoretical model explaining the relationship between technology use, parental educational background, academic aspiration and self-confidence as influencing factors of mathematics achievement across three immigrant groups. To compare the effect size of technology use, multi-group analyses of the path model were performed with Analysis of Momcnt Structures.

The result that emerged from Park et al. (2012) study shows that later immigrated students' technology use is positively related to their mathematics performance. They may gain more benefits from technology use than moderately or early immigrated student groups. It is reasoned that later immigrated Hispanic students may reduce their learning hindrance associated with cultural barriers or limited English proficiency by using educational

technology. Enhancement in the investment of educational technology into this subgroup may narrow the achievement gap between later immigrated, moderately immigrated, and early immigrated students.

Previous research has established that a relationship exists between the conscientiousness of personality trait and academic achievement. Conrad and Patry's (2012) study extended prior research by using a path analysis model to explore various proximal traits that may mediate this relationship in a sample of 223 undergraduate university students. Consistent with previous research, a strong positive relationship was found between conscientiousness and academic performance as measured by final grades. Of greater importance, two factors were found to mediate this relationship: academic self-efficacy and test anxiety. Conrad and Patry's (2012) study illustrated the complex nature of the relation between personality trait and academic achievement and indicated that personality likely has a distal effect on academic performance through more proximal characteristics.

The findings that emerged from Conrad and Patry's (2012) study support prior research that conscientiousness is a critical factor with regard to academic performance. Furthermore, the effects of conscientiousness on academic performance are indirect. Therefore, it seems that mediated relationships between conscientiousness and academic performance are ripe for future study. Therefore, it is appropriate for the current study to examine the impact of gender and age on the study variables and also to examine the mediating effects of academic self-discipline and self-confidence on the influence of personality trait and learning style on students' academic performance.

Bhatti and Bart (2013) also explored the influence of learning style on scholastic achievement levels. The participants in this study were undergraduate students studying social sciences at a Division 1 research university. Bhatti and Bart found out that the dominant learning style was assimilated and that learning style and gender influenced academic achievement significantly.

Learning style refers to the ability of learners to perceive and process information in learning situations. One of the most important uses of learning style is that it makes it easy for teachers to incorporate them into their teaching. There are different learning styles. Three of the most popular ones are visual, auditory, and kinaesthetic in which students take in information. Vaishnav (2013) analysed learning style prevalent among secondary school students. It was conducted on three learning style-visual, auditory and kinaesthetic (VAK). The findings of the Vaishnav's study reveal that, kinaesthetic learning style was found to be more prevalent than visual and auditory learning style among secondary school students. There existed a positive high correlation between kinaesthetic learning style and academic achievement. The main effects of the three variables - visual, auditory and kinaesthetic were significant on academic achievement (Vaishnav (2013).

Gokalp (2013) also evaluated the learning style of education faculty students and to determine the effect of their success and relationship between their learning style and academic success. Gokalp found statistically significant differences between the results of the first and final applications of the subtests on learning style and academic success; those subtests covered the items as learning, planned study, effective reading, listening, writing, note

taking, using the library, getting prepared for and taking exams, class participation and motivation.

Khalid et al. (2013) also verified the statement that learning style influences the academic achievements of students in the arts and science streams. Findings from the data analysis show that respondents prefer the dependent learning style followed by cooperation in all the variables, namely gender, class, ethnic, family income and students' academic achievement. However, there can be a bit of a difference in terms of students who come from the home income of RM 2000, where they prefer cooperation followed by dependency. The Pearson Correlation analysis showed no significant relationship between learning style as a whole with academic achievements, except for avoidance. Gokalp (2013) findings also showed no significant relationship between learning style and academic achievements.

Furthermore, Wilson (2014) also identified the extent to which learning style influence the educational process as well as the outcome of students in terms of academic achievement. Wilson's study showed that there was a lack of significant correlation between learning style and students' academic performance. Learning style and instruction have been reported to affect students' academic performance and achievement in science. These reports, however, are too generalized for application to chemistry education specifically.

In addition, Kidanemariam et al. (2014) also examined the influence of learning style on students' academic performance. The data showed that 1.2 percent variation in academic performance in the fundamental concepts in chemistry was linked to the variations in learning style, and this variation was

exerts both general and specific effects on the degree to which personality influences job performance (Judge & Zapata, 2015).

The quasi-experimental study of Zywno and Waalen (2015) also examined the influence of learning style on academic performance in two types of learning environments: hypermedia assisted and conventional. In a course offered in a hypermedia-assisted mode for the experimental group, a statistically significant increase in academic achievement was found, as compared with the conventionally instructed control group. The largest increase in achievement was found among students with Active, Sensing and Global learning preferences. These students also expressed the highest rates of approval for the hypermedia instruction and supplemental Web materials. However, there was no significant difference in Web usage patterns between students with different learning style.

Ibe (2015) also ascertained the effects of learning style on the performances of senior secondary school biology students in Imo state, Nigeria. The study adopted the quasi-experimental design. The sample consisted of 300 SS II Biology students comprising of 150 males and 150 females obtained through simple random sampling in three schools (100 students per school). Kolb Learning Style Inventory (LSI 1999 version) was used for the identification of the students' learning style. The Biology Achievement Test was used for the determination of the students' performance in both pre-tests and post-tests. Findings from Ibe's (2015) study showed that the four learning style of Kolb were represented amongst the biology students; that many students preferred to learn by more than one mode of information presentation; learning style varies from one group to another and there is no

significant difference in the biology mean scores of the students with interaction between learning style and their gender.

Worley-Davis (2016) also found out whether the learning style of students enrolled in either a Bachelors of Science or an Associate of Applied Science programme were different and if their dominant learning style affected academic performance. When comparing the effects of dominant learning style on academic performance, no significant differences were noted in the lecture component of the course (quizzes and hourly exams) for either programme or learning style ($p = 0.57$, 4 yr.; $p = 0.94$, 2 yr.). Although students enrolled in the Bachelors of Science introductory poultry science course had consistently higher scores on each of the laboratory components than students enrolled in a similar course in the Associates of Applied Science programme no significant differences were noted in any of the laboratory components or the final laboratory grade ($p = 0.77$, 4 yr.; $p = 0.43$, 2 yr.) for either group of students or learning style.

Demirbas and Demirkan's (2016) study focused on design education using Experiential Learning Theory (ELT) and explored the effects of learning style and gender on the performance scores of freshman design students in three successive academic years. Findings indicated that the distribution of design students through learning style type preference was more concentrated in assimilating and converging groups. Further study indicates that the first and third groups were found to be more balanced while the second group being mostly a southerner. The learning style preferences did not significantly differ by gender in all three groups.

Although there is no consistency in all three groups, results indicate that the performance scores of males were higher in technology-based courses, whereas scores of females were higher in artistic and fundamental courses and in the semester academic performance scores (GPA). Also, it was found that the performance scores of converging and diverging students differed significantly in favour of converging students only in design courses (Demirbas & Demirkan, 2016). This shows that in design education, instructors should provide a strategy that is relevant to the style of each learner in the design studio process.

Rimmerman (2016) also investigated whether personality trait and learning style influenced performance in distance education. Thirty-four participants from three sections of Art, Humanities completed online the Myers-Briggs Type Indicator and the Learning style Inventory. Using regression analysis, it was determined that neither personality type, nor learning style had a statistically significant effect on student academic performance in this setting. However, the data did reveal some apparent self-selection of the learning environment. Even though the study found out, that personality trait and learning style do not influence students' academic performance significantly, there was a moderate relationship between the independent and dependent variables. The study, however, did not examine further the impact of gender and age on the examined variables, not to mention the mediating effects of academic self-discipline and self-confidence on the influence of personality trait and learning style on students' academic performance.

Furthermore, Koseoğlu (2016) also examined the extent to which the big five and learning style can influence academic achievement. Personality trait and learning style play defining roles in shaping academic achievement. Two hundred and two university students completed the Big Five personality trait questionnaire and the Inventory of Learning Processes Scale and self-reported their grade point averages. Conscientiousness and agreeableness, two of the Big Five personality trait, related positively with all four learning style, namely synthesis-analysis, methodical study, fact retention and elaborative processing. On the other hand, neuroticism was found to have a negative relationship with all four learning style.

In addition, Koseoğlu (2016) found out that both extroversion and openness appeared to have positive relationships with elaborative processing. The results of the Big Five personality trait explained 17 percent of the variance in grade point average and learning style added five percent, indicating that both contribute to academic performance. However, the gender of students has no effect on their demonstrated personality trait. Further, the relationship between openness and GPA was mediated by synthesis-analysis and elaborative processing, both reflective learning styles. These findings suggest that when students process information thoroughly and meticulously and combine such an approach with intellectual curiosity, their academic performance will be enhanced (Koseoğlu, 2016). The impacts of these findings on teaching techniques and curriculum design are also deliberated.

The purpose of An and Carr's (2017) paper was to propose a multiple approaches to explaining and predicting individual differences in learning. First, their study briefly reviews critical problems with learning style. Three

major concepts were discussed: lack of a clear, explanatory framework, problems of measurement, and a failure to link learning style to achievement. Next, their paper presented several alternative approaches to learning style that do a better job of explaining how learning style might influence achievement. Alternatives to learning style included individual differences in verbal and visual skills, expertise and domain knowledge, self-regulation and inhibition, and perfectionism. For expertise and domain knowledge, knowledge representation and fluency were specifically discussed.

Learning style theories and research have a number of problems, including the lack of a solid explanatory framework, poor reliability and validity of constructs, and a failure to link learning style to achievement. Despite this, teachers are often asked to provide instruction that matches their students' learning style. An and Carr (2017) argued that doing so is a disservice to students. Furthermore, it is a bigger disservice to teachers who spend valuable time teaching to "styles" when that instruction will not improve outcomes for students.

An and Carr (2017) presented alternative approaches to learning style theories that are grounded in research and based on solid theoretical frameworks in cognitive and developmental psychology. Unlike the learning style literature, these approaches provide teachers with evidence-based explanations for the individual differences they see in their students. Understanding student performance in terms of differences in sensory-based representations, levels of expertise, self-regulation, perfectionism and temperament will provide insight into possible interventions. An and Carr

(2017) recommended that the new approach that focuses on individual differences in learning be used by teachers.

Learning style are essential elements for students as learning style have their strong influence on the achievement of a subject. The objective of Ishak and Awang's (2017) study was to investigate the relationship between learning style and student's achievement in History subject. The study identified six different Grasha learning style by gender and relationship to student achievement in History subject. Suitability of students learning style in the History subjects was more effective and provided a positive impact on students' academic if the teaching process and learning tailored to students' learning style.

A total of 200 students were selected as respondents from two schools in the district of Kulim, Kedah. A set of a questionnaire instrument was used to measure their learning style preferences. Overall; the tendencies of students to use learning style were at a higher level unless avoidance learning style. The independent sample t-test showed no difference between learning style based on gender. Also, Pearson correlation analysis showed no significant relationship between learning style and achievement of student in the History subject (Ishak & Awang, 2017). A study implication towards teachers is the need for diversification of skills and teaching methods in the classroom. This, in turn, will foster interest and improve learning habit among students. As a result, students can achieve better in History subject.

Karalliyadda (2017) also investigated the link between learning style and academic performance of first year agricultural undergraduates, focusing on Rajarata University of Sri Lanka. In Sri Lankan universities, lecturers are

trained and requested to conduct learning style assessments to design strategies for better educational environments. Even though, limited attention has been acquired in the area of learning style and academic performances, less literature is found relating to agricultural undergraduates. Karalliyadda's (2017) study has attempted to investigate the learning style of first year agricultural undergraduates in one of the Sri Lankan universities. The objective was thereby, to examine any association between learning style and academic performances. A cross sectional survey was administered using a structured questionnaire consisting of the VARK learning style tool.

Results that emerged from Karalliyadda's (2017) study illustrated that most of the students have multimodal learning style and, those styles were independent of gender or their high school academic discipline pertaining to agriculture or biology. Among these learning styles, kinaesthetic style has gained a reasonable attention. The study concluded that there is no substantial association between learning style and academic performances. Availability of multimodal learning style was suitable to use blended teaching aids such as lectures, video and illustrations as well as to encourage students to take self-notes, etc. Moreover, facilitating each student to gain hands on experience can be used to enhance the learning. Finally, this study can also be carried out using some other available methods to avoid the biased errors and to understand the learning style in different angles.

The study of Busari (2017) also investigated the relationship between personality trait, learning style, motivation, self-esteem and academic stress among the distance learners of the Ibadan Study Centre. Six hundred (600) respondents were purposively selected from four randomly selected faculties.

The age range of the respondents was between 25 and 46 years with a mean age of 35.5 and SD = 4.2. Three research questions were raised and answered in this study. Five instruments were utilised to elicit information from the respondents. The instruments included: Student Academic Stress Scale; Multi-dimensional Personality Inventory; Self-esteem Scale; Self-report Situational Motivational Scale and Learning Style Scale. The data collected were analysed using Pearson product moment correlation coefficient and multiple regression analysis.

The results obtained from Busari's (2017) study revealed that there were significant correlations among the independent variables. The independent variables (agreeableness, conscientiousness, emotional stability, extroversion, general intelligence, learning style, motivation and self-esteem) made a joint contribution to the prediction of academic stress among the distance learners. The result also shows that self-esteem made the most potent contribution to the prediction of academic stress among the respondents. The implication of this is that learners with high self-esteem and appropriate learning skills are not prone to academic stress because they must have overcome stress producing stimuli through adequate preparation.

Furthermore, Hassan (2017) also investigated the link between personality trait and academic achievement among college students. Specifically, he determined the significant difference between high and low achievers on 16 personality trait factors. Among a sample of 200 adolescents (100 high achievers and 100 low achievers) studying in B. A part-I was selected by stratified random technique from different colleges located in Ongole. Sixteen personality factor questionnaires were administered to

measure the dimensions of personality trait of both the groups. Data were analysed by using means, standard deviations and independent sample t-test.

The findings that emerged from Hassan's (2017) study revealed that high achievers had a unique personality profile than low achievers. Also, the high achieving group was found to be reserved, detached, more intelligent, emotionally more mature, dominant in nature, stronger super ego strength, bold, careless, depressed, liberal in nature, higher self-concept and they were found to be tense and restless. Whereas low achieving group was sober, prudent, having doubtful personality and experienced.

Guntern et al. (2017) also investigated the joint impact of personality characteristics and self-efficacy on the perceived academic achievement of medical students on top of their prior high school performance. The sample consisted of medical students in their pre-clinical years. The students' grade point average scores at high school were included as a control variable in our explanatory models. Based on previous findings in the literature, Guntern et al. (2017) selected self-discipline, social activity and emotional stability from the Five Factor Model of Personality as influencing factors. Furthermore, following the social cognitive theory of Bandura, Guntern et al. added self-efficacy (students' belief in their academic skills) as an additional predictor. The logistic regression analyses confirmed the importance of self-discipline (positively related) and social activity (negatively related) for these students' perceived academic achievement. Additionally, Guntern et al. found a positive contribution of self-efficacy.

Guntern et al. (2017) have contributed to the literature on relevant success factors in the medical studies, where the admission procedures are

more selective than in other study fields, by presenting two sources of measurements, namely personality characteristics and self-efficacy for the prediction of perceived academic achievement on top of students' pre-university achievement. A consideration of these variables, already during the admission process and later during the medical studies, offers additional information about students' working behaviour. The value of this information can be seen in its influence on the academic achievement of students and its vulnerability to support programmes for students with performance deficits (Guntern et al., 2017).

To maximize the educational value of medical teaching it is necessary to understand our learners' preferred mode of learning and facilitate them with the best possible way. The main objective of Mrunal and Krishnakant's (2017) study was to assess the learning style preferences of first year students and study the influence of learning style on gender and academic performance. Mrunal and Krishnakant administered Honey and Mumford's (as cited in Mrunal & Krishnakant, 2017) 80-point learning style questionnaire to 150 first year medical students (87 females & 63 boys) of our institute. They studied the correlation of learning style with gender and academic performance with analysis of variance (ANOVA) and Chi square tests.

Results of Mrunal and Krishnakant's (2017) study showed that 58 percent of students were Unimodal (single 'very strong' preference), 28 percent Bimodal (two 'very strong' preferences) and 13 percent Multimodal (more than two 'very strong' preferences). 'Activist' was the most preferred style among unimodal learners and 'Reflector/theorist' among bimodal learners. Gender differences were evident among the Unimodal vs.

Bimodal/Multimodal learners. A statistical significant difference was observed within the unimodal group with reflectors as highest achievers. No significant difference in the exam grades of Unimodal, Bimodal and Multimodal learners was evident. Mrunal and Krishnakant (2017) concluded that there are a diverse group of learners and understanding their learning preferences will help in catering to their learning needs.

Corbin (2017) also examined the differences in students' learning style based on age and gender, and the relationships between learning style and academic performance in a Caribbean tertiary level institution. The paper sought to make a contribution in the literature related to measuring student learning style, including a focus on the learning style of millennial and the relationship to factors that affect performance outcomes. The exploratory study incorporated both qualitative and quantitative data collection methods, that is, the use of both a questionnaire and three focus groups. A purposive sample included students from a Caribbean tertiary level institution. After administering the questionnaire, 670 useable questionnaires were returned directly to the researcher by the participants for a response rate of 63 percent, comprising 163 males (24.3%) and 507 females (75.7%). Millennial comprised the majority of the sample totalling 509 participants (376 females and 133 males). Statistical analyses included t-tests, ANOVA and multivariate regression.

The findings that emerged from Corbin's (2017) study suggested that collaborative learning was the most preferred learning style based on the mean scores of Grasha-Riechman rating norms. The results of t-tests indicated significant gender difference on dependent, participant, independent, and

competitive learning style. There were significant age differences for participants, collaborative, independent, avoidant and competitive. Independent and Avoidant learning style were significant factors that influenced students' academic performance. Students with more predominant independent learning style reported higher GPAs, whereas students with more predominant Avoidant learning style reported lower GPAs. Corbin (2017) concluded by suggesting that more consideration needs to be given to teaching styles that match students' learning style, especially the millennial and the need for further research.

Conceptual Framework

The conceptual framework was created based on the Big Five and VARK learning style models. Five main constructs which were constructed using factors/variables were used. Each variable has many dimensions which were all conceptualised into one main variable as depicted in Figure 1. The variables considered were personality trait, learning style, academic self-discipline, academic self-confidence and academic performance.

The point being made here is premised on the assumptions of the BFM of personality trait and VARK learning style model as indicated earlier. These two models were used to underpin the argument of the study. In relation to the influencing variables, the dimensions of personality trait were adapted from the work of Golbert (as cited in Rimmerman, 2016) while that of learning style were adapted from the works of Aragon et al. (2012), Smith and Renzulli (as cited in Worley-Davis, 2016) and Zou (2015). In relation to the mediating variables, the two main variables considered were academic self-discipline and

academic self-confidence, while students' academic performance was the criterion/outcome variable.

The idea of the two variables mediating, learning style and personality trait with students' academic performance, was adapted from the work of Aragon et al. (2012) who examined the influence of learning style preferences, mediated by academic self-discipline and academic self-confidence, on students' success online versus face-to-face environments. Some of the works that guided the researcher in conceptualizing the variables, and also creating the model for the study have been analysed critically under the empirical review section of the report.

This shows that in designing the conceptual model for this study, the study took into consideration all possible factors from the literature and other observations to derive the influencing factors, criterion and mediating variables for descriptive and inferential analysis. The influencing factors are personality trait (extroversion, conscientiousness, agreeableness, openness to experience and neuroticism) and learning style (visual, auditory, read/write and kinaesthetic) while the criterion/outcome variable is students' academic performance. Academic self-discipline and academic self-confidence put in by distance education students in their academic work were used as mediating variables. These are illustrated in Figure 1.

Many researchers (Aragon et al., 2012; Barkhi & Brozovsky, 2014; Day & Silverman, 2016; Rimmerman, 2016; Worley-Davis, 2016; Yahaya & Nordin, 2016) indicate that students' academic performance in general is influenced by factors such as students' personality trait, motivation, intelligence, attitude, learning style, self-concept and parenting-styles.

However, this study focused on, and examined, how personality trait and learning style influence the academic performance of distance learners of CoDE, UCC. Variables such as students' academic self-discipline and academic self-confidence were examined as mediators to determine whether they have a significant incremental effect on students' academic performance. The explanations and measurements of individual variables have already been explained in Chapter Three.

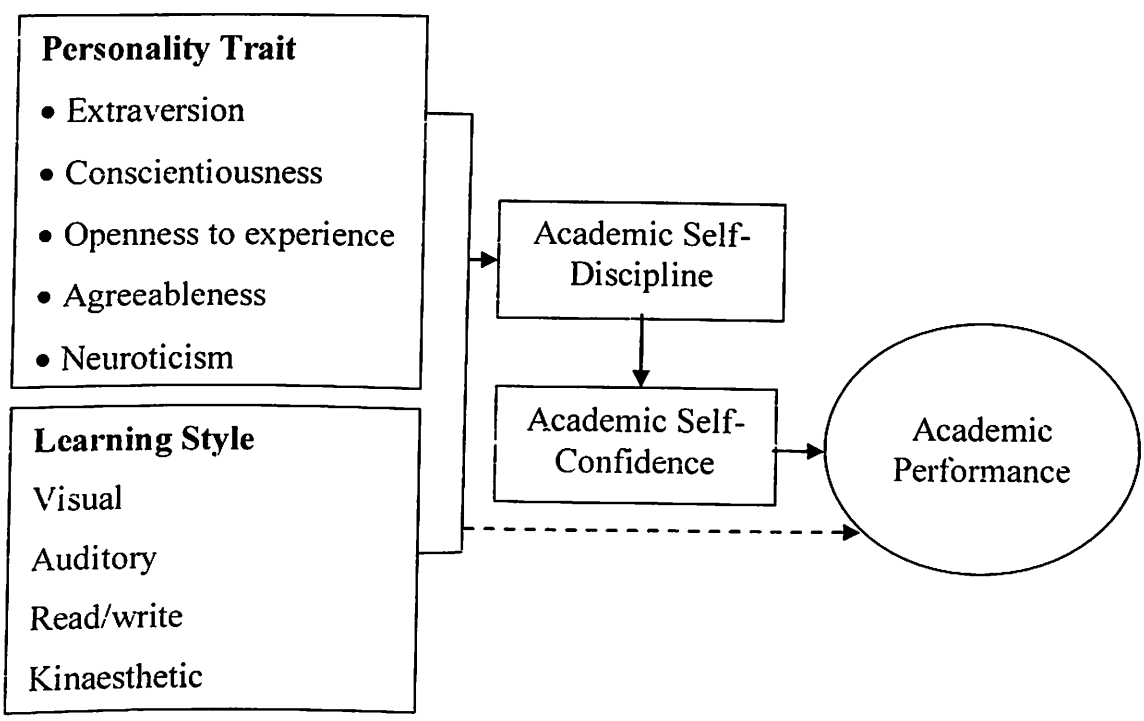

Figure 1: Proposed Model on the Influence of Personality Trait and Learning Style on Distance Learners' Academic Performance

Source: Author's construct (2018)

According to Rimmerman (2016), personality trait and learning style have good influencers of students' academic performance. The point being established here is that if students perceive personality trait and learning style positively, they are most likely to experience an improvement in their academic work. However, this influence is not direct as it appears. Therefore, the study is of the view that personality trait and learning style will help enhance students' academic performance when other interventions are

considered. That is, with effective counselling, students with low academic self-discipline can be guided to develop good academic discipline behaviours.

What this means is that with positively perceived personality trait and learning style, students still need some level of interventions in the area of academic self-discipline to help boost their academic self-confidence leading to academic performance. This further explains that students' positive perception of personality trait and learning style can help bring about high academic performance when they are confident of themselves, by first being academic self-discipline.

Enhancement of students' academic self-discipline through counselling will in turn make them more confident of themselves with regard to their academic work which in the long run, will also help improve their academic performance. This means that students are to be assisted through counselling programmes to learn to be academically self-disciplined. Being academic self-discipline can help not only to exert some level of effort in academic work, but also aid one to become conscientious to develop academically. This will no doubt, help boost academic performance of students.

Chapter Summary

The review focused mainly on conceptual, theoretical and empirical review of the three constructs (personality trait, learning style and students' academic performance). To begin with, the review provided definitions for all the three constructs. For example, personality trait was defined as a set of consistent traits or characteristics of an individual which make him or her different from other individuals, while learning style was defined as the ways in which an individual characteristically acquires, retains and retrieves

information. The academic performance was defined as an outcome of education or an output or efforts a student makes in the field of academics.

Personality trait and learning style literature related to theories and models were also examined in this chapter. Areas related to distance education and their future impact, have been included. Learning style and personality trait serve as a catalyst to create effective learning systems that target individual differences. In the review, a lot of evidences were established to show the influence of the first two constructs on students' academic performance. In the case of personality trait, out of the five models (extroversion, openness to experience, conscientiousness, agreeableness and neuroticism) conscientiousness was seen as the best influencing factor of academic performance. That apart, high score in all the models except neuroticism has the ability to influence academic performance.

With the learning style, all the styles reviewed in this chapter can be adopted by students at all levels for effective learning to take place. However, the researcher has much interest in VARK and likes to adopt it for the main work since most researchers perceived it to be the most effective style (Clark, 2014; Worley-Davis, 2016). It was further reviewed that the influencing role of the constructs over academic performance can be enhanced with the help of the levels of both academic self-discipline and academic self-confidence of students. This, however, does not mean that without these two variables, the constructs standing on their own cannot influence performance.

Whiles academic self-discipline was defined as a behaviour springing from general discipline in the field of academics, academic self-confidence on the other hand, was seen as the efficacy or belief a student possesses to

perform in the field of academics. High scores in these attributes can result in higher influence of the first two constructs or influencing variables on academic performance. In conclusion, students are to be helped through counselling to be more aware of their various learning style and how effectively, they can positively influence their performance in class so that they will see the need to deepen or strengthen them for their own good.

Most of the empirical studies reviewed adopted quantitative approach. This study also adopted quantitative approach which makes use of numerical data. Also, the studies reviewed did not take into consideration the mediating role of students' academic self-discipline and academic self-confidence, and how they help boost up the influence of the independent variables on the dependent variable. Lastly, most of the empirical studies reviewed did not examine the effect of gender and age on the personality trait, learning style, academic self-discipline, academic self-confidence, and academic performance of students. This study examined the effects of these demographic variables on the studied variables.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter describes the methods that were used to obtain the relevant data for the study. Specifically, the research design, variables, and instrumentation used to conduct this study are outlined in this chapter. Also included, are the procedures, statistical method for data analysis and ethical consideration. The study was designed to investigate the influence of personality trait and learning style on the academic performance of DBE distance learners of UCC. Finally, a chapter summary was presented.

Approach to the Study

The researcher adopted the quantitative approach for this work. This approach differs from the qualitative approach with respect to its theory of knowledge and theory of being orientations. This approach was used in order to measure the data collected from the field numerically using unilinear scale. According to Carson, Gilmore, Perry and Gronhaug (2010), quantitative approach normally addresses the question "how many?" and/or "how often?" where the information can easily be processed and converted into numbers. A quantitative approach is a process directed towards the development of testable hypothesis and theories which can be generalised across settings (Ary, Jacobs, Sorensen & Razavich, 2010; Creswell, 2014).

In relation to qualitative approach, Carson et al. (2010) posit that it is any kind of research that produces findings that are not arrived at by means of statistical procedures or other means of quantification. Qualitative research is multi-method in focus and involves interpretive, naturalistic and

phenomenological approaches to its subject matter. According to Best and Kahn (2012), case studies, interview guides and reviews are often more suitable for qualitative approach where subjective elements of the researcher and participants are built into the findings and conclusions. This approach is perceived to be more subjective (Ary et al., 2010; Cohen, Manion & Morrison, 2011), and since the researcher is more interested in more perceived objective approach, it was appropriate to adopt the quantitative approach.

Quantitative approach presents ease and speed in conducting research and can also cover wide range of situations (Cohen et al., 2011). It is also possible to use the quantitative method in analysing data with statistical methods since it is easier to generalise the findings. Another advantage is that the final results are based on quantities rather than interpretations, which may simplify potential future development and comparisons with the work.

In addition, the main goal of quantitative research is to provide specific facts for decision makers to (1) make accurate predictions about relationships between market factors and behaviours, (2) gain meaningful insights into those relationships, and (3) verify or validate the existing relationships (Best & Kahn, 2012; Creswell, 2014). However, this approach tends to be inflexible, artificial and ineffective in gauging the significance that people attach to actions, and is not helpful in generating theories (Creswell, 2014; Pallant, 2010). The main reason that necessitated the adoption of the quantitative approach was the use of the questionnaire which allowed the researcher to collect large amount of data from a sizeable population, and the ease of adopting quantitative statistical tools to analyse the data numerically.

Research Design

Research design is a master plan, framework or a blue print of how a researcher intends to conduct a study (Best & Kahn, 2012). The essence of research design is to guide the researcher on the type of data to collect, how to collect, process, and analyse them in order to answer the research question or test the research hypotheses. Since the study focused on addressing an issue in an area where there has been relatively little research, and it also involves survey of DBE students of UCC views on the issues, situations and processes, the researcher deemed it appropriate to use the descriptive survey design. The design can help in examining the influence of personality trait and learning style on academic performance of DBE distance learners of UCC.

Descriptive research design involves systematic gathering of data about individuals and groups in order to test hypotheses or answer research questions concerning the current status of the subject of the study (Best & Kahn, 2012). It determines and reports the way things are. Cohen et al. (2011) consider this design to be wholesome when information is needed about conditions or relationships that exist, practices that prevail, attitudes that are held or process that are going on.

The descriptive survey design guided the research activity and also ensured that sound conclusions were reached. Even though the design of the study was descriptive survey, the nature of the study was cross sectional. Therefore, the researcher gathered data just once in order to deal with the research questions and hypothesis stated. In the view of Cohen et al. (2011), descriptive survey design is appropriate for it allows the researcher to collect data to assess current practices for improvement. They further point out that

the design gives a more accurate and meaningful picture of events and seek to explain people's perception and behaviour on the basis of data gathered at any particular time.

Furthermore, the study went beyond the 'what' questions to ask 'why' and 'how' questions in order to understand the issues better. Moreover, taking into account the purpose of the study and the population under study, it was deemed appropriate to use the descriptive survey design. The design helped to achieve the purpose of the study, and to draw meaningful conclusions from the study. In addition, the adopted design helped the researcher to collect data that enabled him draw the relationship between the variables and analysed the data. It also helped to observe, describe and document aspect of DBE distance learners' personality trait and learning style as they naturally occur (Ary et al., 2010; Best & Kahn, 2012; Creswell, 2014).

In addition, the rationale for considering the descriptive survey design was because the study made use of questionnaire with unilinear scale measurement of responses. According to Pallant (2010), descriptive survey design normally makes use of survey instruments such as questionnaire. Descriptive survey design is also regarded by social scientists as the most appropriate, especially where large populations are involved (Babbie, 2014). Creswell (2014) added that in descriptive research, there is accurate description of activities and this goes beyond mere fact-finding. According to Creswell (2014), descriptive survey design provides a relatively simple and straight forward approach to the study of attitudes, perceptions, values, beliefs and motives.

However, descriptive survey design is relatively laborious and time consuming. According to Ary et al. (2010), descriptive survey design is susceptible or easily influenced to distortions through the introduction of biases on the part of researcher in the measuring of instruments. In collecting data from the respondents, the researcher can influence the responses through the designing of the questionnaire which is usually used in a descriptive study. They are sometimes regarded as focusing too much on the individual level, neglecting the network of relations and institutions of societies (Best & Kahn, 2012). They sometimes concentrate more on the researcher than the respondents. Also, descriptive survey design relies heavily on the respondents' memory and honesty, and if they forget or decide not to be honest, it will affect the findings of the study (Babbie, 2014). This weakness is not considered to be serious with regard to this study because the issues involved are current and require no recall. Therefore, the design is considered to be appropriate.

In minimising the possible challenges, the researcher adhered to the ethical guidelines set by the Institutional Review Board (IRB) of UCC. Also, the data were organised and presented systematically in order to arrive at valid and accurate conclusions. With regard to the population characteristics and data analysis procedures, meaningful and representative sample was selected and used. The researcher also described the variables and procedures accurately and completely as possible to make things easier for other researchers who may want to replicate this study.

Study Institution

CoDE, UCC, formerly called Centre for Continuing Education (CCE) was established in 1995, as one of the centres under the then Faculty of Education, now College of Education Studies of UCC (CoDE, UCC, 2016). The centre was later upgraded to a college status on August 1, 2014. Currently, CoDE, UCC has three departments, namely: Department of Education, Department of Business Studies and Department of Mathematics and Science Education. Also, there are several units that serve as auxiliary departments to the main departments and the College as a whole. One of such units is the Counselling Unit, which exists basically to help students through counselling to make informed decisions and choices on their academic, career and social/personal issues.

The Centre started with an initial student enrolment of 750 in 1995. Currently, the College has an enrolment of 48,622 undergraduate students in 73 study centres across the ten Regions of Ghana and 1,427 postgraduate students in five regional centres. It runs programmes in Education and Business leading to the award of Diploma, Bachelor's and Master's degrees (UCC, 2016).

CoDE shares the vision of the University to be a university strongly positioned with a worldwide acclaim. As part of the vision, CoDE wants to become a reference point for the delivery of quality distance education in Ghana and beyond (UCC, 2010; 2014). It also has a mission to peruse excellence in the delivery of innovative, demand driven, customer-oriented and cost effective distance education programmes aimed at assisting

individuals in overcoming geographical, economic, social and cultural barriers to learning. According to UCC, 2014, currently, the college is made up of:

- The Board of CoDE, UCC
- The Office of the Provost
- Office of the College Registrar
- Office of the College Finance Officer
- Heads of academic Departments
- Coordinators of Administrative Units
- Zonal Coordinators
- Regional Resident Tutors
- Study Centre Coordinators

CoDE provides students support services in order to help students meet among other things, their personal traits, learning style and academic performance needs; and also be able to cope, adjust and adapt to the distance academic environment. The rationale behind the provision of these support services is to create an academic environment that ensures that students' academic as well as psychological, social and emotional wellbeing are in a state of bliss for academic success. It is also to ensure that students complete their programme of study successfully and on time.

Population

According to Yates (2014), population is the entire aggregation of cases that meet a designated set of criteria. In other words, it is the target group about which researchers are interested in gaining information and drawing conclusions. The target population for the study was all DBE students of the College whiles the accessible population was all level 200 DBE students

of the College. Currently, the DBE distance learners of CoDE, UCC are 28,602 in number while those at level 200 are 9,534 (CoDE, UCC, 2017a). All the level 200 students who were 9,534 in total were accessible to the researcher. As indicated in Table 2, the total population for the study was 9,534 students being level 200 DBE students. The distribution of the population with regard to Regions is presented in Table 2.

Table 2: Population Size of Level 200 DBE Students of CoDE, UCC

Regions in Ghana	Population Size
Ashanti Region	2814
Brong-Ahafo Region	1481
Central Region	1706
Eastern Region	598
Greater-Accra Region	770
Northern Region	359
Upper-East Region	246
Upper-West Region	341
Volta Region	497
Western Region	722
Total	9534

Source: CoDE, UCC (2017a)

Sample and Sampling Procedure

Basically, a sample is a sub-set of a population. It, therefore, has properties which represent the whole. According to Ary et al. (2010), sample is a portion of population that is selected for investigation. Sampling on the other hand, involves the process of selecting a portion of the population to represent the entire population (Zikmund, 2013), and on this basis infer to something about the larger group (population). The sample size for the study was 763 level 200 DBE students.

The sample size chosen was obtained based on the recommendations of Ary et al. (2010) who are of the view that a sample of five to 10% of the accessible population is an appropriate and meaningful representation for a survey study. Therefore, it was appropriate to sample 763 respondents representing 8.0% of the accessible population of 9,534. Specifically, the stratified proportional sampling technique was used to calculate the corresponding sample size for each region. The sample distribution of the respondents is presented in Table 3.

Table 3: Sample Size of Level 200 DBE Students of CoDE, UCC

Regions in Ghana	Sample Size
Ashanti Region	225
Brong-Ahafo Region	118
Central Region	136
Eastern Region	48
Greater-Accra Region	61
Northern Region	29
Upper-East Region	20
Upper-West Region	27
Volta Region	41
Western Region	58
Total	763

Source: CoDE, UCC (2017a)

Also, after purposively selecting the study centres that run diploma in education programme in all the 10 Regions of Ghana, the study employed the lottery method of simple random sampling, to select a study centre from each region, to constitute the centres selected for the entire study. In doing so, the

names of all the study centres in a Region were written on slips or pieces of paper, folded and put in a container. The researcher then mixed them up thoroughly, and picked a piece of paper at a time from the container without looking into it (with replacement), to represent the Region. This same process was repeated in the rest of the nine regions, to select a study centre to represent them. For example, in the Greater Accra Region, there were seven study centres at the time of the study, running diploma in education programme. Out of this number, one study centre (Ada study centre) happened to be selected randomly, using the lottery method of simple random sampling technique, as it has been explained.

Furthermore, the study again, employed the stratified sampling procedure to select the students based on Region. The gender and age distributions of the respondents were considered naturally. The stratification process focused on only Region. Specifically, after grouping the students into the various strata, the computer random number method of simple random sampling technique was used to select the students for the study. This was done after using the proportion of 8.0% of the population based on the regional stratum. In all, 763 respondents were selected for the study. Table 4 depicts the sample distribution of respondents.

Table 4: Population and Sample Sizes of Level 200 DBE Students of CoDE, UCC

Category of Respondents	Population Size	Sample Size	Sample %
Students	9534	763	8.00

Source: CoDE, UCC (2017a)

The table of random sampling numbers that was designed and formulated by the researcher, using a Microsoft Excel tool was used to select

the respondents based on their respective regions. In designing the random number table, the first and last numbers were entered to generate the tables for each category of respondents. With regard to the selection process, the researcher first of all, identified each member in the sample frame which was constructed using students index numbers obtained from the data provided by the Students Records Management Unit of the College, as depicted in Table 1.

For example, the total population of students was 9534; therefore, the sample frame numbering for that group was 0001 to 9534. After this, the researcher selected a starting point, vertically or horizontally, randomly from the table of random sampling numbers and then read from the table, beginning with the selected point, vertical or horizontal, groups of digits in the sample frame numbering sequentially.

Each group of digits identified was included in determining the sample size. Again, after reaching the end of the table before obtaining the sample size, the researcher picked another starting point by reading on a different direction until the required sample size was obtained. Any group of digits greater than the total number of the sample size was ignored, and the same was applied to any repeated group of digits. For the purpose of this study, these processes were continucd until the required numbers of students were picked and recorded.

A sample of the computer random number generated for the Upper-East Region is presented in Appendix A. For example, in the Upper-East Region, the total population was 246 while the assigned sample was 20 students. Therefore, in finding out who to pick or select from the population using the random number method, the study generated the random table using

the range of 001 to 246. The generated set of random numbers is presented in Appendix A. All numbers that were equal to or less than 20 were selected since the sample size for students in the Upper-East Region was 20. Note that the emphasis was on the positions of these numbers since the number of rows or columns in the sample frame for students in the Region, was equal to the random number table generated.

In the end, the study selected exactly 20 positions in the random number table generated, and the students in these positions in the sample frame were selected as expected. The positions selected are shown in the random number generated (See Appendix A for random number generated for respondents in the Upper-East Region). This process was replicated for the selection of the remaining respondents from the rest of the Regions, for the study.

Sources of Data and Data Collection Plan

The study was designed in such a way that it allowed the use of meaningful sources of data collection. That is, both primary and secondary data were used in the study. The primary data were collected through field survey in the institution under study using questionnaire. The secondary data were gathered through the review of existing literature mainly management books, and documents from CoDE, UCC. For example, the academic performance data which were students' CGPA were obtained from the Students Records Management Unit of CoDE, UCC (CoDE, UCC, 2017a). According to Ary et al. (2010), secondary data has been identified to be economical, and having the potential to give high quality of information with the possibility of retesting.

The study was based on three main pillars: the review of literature, documentary analysis and field work. The process of data collection was planned in such a way that one method was used to guide the next process and a different method was employed. The researcher started this work by first reviewing related and relevant literature which provided insights on practices and trends on distance education programme, distance learners' personality trait, learning style and academic performance.

Most of the documents reviewed, especially those from CoDE, UCC were carefully studied in order to understand the issues much better. The document also gave the researcher some ideas of the conceptions of distance education programme and distance learners' academic performance. Thus, before going to the field, the researcher had the opportunity to gain a tremendous amount of knowledge regarding distance education programme, distance learners' personality trait, learning style and academic performance in CoDE, UCC. This knowledge guided the researcher in developing the questionnaire that was used on the field.

As indicated earlier, the study adopted the quantitative approach which created room for the researcher to use self-designed questionnaire to collect baseline data that were followed by documentary analysis. Thus, the opinions of students were sourced through the questionnaire. During the field study, the researcher further made some observations on some critical aspects of students' personality trait, learning style and academic performance. Thus, the data collection process as depicted in Figure 2 was planned in such a way that the various stages were factored into each other, and that allowed for

collection of meaningful data. These different stages are explained to show how they contributed towards the study.

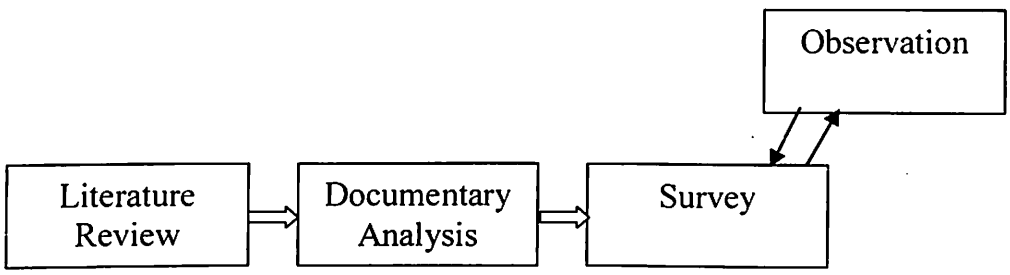

Figure 2: Data Collection Plan
Source: Author's construct (2018)

Literature review: In this study, relevant literature was reviewed on international trends in terms of distance education programme, distance learners' personality trait, learning style and academic performance. The review of literature gave the researcher more insights into the main debates and concerns in the area of distance learners' personality trait, learning style and academic performance. Engagement with the literature also, helped the researcher to appreciate the importance of certain mediating variables such as academic self-discipline and academic self-confidence of students in shaping and enhancing distance learners' academic performance.

Documentary analysis: The researcher also used documentary analysis, which focused on students' academic performance (CoDE, UCC, 2017a; 2017b). This created room for the researcher to appreciate how students' academic performance is conceptualised and measured in CoDE, UCC. An important aspect of this was the degree of congruence between policy text and policy in practice in the college as it is in the implementation process that tension usually exists among the various actors.

Survey and observation: The administering of the questionnaire was done simultaneous with the observation. It targeted the level 200 DBE students. The survey instrument was made up of close-ended items in order to encourage respondents to complete on schedule. Details of the questionnaire are discussed under data collection instrument sub-header. In the administering of the questionnaire, conscious and unconscious observations were made to understand better students' personality trait and learning style.

Data Collection Instrument

Structured questionnaire was used to collect data from the respondents (See Appendix B). The questionnaire, as presented in Appendix B, was designed for the selected students, and it was in five sections, namely, A, B, C, D and E. The sections were on the following corresponding themes: background characteristics of respondents, personality trait, learning style, academic self-discipline and academic self-confidence. Section A elicited data on background characteristics on the respondents. Items considered were Region of study, gender and age of the respondents. Gender as a variable, was measured categorically while age was measured numerically.

Section B which comprised students' personality trait was made up of 25 close-ended items. The psychometric properties of Golbert's (as cited in Rimmerman, 2016) personality trait items were adapted by the study in order to solicit responses from students. This was used to collect data on students' personality traits that were in line with their academic work. Five main dimensions or facets of personality trait were considered. These are extroversion, conscientiousness, openness to experience, agreeableness and neuroticism. Five statements were used to elicit data on each of the

dimensions of personality trait (Appendix B, Section B). The items were adapted, for a reason being that some of them were altered to suit the demands of the study with regard to the five dimensions of personality trait.

Section C which also comprised students' learning style, was made up of 20 close-ended items. The psychometric properties of the items used by Aragon et al. (2012), Smith and Renzulli (as cited in Worley-Davis, 2016) and Zou (2015) were also adapted to form the 20 close-ended items on learning style. These items were used to solicit responses from students on their learning style. Four dimensions of learning style were used. The dimensions were visual, aural/auditory, read/write and kinaesthetic learning style. Again, five close-ended items were used to elicit data on each of the dimensions of learning style.

The two main variables that represent sections B and C were used as independent variables. With regard to the mediating variables, academic self-discipline and self-confidence were used. Section D elicited data on academic self-discipline. It comprised 10 close-ended items. Similarly, section E also comprised 10 close-ended items which was used to elicit data on respondents' academic self-confidence. These two mediating variables were adopted from the work of Aragon et al. (2012). The items in sections B, C, D, and E were measured discretely using numerical values. The five-point scale was used such that one represents the least agreement to the issues while five represents the strongest agreement to the issues.

The questionnaire used was deemed appropriate for the study because it provided a much quicker means of gathering information from such a fairly large population. In addition, it was economical and also, was easy to

construct. According to Gravetter and Forzano (2012), questionnaire also allows for anonymity of respondents which normally makes it easier for respondents to volunteer information without fear of victimisation. However, in the case of this study, anonymity was a problem as respondents were asked to provide their registration numbers at the top of the questionnaire. This was done in order to pair the CGPA of respondents with their responses.

Questionnaire is limited to literate population and does not provide any opportunity to collect additional information (Best & Kahn, 2012; Creswell, 2014; Flick, 2014). In the case of this study, the respondents who were accessible to the study with regard to the questionnaire, were literates and were in a position to understand the items in the questionnaire as expected. The questionnaire was prepared personally but administered to the respondents with the help of the centre co-ordinators in all the selected study centres throughout the country.

Measurement of variables

The variables of the study were measured quantitatively at the interval or ratio level using unilinear scale. This subsection focuses on describing the measurement of the variables.

Independent variables

The independent variables were personality trait and learning style of students. Personality trait variable was made up of five dimensions (extroversion, conscientiousness, openness to experience, agreeableness, and neuroticism) while learning style variable was made up of four dimensions (visual, aural/auditory, read/write and kinaesthetic). Personality traits are the consistent traits or characteristics of an individual which make him or her

different from others. It is determined by an individual's preferred way of dealing with new information as well as how he or she views situations. Learning style on the other hand, refers to individual difference factors that represent enduring and stable approaches to gaining, processing, and storing information for future use.

Multiple close-ended items were used to elicit data on these dimensions. Responses to the items were measured quantitatively at the interval or ratio level using a unilinear scale such that one represents the strongest disagreement to the items while five represents the strongest agreement to the items. The number of items formulated for each of the dimensions with regard to personality trait and learning style can be seen under the data collection instrument sub header (Appendix B). Also, the various dimensions considered under each independent variable are shown in Figure 1. The mean scores with regard to the responses of the various items under these two main variables were pooled together to form each of the variables.

Mediating variables

Academic self-discipline and academic self-confidence of students were the mediating variables for this study. Academic self-confidence is the belief one has that he or she can perform well in the field of academics while academic self-discipline is a behaviour that a student possesses to enable him or her become all what it takes to be an academic abiding student. The two variables were measured using 10 close-ended items each (Appendix B, Sections D and E). Numerical values were used to represent the responses to these items. They were measured using a unilinear scale. The items were

adapted from the psychometric properties of Aragon et al. (2012) instrument. In relation to each of the mediating variable, the 10 items were pooled together to form each major mediating variable using the mean response scores.

Dependent variable

Students' academic performance was seen as the output or effort a student makes in the field of academics. It was measured using the CGPA of the students. The use of CGPA in representing students' academic performance is in line with that of Abidin et al. (2011), Demirbas and Demirkan (2016), and Guntern et al. (2017). The use of CGPA means that the study made use of all courses taken by the students as at the time of the study. The data relating to students' academic performance were secondary in nature. They were provided by the Students' Records and Management Unit of CoDE, UCC (CoDE, UCC, 2017a).

Validity and reliability of the instrument

In order to ensure the validity and reliability of the research instrument, a pilot testing was carried out. Validity is the extent to which an indicator accurately measures a concept it intends to measure (Ary et al., 2010). In other words, validity can be defined as the degree to which an instrument measures what it is supposed to measure. Internal validity was assessed to test the ability of the instruments to measure what it was projected to measure and to help detect any errors that could obscure the meaning of the instruments, and prevent it from eliciting specious responses. According to Zikmund (2013), the experience of pilot respondents is used to improve and amend the questionnaire before sending it out to the main research population. Validity, in the context of this study refers to how accurately the questionnaire was able

to collect the responses from the respondents as intended by the researcher to tackle the purpose of the study.

In relation to content validity, the researcher ensured that the items on the instruments covered the domain that the instruments purport to measure. This was determined by the expert's judgment of the two supervisors and other professionals in the field of guidance and counselling, psychology, and measurement and evaluation. The questionnaire was made available to these academics and professionals who helped in shaping it with the view of establishing content validity. The researcher paraphrased, modified and deleted materials that were considered inaccurate, or items that infringed or violated on the confidentiality of the respondents. Furthermore, these academics and professionals helped scrutinise unclear, biased and deficient items, and evaluate whether items were members of the subsets to which they were assigned.

With regard to face validity, the researcher ensured that the questionnaire measured what they appeared to measure. The face validity of the study was granted by the researcher's peers, colleague faculty members and other members of the college. Construct validity on the other hand, was ensured by making sure that the instruments related to the theoretical constructs that they purport to measure. Example, does the questionnaire measure the constructs of personality trait and learning style the way the study designed it?

Factor analysis was performed to ensure construct validity of the questionnaire. This analysis was conducted using the results of the draft questionnaire which was administered to 76 students of UCC study centre of

CoDE, UCC who were distance learners. This was done to find out the factors that measured variables such as personality trait, learning style, academic self-confidence, and academic self-discipline. Items with Eigen values greater than one were extracted, and items with a correlation coefficient below $\pm$ 0.3 were erased on the grounds that they were thought to have low commitment to the elements extricated (Pallant, 2010). The extracted items were pooled together to form each of the variables using average responses since the responses were measured using a unilinear scale. Initially, the questionnaire was made up of 72 close-ended items, but after the factor analysis, it was reduced to 65 in the final version.

The number of respondents used for the pre-testing was sufficient to include any major variations in the population as confirmed by Ary et al. (2010) that for most survey studies using questionnaires, a range of five to ten percent (5%-10%), of the sample size, for pilot testing is sufficient. The respondents were selected because they share similar characteristics as those in the other centres of the college. These selected respondents at the UCC study centre, were also selected due to their closeness and easy accessibility to the researcher. The questionnaire was administered to a total of 76 respondents who were drawn from the UCC study centre. The questionnaire was personally delivered to the respondents by the researcher with the help of the centre coordinator. A day interval was allowed for the respondents to complete the questionnaire. All the 76 copies of the questionnaire administered were retrieved as expected.

With the help of the Predictive Analytic Software (PASW) Version 18.0, the researcher used a Cronbach's alpha reliability coefficient to measure

the internal consistency or reliability of the questionnaire. Since the questionnaire was used to collect quantitative data, and also the responses to the items were measured using a unilinear scale, the study used a Cronbach's alpha reliability coefficient to measure the reliability of the variables or scales of the instrument. According to Pallant (2010), the most appropriate measurement tool to use in finding out the reliability coefficient of an instrument which is designed to elicit quantitative data, is the Cronbach's alpha reliability coefficient tool. Therefore, it was appropriate to use this statistical tool in measuring the consistency of the questionnaire.

This statistical tool varies from zero to one, and though alpha has several interpretations, the cut-off value is more useful in determining whether a scale is reliable. The closer the coefficient is to 1.0, the higher the reliability. The standard rule of thumb is that alpha must be or greater than approximately 0.7 to conclude that the scale is reliable. Indeed, Darren and Mallery (2014), suggest that a rule of thumb that applies to most situations is Excellent ($\alpha > 0.9$), Good ($\alpha > 0.8$), Acceptable ($\alpha > 0.7$), Questionable ($\alpha > 0.6$), Poor ($\alpha > 0.5$), and Unacceptable ($\alpha > 0.4$). The results are presented in Table 5.

The Cronbach's alpha reliability co-efficient generated indicated that the various scales were reliable per the suggestion of Darren and Mallery (2014), implying acceptability of the scales. This was done with the help of Test Analytics for Surveys (TAFS), a tool of Predictive Analytic Software (PASW) Version 18.0, which is used for coding data and analysing quantitative responses to close-ended items. Further calculation of reliability of the questionnaire was done on construct and variable bases.

Table 5: Computed Reliability Co-efficient of the Variables (Scale)

Questionnaire Category	Number of Items)	Co-efficient
Personality trait	25	0.884
Extroversion	5	0.708
Conscientiousness	5	0.701
Agreeableness	5	0.713
Openness	5	0.726
Neuroticism	5	0.740
Learning style	20	0.815
Visual	5	0.700
Auditory	5	0.708
Read/Write	5	0.766
Kinaesthetic	5	0.743
Academic Self-Discipline	10	0.719
Academic Self-Confidence	10	0.787

Source: Field survey (2018)

This statistical validation of the unilinear scale of the items in the sections was based on the Cronbach's alpha reliability test. With the help of the same statistical software, the internal consistencies of the scales for Cronbach's alpha co-efficient were determined. Research has shown that scales with Cronbach's alpha co-efficient of 0.70 or more are considered to be reliable (Pallant, 2010). Based on the responses given during the pre-testing of the instrument, a few modifications were effected to improve the final instrument for the main survey which was then administered. Items that were not clearly stated were corrected.

Ethical Issues Considered in the Study

The issue of ethics is an important consideration in research that involves human subjects (Best & Kahn, 2012). It refers to appropriate behaviour of a researcher relative to the norms of society (Zikmund, 2013).

The researcher, research subjects and clients of the research were protected from any adverse consequences of the study, by following laid down rules and procedures of ethics in research. The study considered ethical factors in a number of ways. Ethical issues that were catered for in this study included a right to privacy, voluntary participation, no harm to respondents, and confidentiality, deception and scientific misconduct.

To gather data from the sampled individuals, the researcher first submitted a copy of the proposal for this study and the self-designed instruments to the Institutional Review Board (IRB) of the University of Cape Coast to review. This was done to ensure that the research respondents, the university community and the country at large are protected. Based on the guidelines of the IRB of UCC, the researcher ensured that all ethical requirements such as academic honesty, plagiarism, acknowledgement of copyrighted materials used, and institutional ethical clearance were addressed. Furthermore, permissions were sought from the management of CoDE, UCC after giving an introductory letter, request for support letter and ethical clearance by the Department of Guidance and Counselling and the IRB of UCC respectively (Appendices C, D and E).

Approval was sought from the registrar of the college through the introductory letter. The consent of the respondents was sought through their respective centre coordinators. Respondents were informed about the purpose of the research and what objective it sought to achieve. The instructions and questions were read to them and clarifications were made where needed. The privacy and consent of respondents were also negotiated and respected in the

study. Ail these were done to ensure and secure the consent of the respondents.

After the researcher was sure that the respondents understood the content very well, the questionnaires were administered with some level of assistance from known centre coordinators of the college, who were conversant and familiar with administering of questionnaires. The respondents were thoroughly informed before commencing the research, and they were properly treated throughout the research period. Respondents were encouraged to feel free and air their views as objectively as possible, and that they had the liberty to choose whether to participate or not. They also had the option to withdraw their consent at any time and without any form of adverse consequence. They were assured that the information they provided would be used solely for research purpose and nothing else. The researcher maintained objectivity, presented the true research findings and used the research results for academic purposes only as outlined in the research protocol of the IRB of UCC.

Data Collection Procedures

A period of seven weeks was used for collecting the data. The data collection process started in February, 2017. Prior to administering the questionnaire, an informal familiarisation visit was made to the various selected centres for the confirmation of the number of respondents and additional information on the issues raised.

The data collection process was carried out in three stages. Stage one was the collection of list of respondents from the Records Management Unit of the College. Stage two was the distribution of the questionnaire and stage

three was the retrieving stage. Distributing the questionnaires to the respondents, the researcher and selected centre coordinators went through them with the students, after which they were required to respond objectively to the items. The data collection processes were carried out from one Region to another and from one centre to another. Out of the 763 questionnaires administered, the researcher was able to retrieve 679 completed questionnaires, which represent approximately 89 percent response rate.

Data Processing and Analysis

The researcher adopted quantitative approach for the study. The data were sorted, coded and analysed based on the procedures with the statistical analysis software tool known as the Predictive Analytic Software (PASW) Version 18.0. The data that were collected from the respondents were first grouped for sorting after which they were coded, using numerical values for the variable view of the PASW Version 18.0.

Test Analysis for Surveys (TAFS) was used for coding the data. After this, the data were entered into the data view of the software to complete the keying in process. Note: the statements/items that were negatively formulated were coded in the reverse form to ensure that there is consistency in the interpretation of the data. The data were then transformed into tables for easy analysis, presentation and discussion. The software was used because it is the most used package for analysing quantitative data (Cohen et al., 2011). In addition, the advantages of the software include (a) it is user friendly, (b) it can easily be used to analyse multi-response questions, cross section and time series analysis, and cross tabulation; (i.e. relate two sets of variables) and (c) it can also be used together with Microsoft Excel and Word (MEW).

Specifically, the data analysis with regard to the quantitative data was conducted using both descriptive and inferential statistics. The close-ended items in the questionnaire were analysed, taking cognisance of the fact that they were the basis for which conclusions and recommendations were made. Background data on the characteristics of the respondents were analysed using descriptive statistics such as frequency counts and percentage distributions. Data regarding the first research question was analysed using means and standard deviations. The means and standard deviations were used because the preliminary analysis showed that the distribution was normal and homogeneous.

The independent sample t-test was used to analyse data regarding the second research question. The independent sample t-test was used to determine whether statistical significant differences existed in students' personality trait, learning style and academic performance by gender (male and female). The presence of significant gender differences on any of the three variables (personality trait, learning style and academic performance) would signal gender influence on the variable.

For research question two, one-way multivariate analysis of variance (MANOVA) was used to analyse the data in order to compare the means scores of personality trait and that of learning style. The predictor variable was age group, which has four levels: below 21 years, 21 – 25 years, 26 – 30 years, and above 30 years. In terms of the personality trait, the criterion variables were extroversion, conscientiousness, agreeableness, openness to experience, and neuroticism. Also in terms of learning style, the criterion variables were visual, aural/auditory, read/write, and kinaesthetic. With regard to academic

performance, one-way ANOVA was performed to compare the academic performance of respondents based on their age groups. The presence of significant age differences on any of the three variables (personality trait, learning style and academic performance) would signal age influence of the variable.

With regard to data on the first and second hypotheses, the Pearson product moment correlation was used to analyse the data. The Pearson product moment correlation was used to analyse the data in order to determine if a significant relationship exist among students' personality trait, learning style and academic performance. The rationale for using this statistical tool was that the variables were all measured numerically using close-ended items. Most researchers (Ary et al., 2010; Malhotra & Birks, 2007) are of the view that to analyse the relationship among variables that are measured numerically using discrete values, it is appropriate to use Pearson product moment correlation.

Lastly, the third hypothesis of the study was tested using serial multiple mediation analysis. Prior to the analysis, hierarchical multiple regression analysis was used to establish the foundation for the mediation analysis. This was done in line with the assertions of researchers such as Malhotra and Birks (2007) and Yates (2014) who are of the view that to find out the contributions or influence of independent variables on a dependent variable, taking into consideration the role that mediating variables play in the equation, it is appropriate to use the linear multiple regression analysis since the entered variables were measured numerically. The effect size as indicated by the R^2 was interpreted for any statistically significant explanatory variables. The alpha level of all statistical tests was 0.05.

To exhaust every aspect of hypothesis three, the serial multiple mediation analysis was conducted to establish the direct, total, and indirect effect of personality trait and learning style on academic performance through academic self-discipline and academic self-confidence. A model was estimated simultaneously taking into consideration the dimensions of the two independent variables (extroversion, openness, conscientiousness, agreeableness, neuroticism, visual, auditory, read/write, and kinaesthetic). A Serial-Multiple Mediation Model 6 was conducted to find out how the effect of the predictors on the criterion is explained through causal effect of one mediator to the other. Statistical significance of the tested model in the current research was studied through the software developed by Hayes (2018), the approach based on ordinary least-squares regression, and the bootstrap method. The analysis used 10,000 bootstrap samples using 95% percentile bootstrap confidence interval.

Chapter Summary

This chapter has been used to present in detail the methodology used in the study. It examined the research approach and design, study institutions, population, sample and sampling procedure, sources of data collection, and instrumentation of the study. It is established that the study adopted the quantitative approach and the descriptive survey design. The chapter further looked at the measurement of variables used for the construction of the model of the relationships that exist between the variables. The statistical analyses used to test the propositions of the study were also elaborated. This chapter also discusses the nature of the data and treatments given, methods and programmes used to analyse the data.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the analysis of the data collected from the field. It also presents the results and discussion of the study. The discussion includes the interpretations of the data with reference to previous findings, theory and specific responses given by the respondents in accordance with the purpose of the study.

The first part of the chapter deals with the background characteristics of respondents which serve as a preliminary analysis to the study. The second part is devoted to the research questions of the study. Both descriptive and inferential statistics were employed in the data analysis with regard to the quantitative data. At the end of data collection, the study had retrieved 679 completed questionnaires, which represents 88.9 percent response rate. These retrieved questionnaires were used for the analysis.

Analysis of Respondents' Background Characteristics

This part of the chapter deals with the demographic data distribution of the respondents which is based on their Region of study, gender and age range. These variables were not considered in the model for this study. However, the study examined the effects of gender and age on the variables studied. The data on the background characteristics of the respondents were analysed using frequency and percentage distributions. The results are presented in Tables 6 and 7. The first item analysed was region of study of respondents by gender. The results are depicted in Table 6.

Table 6: Distribution of Respondents by their Region of Study and Gender

	Gender of Respondent					
	Male		Female		Total	
Region of Study	No.	%	No.	%	No.	%
Brong-Ahafo	54	16.5	51	14.5	105	15.5
Eastern	27	8.2	16	4.6	43	6.3
Greater-Accra	22	6.7	32	9.1	54	8.0
Upper East	9	2.7	9	2.6	18	2.7
Upper West	13	4.0	11	3.1	24	3.5
Ashanti	98	29.9	103	29.3	201	29.6
Volta	13	4.0	23	6.6	36	5.3
Northern	20	6.1	6	1.7	26	3.8
Western	27	8.2	24	6.8	51	7.5
Central	45	13.7	76	21.7	121	17.8
Total	328	100	351	100	679	100
% of Respondents	48.3%		51.7%		100%	

Source: Field survey (2018)

As contained in Table 6, the majority (51.7%) of the students who participated in the study were females while 48.3 percent were males. Based on this finding, one can conveniently indicate that in terms of percentage, the total number of female DBE students of CoDE, UCC outnumbered their male counterparts. This finding is in line with that of CoDE, UCC (2017) which indicated that out of the total number (9534) of diploma students in education as at 2016/2017 academic year, 5339 (56.0%) were females while 4195 (44.0%) were males. This gives an indication that the DBE programme by CoDE, UCC is more attracted by females as compared to males. The finding is in line with the perceived social expectation in traditional Ghanaian society which is largely patriarchal in nature where males are more prone to work in

the production and industry sector than females who prefer working in the service sector such as teaching.

However, the percentage difference is not that wide and one may, therefore, argue that the finding is a good indicator in our modern society since both men and women have an equal chance of being admitted into the programme, and also into the teaching profession, either private or public. Even though, it is unusual for female students to outnumber their male counterparts in most tertiary institutions in the Ghanaian society as the entire society is perceived to be patriarchal in nature.

Furthermore, Table 6 shows that Ashanti Region constituted the highest number (201) representing (29.6%) of the respondents for the study. This was followed by Central Region (121) representing (17.8%) and Brong-Ahafo Region (105) also representing (15.5%). However, the Regions with the least number of respondents were Upper East (18) or (2.7%), Upper West (24) or (3.5%), and Northern (26) 0r (3.8%). This shows that the number of students of the college in the northern zone is not encouraging. The findings are in line with the assertion of CoDE, UCC (2017b) that the number of students enrolled from the northern zone on to its programme is not encouraging as compare to other regions in the southern sector of the country.

The next demographic item considered was the age range of the respondents for the study. Table 7 contains results on the distribution of the respondents' age by gender. As indicated in the table, most of the students were within the age range of 26 -- 30 years (46.3%). However, 30.8 percent of the respondents indicated that they were within the age range of 21 – 25 years. Only 4.9 percent of the respondents were under 21 years. The combined

percentage shows that the majority (64.3%) of the respondents was above 25 years. Specifically, with regard to respondents who were above 25 years, 69.5 percent of them were males while 59.5 percent were females. This shows that the male respondents were older than the female respondents. The findings are in line with the comments of Furnham et al. (2009) who posit that most females attend tertiary education at a younger age as compared to males.

Table 7: Distribution of Respondents' Age by Gender

	Gender of Respondent					
Age Range of	Male		Female		Total	
Respondents	No.	%	No.	%	No.	%
Below 21 years	4	1.2	29	8.3	33	4.9
21-25 years	96	29.3	113	32.2	209	30.8
26-30 years	154	47.0	161	45.8	315	46.3
Above 30 years	74	22.5	48	13.7	122	18.0
Total	328	100	351	100	679	100

Source: Field survey (2018)

Furthermore, the combined percentage as indicated in Table 7 shows that the majority (82.0%) of the respondents were not above 30 years. This may mean that the professional strength of the teaching profession in Ghana is very bright since most of the students who were offering DBE were within the youthful age group (18 – 45 years), and have longer time to stay in their respective teaching profession before proceeding on compulsory retirement.

Analysis of the Research Questions and Hypotheses of the Study

This section presents the results pertaining to the specific research questions and hypotheses of the study. The data were analysed quantitatively. In relation to the quantitative data, both descriptive and inferential statistical

tools were used to analyse them. These statistical tools were used because, the responses to the items with regard to the variables were measured using a unilinear scale, and also the preliminary analysis at the pre-test stage shows that the distribution was normal. That is, the various statistical tools with regard to the quantitative data were used after the researcher had performed the test of normality to find out whether the distribution was normal or not. Mean and standard deviation coefficients are used when the distribution is normal, while median and skewness coefficients are used when the distribution is skewed (Pallant, 2010). According to Pallant, in a normal distribution the mean and the median are approximately the same. The skewness values must have a threshold of -0.5 to 0.5.

The skewness values of the distribution were closer to each other, and were within an acceptable threshold of a normal distribution (they were within a range of -0.40 to 0.42). The standard deviations were also moderate and closer to each other, indicating the non-dispersion in a widely-spread distribution. The moderateness of the standard deviations of the distribution shows that the views of the respondents were coming from a moderate homogeneous group, that is, a group with similar characteristics or similar understanding with regard to the issues under consideration. This means that the respondents' views on the issues were an approximation to a normal distribution.

Responses to the close-ended items, used in eliciting data on the issues regarding the concepts, were measured on a five-point unilinear scale ranging from one to five where one represented the least agreement on the issues while five represented the strongest agreement on the issues. Based on the five-point

numerical scale used, the study interpreted the results using recommendation of Pallant (2010) which states that in a unilinear scale items, the responses to the items can be interpreted using mathematical approximation. Therefore, the study adopted mathematical approximation techniques to interpret the mean scores. Thus Strongly Agree (4.5 – 5.0), Agree (3.5 – 4.4), Uncertain (2.5 – 3.4), Disagree (1.5–2.4), and Strongly Disagree (1.0–1.4). This categorisation is in line with that of Pallant (2010) as indicated earlier. The results showing the views of the respondents regarding the stated research questions of the study are presented as follows:

Research Question One: ***What are the personality trait and learning style of DBE level 200 students of CoDE, UCC?***

The rationale behind the first research question of the study was to examine students' personality trait and learning style. Each of the main variables, that is, personality trait and learning style, was created by pooling multiple items together. These items were used to elicit data on the variables. The items were pooled together using average or mean responses of the respondents to form each of the major variables. Personality trait variable was made up of five dimensions or facet while learning style was made up of four dimensions. After transforming the items into dimensions of the various variables, descriptive statistics such as means and standard deviations were used in analysing the data in order to examine students' personality trait and learning style. The study further determined the most prevailing personality trait and learning style used by DBE students of CoDE, UCC.

The first to consider was students' personality trait variable. The dimension of personality trait variables considered were extroversion,

conscientiousness, agreeableness. openness to experience. and neuroticism. Each dimension was measured up to five close-ended items. Responses to the items were measured numerically using unilinear scale. The first dimension considered was extroversion, and the results are presented in Table 8.

Table 8: Level of Extroversion of DBE Students of CoDE, UCC

Statements on Extroversion	Mean	SD
I see myself as someone who has enough energy for academic work	3.806	0.360
I see myself as someone who is outgoing and sociable	3.786	0.422
I do not see myself as someone who feels shy to contact friends for academic assistance	3.732	0.489
I see myself as someone who has an assertive personality	3.172	0.402
I see myself as someone who always remains reserved in class	2.473	0.478
Mean of Means	3.394	0.280

Source: Field survey (2018) (n = 679)

Where SD = Standard Deviation

As depicted in Table 8, respondents were uncertain regarding the idea that they see themselves as students who always remain reserved in class (Mean = 2.473, SD = 0.478), and also as students who have assertive personality (Mean = 3.172, SD = 0.402). However, respondents agreed that they were outgoing and sociable (Mean = 3.786, SD = 0.422), and also they have enough energy for academic work (Mean = 3.806, SD = 0.360). Furthermore, respondents indicated that they do not see themselves as students who feel shy to contact friends for academic assistance (Mean = 3.732, SD = 0.489). Overall. the results show that there was uncertainty with regard to respondents levels of extroversion (Mean = 3.394, SD = 0.280). The results

show that few of the respondents have low levels of extroversion, which means that they are reserved and also exhibited reflective personalities.

The views of the respondents show that most DBE students of CoDE, UCC exhibit some level of energy, positive emotions, urgency, assertiveness, sociability and the tendency to seek stimulation in the company of others. This may mean that DBE students of the college are often perceived as attention-seekers. Therefore, one can argue that they are not reserved and also, they do not exhibit reflective personality, which can be perceived as aloof or self-absorbed. However, those who do lack confidence to talk in class and in public due to their differences which may be caused by social, biological, cultural and home/work related factors, are known to be weak in their academic activities.

The findings that most DBE students of the college exhibit extroversion trait are in line with the assertions of Barkhi and Brozovsky (2014) who posit that most distance learners are sociable, talkative or communicative, friendly, active, assertive, exciting and stimulating. This may mean that most students of the college are of the same calibre (chatty, sociable, assertive, active, bold and cheerful in their social interactions with others). Also, the finding that some of the students are reserved in class is consistent with the comment of Poropat (2012) who avers that in most cases, there are few students who tend to be withdrawn, quiet, reserved, even-paced and independent.

The next dimension of personality trait considered in this study was conscientiousness. Again, five items were used to elicit data on this dimension. The results are presented in Table 9.

Table 9: Level of Conscientiousness of DBE Students of CoDE, UCC

Statements on Conscientiousness	Mean	SD
I see myself as someone who does things efficiently in academics	3.667	0.279
I see myself as someone who draws plans and sticks to them	3.602	0.446
I see myself as someone who perseveres until a task is completed in class	3.461	0.442
I see myself as someone who gets disorganised easily when learning	2.295	0.456
I see myself as someone who easily gets distracted when learning	2.237	0.414
Mean of Means	3.052	0.723

Source: Field survey (2018) (n = 679)

Results in Table 9 show that the respondents see themselves as students who persevere until a task is completed in class (Mean = 3.461, SD = 0.442), and also as students who draw plans and stick to them (Mean = 3.602, SD = 0.446). Furthermore, respondents indicated that they see themselves as students who do things efficiently in academicals (Mean = 3.667, SD = 0.279). Respondents indicated further that they do not get disorganised easily when learning (Mean = 2.295, SD = 0.456), and also they do not easily get distracted when learning (Mean = 2.237, SD = 0.414).

Generally, the results show that respondents' level of conscientiousness is uncertain (Mean = 3.052, SD = 0.723) with regard to their personality trait. This shows that DBE students of the college have the

tendency to be organised and dependable, show self-discipline, act dutifully, aim for achievement, and prefer to plan rather than spontaneous behaviour. The results show that some respondents display low conscientiousness since they are perceived to be associated with flexibility and spontaneity. Such people are usually perceived to be sloppy and they are not reliable.

The results show that students relatively have a high degree of conscientiousness and are reliable, prompt, organised, methodical, and thorough. This means, such students end up drawing plans or set goals and stick to them in their studies, as a result, end up being well prepared for face to face interactions, make meaningful contributions in class and perform well in class. However, those with low conscientiousness, exhibit lack of planning with regard to work, social and family issues end them up performing feebly in class exercises.

The finding regarding the moderateness of respondents' exhibition of conscientiousness trait is in line with the submission of Goldberg (as cited in Eysenck, 2014). According to Goldberg (as cited in Eysenck, 2014), only the average number of students at the tertiary level is predisposed to be organised, exacting, disciplined, diligent, dependable, methodical and purposeful. Poropat (2014) added that such students usually persevere, and are responsible and organised as opposed to laziness, irritability and impulsiveness. Also, the finding that students concentrate on only a couple of goals, and strive hard to achieve them, corroborate with the comments of Poropat (2014), who posits that students of such calibre are predisposed to be organised, exacting, disciplined, diligent, dependable, methodical and purposeful, and they manage their time and studies very well with clear goals. However, students who score

low in conscientiousness, tend to be less careful, less focused and more likely to be distracted from the task. The opposite are those who score high.

In relation to the next dimension which is agreeableness, again five close-ended items were used to elicit data on it. The results are presented in Table 10. As depicted in the table, respondents agreed that they see themselves as students who like to cooperate with others in the class (Mean = 3.773, SD = 0.357). Respondents indicated further that they are uncertain as to whether they learn well in the mist of others (Mean = 3.094, SD = 0.551). Respondents further agreed that they learn well when they keep teaching their mates (Mean = 3.934, SD = 0.347). However, respondents disagreed that they see themselves as students who find faults with friends upon non-performance in class test (Mean = 2.011, SD = 0.377). Respondents were, however uncertain as to whether they can be cold towards friends when not getting academic assistance from them (Mean = 2.808, SD = 0.556). The overall mean shows that respondents agreed that they exhibit some level of agreeableness; however, they were uncertain to some of the items under agreeableness dimension.

Table 10: Level of Agreeableness of DBE Students of CoDE, UCC

Statements on Agreeableness	Mean	SD
I see myself as someone who learns well when I keep teaching my mates	3.934	0.347
I see myself as someone who likes to cooperate with others in class	3.773	0.357
I see myself as someone who learns well in the midst of others	3.094	0.551
I see myself as someone who can be cold towards friends when not getting academic assistance from them	2.808	0.556
I see myself as someone who finds faults with friends upon non-performance in class test	2.011	0.377
Mean of Means	3.124	0.287

Source: Field survey (2018) (n = 679)

The results show that students are very cooperative in class during face-to-face interactions. Also, students have the tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. This shows that students are friendly, cooperative, and compassionate. People with low agreeableness may be more distant while those with high agreeableness are often seen to be naive or submissive.

The findings show that attributes such as trust, altruism, kindness, affection, and other pro-social behaviours are not much exhibited by DBE students of CoDE, UCC, even though they agreed to these attributes. As indicated in the table, students who are high in agreeableness tend to be more cooperative, have a great deal of interest in other people, care about others.

They also have empathetic feeling and concern for others, and enjoy helping and contributing to the happiness of them. However, those who are low on this trait, tend to be more competitive, manipulative, take little interest in others, and do not care about how other people feel. They also show little or no interest in other people's issues. In extreme cases, they insult and belittle others.

The finding that students were uncertain regarding agreeableness dimension of personality trait is incongruent with the comments of Maddi (2012), who asserted in his comparative analysis, that most tertiary education students have the tendency to be compassionate and co-operative rather than being suspicious, irritable, uncooperative, inflexible, unpleasant and antagonistic towards others. Maddi (2012) added that such students can be helpful and trusted, and they are generally well-tempered. This shows that such students are sociable, warmth, likable, nurturance, emotional supportive, friendly, and trustworthy. However, the findings indicated otherwise.

Furthermore, the findings are in line with the comments of Kroeger and Thuesen (2015) who are of the view that in determining how we live, love and work, agreeableness being one of the dimensions of personality trait, cannot be done away with. Gray and Mannahan (2017) added that students with high agreeableness have better time management skills and effort regulation. Whereas the high score in agreeableness is often seen as childlike or obedient, the low score on the other hand, is often conceptualised as competitive or challenging others and this can be seen as argumentative.

The next dimension of personality trait examined was openness to experience which was also made up of five close-ended items. The results are presented in Table 11.

Table 11: Level of Openness to Experience of DBE Students of CoDE, UCC

Statements on Openness to Experience	Mean	SD
I see myself as someone who is curious about many different things	3.686	0.443
I see myself as someone who has an active imagination	3.609	0.409
I feel good in class with any little contribution I make	3.528	0.491
I see myself as someone who initiates new ideas to solve problems in class	3.359	0.362
I see myself as someone who prefers work that is routine	3.095	0.531
Mean of Means	3.456	0.503

Source: Field survey (2018) (n = 679)

As indicated in Table 11, respondents were uncertain as to whether they see themselves as people who initiate new ideas to solve problems in class (Mean = 3.359, SD = 0.362) and also as people who prefer work that is routine (Mean = 3.095, SD = 0.531). The respondents, however, indicated that as students they have an active imagination (Mean = 3.609, SD = 0.409), they are curious about many different things (Mean = 3.686, SD = 0.443), and they feel good in class with any little contribution they make (Mean = 3.528, SD = 0.491). Table 8 further shows that students display certain traits of openness to experience in class. Deductions from the findings show that DBE students of the college like to learn new things and enjoy new experiences usually score

high in openness with regard to their academic activities. This includes being insightful and imaginative, and having a wide variety of interests.

The findings further show that the captured students demonstrated some level of intellectual curiosity, creativity and a preference for novelty. This means that DBE students of the college are imaginative, independent, and also they depict some level of preference for a variety of activities over a strict routine. According to Borg and Shapiro (2012), high openness can be perceived as unpredictable or lack of focus. Moreover, individuals with high openness are said to pursue self-actualisation specifically by seeking out intense, overjoyed experiences. Conversely, those with low openness seek to gain fulfilment through perseverance, and are characterised as pragmatic and data driven. The findings are congruent with the submissions of Eysenck and Eysenck (2013) who posit that openness to experience personality trait, tend to develop students' willingness to try and learn new things, consider new ideas and have an open mind in general.

The last dimension of personality trait considered was neuroticism. Again, five items were used to elicit data on the issue. The results are presented in Table 12. As presented in Table 12, respondents were of the view that as students of the college, they see themselves as people who remain calm in a tensed situation (Mean = 3.546, SD = 0.488) and they are emotionally stable, not easily upset (Mean = 3.543, SD = 0.458). However, respondents were uncertain as to whether they see themselves as people who could be moody for days (Mean = 2.555, SD = 0.492), who often get nervous in class (Mean = 2.494, SD = 0.455), and who get worried a lot about things (Mean = 3.113, SD = 0.531).

Table 12: Level of Neuroticism of DBE Students of CoDE, UCC

Statements on Neuroticism	Mean	SD
I see myself as someone who remains calm in a tense situation	3.546	0.488
I see myself as someone who is emotionally stable, not easily upset	3.543	0.458
I see myself as someone who gets worried a lot about things	3.113	0.531
I see myself as someone who can be moody for days	2.555	0.492
I see myself as someone who often gets nervous in class	2.494	0.455
Mean of Means	3.051	0.384

Source: Field survey (2018) (n = 679)

The results in Table 12 show that overall, respondents were uncertain regarding their level of neuroticism (Mean = 3.051, SD = 0.384). This shows that there is low tendency to experience unpleasant emotions such as anger, anxiety, depression, and vulnerability easily among DBE students of the college. According to Diseth (2014), a high need for stability manifests itself as a stable and calm personality, but can be seen as uninspiring and unconcerned. A low need for stability causes a reactive and excitable personality, often very dynamic individuals, but they can be perceived as unstable or insecure.

In addition, the results are in line with the comments of Eysenck (2014) who posits that people who show poor signs of affective adjustment and emotional instability are prone to experiencing psychological distress, fear, sadness, embarrassment, disgust, anger and have unrealistic ideas. However, individuals with low score on the other hand, are emotionally stable,

usually calm, well-tempered, relaxed at work, and in their personal lives, able to face stressful situations without becoming upset or rattled.

Furthermore, the findings that emerged from the quantitative data, as presented in Table 9, show that most of the DBE students of the college exhibit low neuroticism traits. This means that most of the students are less easily upset and are less emotionally reactive. They tend to be emotionally stable, usually calm and able to face stressful situations without becoming upset or rattled (Diseth, 2014). They are also free from persistent negative feelings and this does not only mean that low scorers experience a lot of positive feelings.

The findings that emerged from Tables 8, 9, 10, 11 and 12 showed that DBE students of the college exhibit all the big five personality traits. The summary of the results regarding these tables are presented in Table 10.

Table 13: Level of Personality Trait of DBE Students of CoDE, UCC

Dimensions of Personality Trait	Mean	SD
Extroversion	3.394	0.280
Conscientiousness	3.052	0.723
Agreeableness	3.124	0.287
Openness to Experience	3.456	0.503
Neuroticism	3.051	0.384

Source: Field survey (2018) (n = 679)

As indicated in Table 13, openness to experience (Mean = 3.456, SD = 0.503) sand extroversion (Mean = 3.394, SD = 0.280) were the two most demonstrated traits exhibited by students. These were followed by agreeableness (Mean = 3.124, SD = 0.287), conscientiousness (Mean = 3.052,

SD = 0.723), and neuroticism (Mean = 3.051, SD = 0.384). The results, further show that respondents generally have positive personality trait (Mean = 3.215, SD = 0.327).

This shows that the openness to experience traits that students demonstrated most, can influence their likelihood of obtaining a high level of academic performance due to their ability to entertain new ideas and also, think outside the box. Furthermore, this indicates that openness to experience leads to gains in knowledge and skills, and naturally increases as a person ages, and has more experiences to learn from. It also correlates with creativity, originality, and a tendency to explore one's inner self with a help of a therapist or psychiatrist, and negatively relates to conservative academic attitudes.

The findings show that openness to experience, conscientiousness and extroversion were the three most significant personality traits that are highly perceived by students, and also traits that influence their behaviour as students in class. Finding out the most dominant personality trait that prevail among distance learners, has yielded mixed results. The study found out that the most dominant used traits were openness to experience, conscientiousness and extroversion. This finding is in line with the comments of Ackeman and Heggestad (2012) and Rimmerman (2016) both of whom are of the view that openness has the highest usage among students, and it relates to intelligence.

Furthermore, the finding is in line with the work of Koseoğlu (2016) who avers that both extroversion and openness appeared to have high levels of usage or demonstration among students. Guntern et al. (2017) have also indicated that conscientiousness and openness, as dimensions of personality trait are usually noticed among students and that these traits play very

significant roles in students' learning style and subsequently, their academic performance.

The second aspect of the first research question of the study was to explore the learning style of DBE level 200 students of CoDE, UCC. Four dimensions of learning style were used, and each of the dimensions was made up of five close-ended items. These items were pooled together, using an average response score to form each major dimension. The dimensions of learning style considered were visual, auditory, read/write, and kinaesthetic. The results are presented in Table 14.

As depicted in Table 14, respondents indicated that they seem to learn better when information is presented through words (Mean = 3.641, SD = 0.285). Also, respondents were of the view that they learn with ease by watching programmes on computer or television (Mean = 3.492, SD = 0.596). Furthermore, respondents indicated that they learn better when information is presented through pictures, charts and diagrams (Mean = 4.018, SD = 0.274).

Similarly, respondents were of the view that they learn better by seeing or visualising (Mean = 4.039, SD = 0.346), and also they seem to keep things in mind and recall them better when they see them (Mean = 3.962, SD = 0.338). In all, Table 14 shows that respondents perceived all the facets of visual dimension of learning style positively. That is, they indicated that they used visual learning style in their learning process (Mean = 3.830, SD = 0.368). This means that students of the college seem to learn better and with ease when information is presented through words.

Table 14: Respondents' Views on the Most Frequently Used Learning Style

Dimensions of Learning style	Mean	SD
I learn better by seeing or visualizing	4.039	0.346
I learn better when information is presented through pictures, charts and diagrams	4.018	0.274
I seem to keep things in mind and recall them better when I see them	3.962	0.338
I seem to learn better when information is presented through words	3.641	0.285
I learn with ease by watching programmes on computer or television	3.492	0.596
Visual dimension	*3.830*	*0.368*
Working in a group enhances my recalling ability of facts	3.921	0.311
I memorise and recall better how words are spelt by spelling them "out loud" in my head	3.602	0.302
I learn better when I get involved in class discussions	3.596	0.340
I understand concepts and theories better from verbal explanations in class	3.477	0.380
I enjoy learning by listening to discussions on tape	3.032	0.370
Aural/Auditory dimension	*3.522*	*0.341*
I learn better when I am alone in a quiet place	4.215	0.328
I learn better by writing down important facts or points as tools for remembering them	4.088	0.252
I learn with ease in class when I take down notes during face-to-face interactions	3.957	0.374
I learn new information better by reading about it in a text book	3.779	0.319
I learn complex procedures in doing things by reading written directions	3.504	0.289
Read/Write dimension	*3.909*	*0.312*
I recall facts with ease when I learn through demonstrations in class	4.006	0.218
I usually learn without difficulties when I touch or manipulate objects	3.738	0.419
I mostly learn better through trial and error	3.505	0.417
I learn better by creating cards with notes and using them as a study tool	3.278	0.512
I find it extremely difficult to concentrate if I sit still throughout a whole lesson in class	3.231	0.602
Kinaesthetic dimension	*3.552*	*0.433*

Source: Field survey (2018) (n = 679)

Also, the results may mean that students of the college learn better when they watch programmes on computer or television, when information is presented through pictures, charts and diagrams, and when they see or visualise what they learn. Students seem to keep things in mind and recall them better when they see them. That is, students are able to retain what they learn when they see what they are learning.

The findings show that when a diagram is drawn on a board with meaningful symbols for the relationship between different things, students always see that to be helpful, especially for those with a high visual preference. The findings are in line with the comments of Lawrence (2010) who posits that most students do better in retaining what they have learnt when they do so with charts, demonstrations, videos and other visual materials. According to Lawrence (2010), visual learning style helps students to remember best if they learn from a written text even if they do not read it more than ones. Sometimes, they may not be able to recall the information, but they will know exactly where to look for it. Lawrence added that learners with visual learning style preference have some level of difficulty with written language, but do better with charts, demonstrations, videos and other visual materials. The findings further support that of Clark (2014) who also posits that 65 percent of the population falls under the category of visual type, 30 percent of the population has a strong preference for auditory type and only about five percent prefer the kinaesthetic style.

Similarly, in relation to aural/auditory dimension of learning style, as presented in Table 14, respondents indicated that they learn better when they get involved in class discussions (Mean = 3.596, SD = 0.340). Respondents

further indicated that working in a group enhances their recalling ability of facts (Mean = 3.921, SD = 0.311). Again, respondents were of the view that they memorise or recall better how words are spelt by spelling them "out loud" or in their heads (Mean = 3.602, SD = 0.302), and also they understand concepts and theories better from verbal explanations in class (Mean = 3.477, SD = 0.380).

Generally, the results from Table 11 show that in relation to aural/auditory dimension of learning style, respondents agreed that they use it (Mean = 3.522, SD = 0.341). This shows that DBE students enjoy learning or learn better when they get involved in class discussions, listen to discussions on tape, work in a group, spell words "out loud" or in their heads, and when they are exposed to verbal explanations in class. This shows that such students do retain what they have learnt when they hear whiles learning. This means that students tend to enjoy activities which emphasise discussion, story-telling or some speaking activity. The findings are congruent with the assertion that most students are able to retain what they learn when they verbalise what they have learnt (Arthurs, 2013; Kidanemariam et al., 2014). According to Kidanemariam et al., (2014), students who verbalise often achieve good pronunciation, and are able to retain effectively what they have learnt.

The findings are in line with the assertions of Arthurs (2013) and Kidanemariam et al. (2014) who aver that most students at the tertiary level tend to enjoy activities which emphasise discussion, story-telling or any other speaking activity. According to Arthurs (2013), students who verbalise often achieve good pronunciation. On the other hand, they may have difficulties with writing and reading tasks (Kidanemariam et al., 2014).

The results in Table 11 further show that respondents learn with ease in class when they take down notes during face-to-face interactions (Mean = 3.957, SD = 0.374). Also, they learn complex procedures in doing things by reading written directions (Mean = 3.504, SD = 0.289). Similarly, they learn better by writing down important facts or points as tools for remembering them (Mean = 4.088, SD = 0.252). Also, they agreed that they learn new information better by reading about it in a text book (Mean = 3.779, SD = 0.319) and also they learn better when they are alone in a quiet place (Mean = 4.215, SD = 0.328). Generally, the results show that DBE students of CoDE, UCC prefer using read/write dimension of learning style than any other dimension (Mean = 3.909, SD = 0.312).

Respondents indicated further that they recall facts with ease when they learn through demonstrations in class (Mean = 4.006, SD = 0.218). They also indicated that they usually learn without difficulties when they touch or manipulate objects (Mean = 3.738, SD = 0.419). Respondents were however, uncertain when they were asked to indicate whether they find it extremely difficult to concentrate if they sit still throughout a whole lesson in class (Mean = 3.231, SD = 0.602). Again, they were uncertain whether they learn better by creating cards with notes and using them as a study tool (Mean = 3.278, SD = 0.512). However, they agreed that they mostly learn better through trial and error (Mean = 3.552, SD = 0.433). Table 14 further shows that students also use kinaesthetic (Mean = 3.552, SD = 0.298) learning style. Generally, respondents perceived their learning style positively (Mean = 3.703, SD = 0.364) leading to influence of their academic performance in class.

The findings mean that DBE students of the college learn with ease in class when they take down notes during face-to-face interactions. Also, they learn complex procedures in doing things by reading written directions. Likewise, they learn better by writing down important facts or points as tools for remembering them, by reading about it from a text book, and at a quiet place. The findings show that the most preferred learning style used by DBE students were read/write and visual learning style. This may be so because most students do not forget easily when they adopt the read/write and visual learning style. Besides, it helps them to understand concepts better.

The findings further show that read/write learning style is the most preferred learning style used by DBE students of the college, followed by visual and auditory learning style. No wonder, many teachers and students have a strong preference for this mode. Being able to write well and read widely are some of the attributes sought by employers of graduates. This preference emphasizes text-based input and output-reading and writing in all forms, especially manuals, reports, essays and assignments. People who prefer this modality are often addicted to PowerPoint, the Internet, lists, diaries, dictionaries, thesauri, quotations and words, etc. The finding is incongruent with that of Vaishnav (2013) who discovered in his study that kinaesthetic learning style is the most prevalent learning style used by students as compared to visual, read/write and auditory learning style among secondary school students.

The finding that read/write is the most preferred learning style used by students, followed by visual learning style is in line with that of Clark (2014) who has also found in his study that 55 percent of the population falls under

the category of read/write, 30 percent falls under the category of visual type, 10 percent of the population has a strong preference for auditory type and only five percent prefer the kinaesthetic style. Another study conducted by Zou (2015) reveals that students retain 10 percent of what they read, 26 percent of what they hear, 30 percent of what they see, 50 percent of what they see and hear, 70 percent of what they say, and 90 percent of what they say as they do something.

According to Blickle (2016), students with the tendency of reading prefer printed word and text as a means to gain information. They like list, glossary, textbooks, lecture notes, or circulation. These students like to arrange lecture notes into sketch form, paraphrase classroom notes, and study multiple choice exams questions (Corbin, 2017). Corbin further indicates that these students are notes takers, and that they study better through note taken during lectures, or from difficult reading materials.

Similarly, the findings show that students learn better when they recall facts with ease when they learn through demonstrations in class, when they touch or manipulate objects, when they create cards with notes and use them as a study tool through trial and error. The finding is consistent with the comments of Riding and Rayner (2013). According to them, learners with kinaesthetic preference often take notes during the lecture or play with their pens or draw some pictures in line with what they are learning. They need to be physically involved and learn better by manipulating objects. This shows that DBE students of the college have particular learning style and therefore, there is the need for facilitators to adopt appropriate pedagogical skills and strategies that are tailored to those learning style.

The finding regarding the usage or preference for kinaesthetic learning style is in line with the comments of JilardiDamavandi et al. (2011) who indicate that generally, students who study science absorb new information more through kinaesthetic channel because science material is presented predominantly through a visual channel. Later, at the highest level in the college environment, most of the information is presented orally through lectures. However, JilardiDamavandi et al. state that the best way to present new information, is by using all sensory styles to correspond with the general distribution of VARK preferences, especially among distance learners.

However, the findings are inconsistent with that of Karalliyadda (2017) who illustrates that most of the students have multimodal learning style among which kinaesthetic style has gained a reasonable attention. This shows that availability of multimodal learning style will be suitable for students as it can help in the rate of their assimilation in class. Moreover, facilitating each student to gain hands on experience can be used to enhance the learning.

Research Question Two: ***What are the effects of gender on students' personality trait, learning style and academic performance?***

The rationale for the second research question of the study was to ascertain the gender differences among students with regard to their personality trait, learning style and academic performance. In order to examine the differences in these constructs, the study first of all pooled all the individual items together using the average responses to form each major variable: personality trait, learning style and academic performance. An independent sample t-test was conducted to compare male and female

students' personality trait, learning style and academic performance. The results are presented in Tables 15, 16 and 17.

Table 15: Gender Differences in Personality trait of DBE Students of CoDE, UCC

Variable	Gender	N	Mean	SD	t-value	p-value	η^2
Extroversion	Male	328	3.506	0.358	3.235*	0.001	0.015
	Female	351	3.289	0.388			
Conscientiousness	Male	328	3.092	0.351	1.383	0.167	
	Female	351	3.015	0.294			
Agreeableness	Male	328	3.169	0.414	1.457	0.145	
	Female	351	3.081	0.297			
Openness to Experience	Male	328	3.479	0.524	0.601	0.548	
	Female	351	3.433	0.479			
Neuroticism	Male	328	3.018	0.415	-0.919	0.358	
	Female	351	3.081	0.356			
Personality trait	Male	328	3.253	0.288	1.438	0.151	
	Female	351	3.181	0.246			

Source: Field survey (2018) *Significant, $p < .05$ (n = 679)
Where η^2 = Eta Square

The results in Table 15 show that there was a statistically significant gender difference in male (Mean = 3.506, SD = 0.358) and female (Mean = 3.289, SD = 0.388) students with regard to their extroversion traits [t = 3.235, df = 677, p = 0.001]. This shows that gender has an effect on the extroversion trait of students. Specifically, as indicated in Table 15, male students indicated that they exhibit extroversion traits more than their female counterparts. Based on Cohen (as cited in Cohen etG al., 2011) guidelines on the interpretation of the eta square, the magnitude of the difference between the mean scores of

male and female students with regard to their extroversion personality trait was small (eta square (η^2) = 0.015).

The results that emerged from Table 15 show that 1.5 percent of the variances in DBE students of CoDE, UCC could be explained by their gender. This implies that relatively male students' value achievement and stimulation are most unlikely to value tradition or conformity, whereas female students value otherwise. This means that the male students are more assertive, active, and sociable than the female students. One may, therefore, argue out that the male students are most likely to make friends easily and also enjoy interacting with others, but they may not want to pay extra attention to making well thought-out decisions and considering the needs and sensitivities of others as compared to their female counterparts. The finding is incongruent with that of Blickle (2016) who found in his study that gender has no effect on people's extroversion traits.

In relation to personality trait of conscientiousness, agreeableness, openness and neuroticism, there were no statistically significant differences between male and female students. So in effect, gender has no influence on the various personality trait demonstrated by students [Gt = 1.438, df = 677, p = 0.151]. The finding is congruent with that of Koseoğlu (2016) who has found in his study that gender of students has no effect on their demonstrated personality trait.

The study further examined the effect of gender on students' learning style. The four dimensions or facets of learning style were examined. The results are presented in Table 16.

low in conscientiousness, tend to be less careful, less focused and more likely to be distracted from the task. The opposite are those who score high.

In relation to the next dimension which is agreeableness, again five close-ended items were used to elicit data on it. The results are presented in Table 10. As depicted in the table, respondents agreed that they see themselves as students who like to cooperate with others in the class (Mean = 3.773, SD = 0.357). Respondents indicated further that they are uncertain as to whether they learn well in the mist of others (Mean = 3.094, SD = 0.551). Respondents further agreed that they learn well when they keep teaching their mates (Mean = 3.934, SD = 0.347). However, respondents disagreed that they see themselves as students who find faults with friends upon non-performance in class test (Mean = 2.011, SD = 0.377). Respondents were, however uncertain as to whether they can be cold towards friends when not getting academic assistance from them (Mean = 2.808, SD = 0.556). The overall mean shows that respondents agreed that they exhibit some level of agreeableness; however, they were uncertain to some of the items under agreeableness dimension.

Table 10: Level of Agreeableness of DBE Students of CoDE, UCC

Statements on Agreeableness	Mean	SD
I see myself as someone who learns well when I keep teaching my mates	3.934	0.347
I see myself as someone who likes to cooperate with others in class	3.773	0.357
I see myself as someone who learns well in the midst of others	3.094	0.551
I see myself as someone who can be cold towards friends when not getting academic assistance from them	2.808	0.556
I see myself as someone who finds faults with friends upon non-performance in class test	2.011	0.377
Mean of Means	3.124	0.287

Source: Field survey (2018) (n = 679)

The results show that students are very cooperative in class during face-to-face interactions. Also, students have the tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. This shows that students are friendly, cooperative, and compassionate. People with low agreeableness may be more distant while those with high agreeableness are often seen to be naive or submissive.

The findings show that attributes such as trust, altruism, kindness, affection, and other pro-social behaviours are not much exhibited by DBE students of CoDE, UCC, even though they agreed to these attributes. As indicated in the table, students who are high in agreeableness tend to be more cooperative, have a great deal of interest in other people, care about others.

They also have empathetic feeling and concern for others, and enjoy helping and contributing to the happiness of them. However, those who are low on this trait, tend to be more competitive, manipulative, take little interest in others, and do not care about how other people feel. They also show little or no interest in other people's issues. In extreme cases, they insult and belittle others.

The finding that students were uncertain regarding agreeableness dimension of personality trait is incongruent with the comments of Maddi (2012), who asserted in his comparative analysis, that most tertiary education students have the tendency to be compassionate and co-operative rather than being suspicious, irritable, uncooperative, inflexible, unpleasant and antagonistic towards others. Maddi (2012) added that such students can be helpful and trusted, and they are generally well-tempered. This shows that such students are sociable, warmth, likable, nurturance, emotional supportive, friendly, and trustworthy. However, the findings indicated otherwise.

Furthermore, the findings are in line with the comments of Kroeger and Thuesen (2015) who are of the view that in determining how we live, love and work, agreeableness being one of the dimensions of personality trait, cannot be done away with. Gray and Mannahan (2017) added that students with high agreeableness have better time management skills and effort regulation. Whereas the high score in agreeableness is often seen as childlike or obedient, the low score on the other hand, is often conceptualised as competitive or challenging others and this can be seen as argumentative.

The next dimension of personality trait examined was openness to experience which was also made up of five close-ended items. The results are presented in Table 11.

Table 11: Level of Openness to Experience of DBE Students of CoDE, UCC

Statements on Openness to Experience	Mean	SD
I see myself as someone who is curious about many different things	3.686	0.443
I see myself as someone who has an active imagination	3.609	0.409
I feel good in class with any little contribution I make	3.528	0.491
I see myself as someone who initiates new ideas to solve problems in class	3.359	0.362
I see myself as someone who prefers work that is routine	3.095	0.531
Mean of Means	3.456	0.503

Source: Field survey (2018) (n = 679)

As indicated in Table 11, respondents were uncertain as to whether they see themselves as people who initiate new ideas to solve problems in class (Mean = 3.359, SD = 0.362) and also as people who prefer work that is routine (Mean = 3.095, SD = 0.531). The respondents, however, indicated that as students they have an active imagination (Mean = 3.609, SD = 0.409), they are curious about many different things (Mean = 3.686, SD = 0.443), and they feel good in class with any little contribution they make (Mean = 3.528, SD = 0.491). Table 8 further shows that students display certain traits of openness to experience in class. Deductions from the findings show that DBE students of the college like to learn new things and enjoy new experiences usually score

high in openness with regard to their academic activities. This includes being insightful and imaginative, and having a wide variety of interests.

The findings further show that the captured students demonstrated some level of intellectual curiosity, creativity and a preference for novelty. This means that DBE students of the college are imaginative, independent, and also they depict some level of preference for a variety of activities over a strict routine. According to Borg and Shapiro (2012), high openness can be perceived as unpredictable or lack of focus. Moreover, individuals with high openness are said to pursue self-actualisation specifically by seeking out intense, overjoyed experiences. Conversely, those with low openness seek to gain fulfilment through perseverance, and are characterised as pragmatic and data driven. The findings are congruent with the submissions of Eysenck and Eysenck (2013) who posit that openness to experience personality trait, tend to develop students' willingness to try and learn new things, consider new ideas and have an open mind in general.

The last dimension of personality trait considered was neuroticism. Again, five items were used to elicit data on the issue. The results are presented in Table 12. As presented in Table 12, respondents were of the view that as students of the college, they see themselves as people who remain calm in a tensed situation (Mean = 3.546, SD = 0.488) and they are emotionally stable, not easily upset (Mean = 3.543, SD = 0.458). However, respondents were uncertain as to whether they see themselves as people who could be moody for days (Mean = 2.555, SD = 0.492), who often get nervous in class (Mean = 2.494, SD = 0.455), and who get worried a lot about things (Mean = 3.113, SD = 0.531).

Table 12: Level of Neuroticism of DBE Students of CoDE, UCC

Statements on Neuroticism	Mean	SD
I see myself as someone who remains calm in a tense situation	3.546	0.488
I see myself as someone who is emotionally stable, not easily upset	3.543	0.458
I see myself as someone who gets worried a lot about things	3.113	0.531
I see myself as someone who can be moody for days	2.555	0.492
I see myself as someone who often gets nervous in class	2.494	0.455
Mean of Means	3.051	0.384

Source: Field survey (2018) (n = 679)

The results in Table 12 show that overall, respondents were uncertain regarding their level of neuroticism (Mean = 3.051, SD = 0.384). This shows that there is low tendency to experience unpleasant emotions such as anger, anxiety, depression, and vulnerability easily among DBE students of the college. According to Diseth (2014), a high need for stability manifests itself as a stable and calm personality, but can be seen as uninspiring and unconcerned. A low need for stability causes a reactive and excitable personality, often very dynamic individuals, but they can be perceived as unstable or insecure.

In addition, the results are in line with the comments of Eysenck (2014) who posits that people who show poor signs of affective adjustment and emotional instability are prone to experiencing psychological distress, fear, sadness, embarrassment, disgust, anger and have unrealistic ideas. However, individuals with low score on the other hand, are emotionally stable,

usually calm, well-tempered, relaxed at work, and in their personal lives, able to face stressful situations without becoming upset or rattled.

Furthermore, the findings that emerged from the quantitative data, as presented in Table 9, show that most of the DBE students of the college exhibit low neuroticism traits. This means that most of the students are less easily upset and are less emotionally reactive. They tend to be emotionally stable, usually calm and able to face stressful situations without becoming upset or rattled (Diseth, 2014). They are also free from persistent negative feelings and this does not only mean that low scorers experience a lot of positive feelings.

The findings that emerged from Tables 8, 9, 10, 11 and 12 showed that DBE students of the college exhibit all the big five personality traits. The summary of the results regarding these tables are presented in Table 10.

Table 13: Level of Personality Trait of DBE Students of CoDE, UCC

Dimensions of Personality Trait	Mean	SD
Extroversion	3.394	0.280
Conscientiousness	3.052	0.723
Agreeableness	3.124	0.287
Openness to Experience	3.456	0.503
Neuroticism	3.051	0.384

Source: Field survey (2018) (n = 679)

As indicated in Table 13, openness to experience (Mean = 3.456, SD = 0.503) sand extroversion (Mean = 3.394, SD = 0.280) were the two most demonstrated traits exhibited by students. These were followed by agreeableness (Mean = 3.124, SD = 0.287), conscientiousness (Mean = 3.052,

SD = 0.723), and neuroticism (Mean = 3.051, SD = 0.384). The results, further show that respondents generally have positive personality trait (Mean = 3.215, SD = 0.327).

This shows that the openness to experience traits that students demonstrated most, can influence their likelihood of obtaining a high level of academic performance due to their ability to entertain new ideas and also, think outside the box. Furthermore, this indicates that openness to experience leads to gains in knowledge and skills, and naturally increases as a person ages, and has more experiences to learn from. It also correlates with creativity, originality, and a tendency to explore one's inner self with a help of a therapist or psychiatrist, and negatively relates to conservative academic attitudes.

The findings show that openness to experience, conscientiousness and extroversion were the three most significant personality traits that are highly perceived by students, and also traits that influence their behaviour as students in class. Finding out the most dominant personality trait that prevail among distance learners, has yielded mixed results. The study found out that the most dominant used traits were openness to experience, conscientiousness and extroversion. This finding is in line with the comments of Ackeman and Heggestad (2012) and Rimmerman (2016) both of whom are of the view that openness has the highest usage among students, and it relates to intelligence.

Furthermore, the finding is in line with the work of Koseoğlu (2016) who avers that both extroversion and openness appeared to have high levels of usage or demonstration among students. Guntern et al. (2017) have also indicated that conscientiousness and openness, as dimensions of personality trait are usually noticed among students and that these traits play very

significant roles in students' learning style and subsequently, their academic performance.

The second aspect of the first research question of the study was to explore the learning style of DBE level 200 students of CoDE, UCC. Four dimensions of learning style were used, and each of the dimensions was made up of five close-ended items. These items were pooled together, using an average response score to form each major dimension. The dimensions of learning style considered were visual, auditory, read/write, and kinaesthetic. The results are presented in Table 14.

As depicted in Table 14, respondents indicated that they seem to learn better when information is presented through words (Mean = 3.641, SD = 0.285). Also, respondents were of the view that they learn with ease by watching programmes on computer or television (Mean = 3.492, SD = 0.596). Furthermore, respondents indicated that they learn better when information is presented through pictures, charts and diagrams (Mean = 4.018, SD = 0.274).

Similarly, respondents were of the view that they learn better by seeing or visualising (Mean = 4.039, SD = 0.346), and also they seem to keep things in mind and recall them better when they see them (Mean = 3.962, SD = 0.338). In all, Table 14 shows that respondents perceived all the facets of visual dimension of learning style positively. That is, they indicated that they used visual learning style in their learning process (Mean = 3.830, SD = 0.368). This means that students of the college seem to learn better and with ease when information is presented through words.

Table 14: Respondents' Views on the Most Frequently Used Learning Style

Dimensions of Learning style	Mean	SD
I learn better by seeing or visualizing	4.039	0.346
I learn better when information is presented through pictures, charts and diagrams	4.018	0.274
I seem to keep things in mind and recall them better when I see them	3.962	0.338
I seem to learn better when information is presented through words	3.641	0.285
I learn with ease by watching programmes on computer or television	3.492	0.596
Visual dimension	*3.830*	*0.368*
Working in a group enhances my recalling ability of facts	3.921	0.311
I memorise and recall better how words are spelt by spelling them "out loud" in my head	3.602	0.302
I learn better when I get involved in class discussions	3.596	0.340
I understand concepts and theories better from verbal explanations in class	3.477	0.380
I enjoy learning by listening to discussions on tape	3.032	0.370
Aural/Auditory dimension	*3.522*	*0.341*
I learn better when I am alone in a quiet place	4.215	0.328
I learn better by writing down important facts or points as tools for remembering them	4.088	0.252
I learn with ease in class when I take down notes during face-to-face interactions	3.957	0.374
I learn new information better by reading about it in a text book	3.779	0.319
I learn complex procedures in doing things by reading written directions	3.504	0.289
Read/Write dimension	*3.909*	*0.312*
I recall facts with ease when I learn through demonstrations in class	4.006	0.218
I usually learn without difficulties when I touch or manipulate objects	3.738	0.419
I mostly learn better through trial and error	3.505	0.417
I learn better by creating cards with notes and using them as a study tool	3.278	0.512
I find it extremely difficult to concentrate if I sit still throughout a whole lesson in class	3.231	0.602
Kinaesthetic dimension	*3.552*	*0.433*

Source: Field survey (2018) (n = 679)

Also, the results may mean that students of the college learn better when they watch programmes on computer or television, when information is presented through pictures, charts and diagrams, and when they see or visualise what they learn. Students seem to keep things in mind and recall them better when they see them. That is, students are able to retain what they learn when they see what they are learning.

The findings show that when a diagram is drawn on a board with meaningful symbols for the relationship between different things, students always see that to be helpful, especially for those with a high visual preference. The findings are in line with the comments of Lawrence (2010) who posits that most students do better in retaining what they have learnt when they do so with charts, demonstrations, videos and other visual materials. According to Lawrence (2010), visual learning style helps students to remember best if they learn from a written text even if they do not read it more than ones. Sometimes, they may not be able to recall the information, but they will know exactly where to look for it. Lawrence added that learners with visual learning style preference have some level of difficulty with written language, but do better with charts, demonstrations, videos and other visual materials. The findings further support that of Clark (2014) who also posits that 65 percent of the population falls under the category of visual type, 30 percent of the population has a strong preference for auditory type and only about five percent prefer the kinaesthetic style.

Similarly, in relation to aural/auditory dimension of learning style, as presented in Table 14, respondents indicated that they learn better when they get involved in class discussions (Mean = 3.596, SD = 0.340). Respondents

further indicated that working in a group enhances their recalling ability of facts (Mean = 3.921, SD = 0.311). Again, respondents were of the view that they memorise or recall better how words are spelt by spelling them "out loud" or in their heads (Mean = 3.602, SD = 0.302), and also they understand concepts and theories better from verbal explanations in class (Mean = 3.477, SD = 0.380).

Generally, the results from Table 11 show that in relation to aural/auditory dimension of learning style, respondents agreed that they use it (Mean = 3.522, SD = 0.341). This shows that DBE students enjoy learning or learn better when they get involved in class discussions, listen to discussions on tape, work in a group, spell words "out loud" or in their heads, and when they are exposed to verbal explanations in class. This shows that such students do retain what they have learnt when they hear whiles learning. This means that students tend to enjoy activities which emphasise discussion, story-telling or some speaking activity. The findings are congruent with the assertion that most students are able to retain what they learn when they verbalise what they have learnt (Arthurs, 2013; Kidanemariam et al., 2014). According to Kidanemariam et al., (2014), students who verbalise often achieve good pronunciation, and are able to retain effectively what they have learnt.

The findings are in line with the assertions of Arthurs (2013) and Kidanemariam et al. (2014) who aver that most students at the tertiary level tend to enjoy activities which emphasise discussion, story-telling or any other speaking activity. According to Arthurs (2013), students who verbalise often achieve good pronunciation. On the other hand, they may have difficulties with writing and reading tasks (Kidanemariam et al., 2014).

The results in Table 11 further show that respondents learn with ease in class when they take down notes during face-to-face interactions (Mean = 3.957, SD = 0.374). Also, they learn complex procedures in doing things by reading written directions (Mean = 3.504, SD = 0.289). Similarly, they learn better by writing down important facts or points as tools for remembering them (Mean = 4.088, SD = 0.252). Also, they agreed that they learn new information better by reading about it in a text book (Mean = 3.779, SD = 0.319) and also they learn better when they are alone in a quiet place (Mean = 4.215, SD = 0.328). Generally, the results show that DBE students of CoDE, UCC prefer using read/write dimension of learning style than any other dimension (Mean = 3.909, SD = 0.312).

Respondents indicated further that they recall facts with ease when they learn through demonstrations in class (Mean = 4.006, SD = 0.218). They also indicated that they usually learn without difficulties when they touch or manipulate objects (Mean = 3.738, SD = 0.419). Respondents were however, uncertain when they were asked to indicate whether they find it extremely difficult to concentrate if they sit still throughout a whole lesson in class (Mean = 3.231, SD = 0.602). Again, they were uncertain whether they learn better by creating cards with notes and using them as a study tool (Mean = 3.278, SD = 0.512). However, they agreed that they mostly learn better through trial and error (Mean = 3.552, SD = 0.433). Table 14 further shows that students also use kinaesthetic (Mean = 3.552, SD = 0.298) learning style. Generally, respondents perceived their learning style positively (Mean = 3.703, SD = 0.364) leading to influence of their academic performance in class.

The findings mean that DBE students of the college learn with ease in class when they take down notes during face-to-face interactions. Also, they learn complex procedures in doing things by reading written directions. Likewise, they learn better by writing down important facts or points as tools for remembering them, by reading about it from a text book, and at a quiet place. The findings show that the most preferred learning style used by DBE students were read/write and visual learning style. This may be so because most students do not forget easily when they adopt the read/write and visual learning style. Besides, it helps them to understand concepts better.

The findings further show that read/write learning style is the most preferred learning style used by DBE students of the college, followed by visual and auditory learning style. No wonder, many teachers and students have a strong preference for this mode. Being able to write well and read widely are some of the attributes sought by employers of graduates. This preference emphasizes text-based input and output-reading and writing in all forms, especially manuals, reports, essays and assignments. People who prefer this modality are often addicted to PowerPoint, the Internet, lists, diaries, dictionaries, thesauri, quotations and words, etc. The finding is incongruent with that of Vaishnav (2013) who discovered in his study that kinaesthetic learning style is the most prevalent learning style used by students as compared to visual, read/write and auditory learning style among secondary school students.

The finding that read/write is the most preferred learning style used by students, followed by visual learning style is in line with that of Clark (2014) who has also found in his study that 55 percent of the population falls under

the category of read/write, 30 percent falls under the category of visual type, 10 percent of the population has a strong preference for auditory type and only five percent prefer the kinaesthetic style. Another study conducted by Zou (2015) reveals that students retain 10 percent of what they read, 26 percent of what they hear, 30 percent of what they see, 50 percent of what they see and hear, 70 percent of what they say, and 90 percent of what they say as they do something.

According to Blickle (2016), students with the tendency of reading prefer printed word and text as a means to gain information. They like list, glossary, textbooks, lecture notes, or circulation. These students like to arrange lecture notes into sketch form, paraphrase classroom notes, and study multiple choice exams questions (Corbin, 2017). Corbin further indicates that these students are notes takers, and that they study better through note taken during lectures, or from difficult reading materials.

Similarly, the findings show that students learn better when they recall facts with ease when they learn through demonstrations in class, when they touch or manipulate objects, when they create cards with notes and use them as a study tool through trial and error. The finding is consistent with the comments of Riding and Rayner (2013). According to them, learners with kinaesthetic preference often take notes during the lecture or play with their pens or draw some pictures in line with what they are learning. They need to be physically involved and learn better by manipulating objects. This shows that DBE students of the college have particular learning style and therefore, there is the need for facilitators to adopt appropriate pedagogical skills and strategies that are tailored to those learning style.

The finding regarding the usage or preference for kinaesthetic learning style is in line with the comments of JilardiDamavandi et al. (2011) who indicate that generally, students who study science absorb new information more through kinaesthetic channel because science material is presented predominantly through a visual channel. Later, at the highest level in the college environment, most of the information is presented orally through lectures. However, JilardiDamavandi et al. state that the best way to present new information, is by using all sensory styles to correspond with the general distribution of VARK preferences, especially among distance learners.

However, the findings are inconsistent with that of Karalliyadda (2017) who illustrates that most of the students have multimodal learning style among which kinaesthetic style has gained a reasonable attention. This shows that availability of multimodal learning style will be suitable for students as it can help in the rate of their assimilation in class. Moreover, facilitating each student to gain hands on experience can be used to enhance the learning.

Research Question Two: ***What are the effects of gender on students' personality trait, learning style and academic performance?***

The rationale for the second research question of the study was to ascertain the gender differences among students with regard to their personality trait, learning style and academic performance. In order to examine the differences in these constructs, the study first of all pooled all the individual items together using the average responses to form each major variable: personality trait, learning style and academic performance. An independent sample t-test was conducted to compare male and female

students' personality trait, learning style and academic performance. The results are presented in Tables 15, 16 and 17.

Table 15: Gender Differences in Personality trait of DBE Students of CoDE, UCC

Variable	Gender	N	Mean	SD	t-value	p-value	η^2
Extroversion	Male	328	3.506	0.358	3.235*	0.001	0.015
	Female	351	3.289	0.388			
Conscientiousness	Male	328	3.092	0.351	1.383	0.167	
	Female	351	3.015	0.294			
Agreeableness	Male	328	3.169	0.414	1.457	0.145	
	Female	351	3.081	0.297			
Openness to Experience	Male	328	3.479	0.524	0.601	0.548	
	Female	351	3.433	0.479			
Neuroticism	Male	328	3.018	0.415	-0.919	0.358	
	Female	351	3.081	0.356			
Personality trait	Male	328	3.253	0.288	1.438	0.151	
	Female	351	3.181	0.246			

Source: Field survey (2018) *Significant, $p < .05$ ($n = 679$)
Where η^2 = Eta Square

The results in Table 15 show that there was a statistically significant gender difference in male (Mean = 3.506, SD = 0.358) and female (Mean = 3.289, SD = 0.388) students with regard to their extroversion traits [$t = 3.235$, $df = 677$, $p = 0.001$]. This shows that gender has an effect on the extroversion trait of students. Specifically, as indicated in Table 15, male students indicated that they exhibit extroversion traits more than their female counterparts. Based on Cohen (as cited in Cohen etG al., 2011) guidelines on the interpretation of the eta square, the magnitude of the difference between the mean scores of

male and female students with regard to their extroversion personality trait was small (eta square (η^2) = 0.015).

The results that emerged from Table 15 show that 1.5 percent of the variances in DBE students of CoDE, UCC could be explained by their gender. This implies that relatively male students' value achievement and stimulation are most unlikely to value tradition or conformity, whereas female students value otherwise. This means that the male students are more assertive, active, and sociable than the female students. One may, therefore, argue out that the male students are most likely to make friends easily and also enjoy interacting with others, but they may not want to pay extra attention to making well thought-out decisions and considering the needs and sensitivities of others as compared to their female counterparts. The finding is incongruent with that of Blickle (2016) who found in his study that gender has no effect on people's extroversion traits.

In relation to personality trait of conscientiousness, agreeableness, openness and neuroticism, there were no statistically significant differences between male and female students. So in effect, gender has no influence on the various personality trait demonstrated by students [Gt = 1.438, df = 677, p = 0.151]. The finding is congruent with that of Koseoğlu (2016) who has found in his study that gender of students has no effect on their demonstrated personality trait.

The study further examined the effect of gender on students' learning style. The four dimensions or facets of learning style were examined. The results are presented in Table 16.

Table 16: Gender Differences in Learning style of DBE Students of CoDE, UCC

Variable	Gender	N	Mean	SD	t-value	p-value
Visual	Male	328	3.678	0.451	-1.257	0.209
	Female	351	3.767	0.392		
Aural/Auditory	Male	328	3.619	0.342	-.061	0.951
	Female	351	3.623	0.306		
Read/Write	Male	328	3.897	0.351	-.362	0.718
	Female	351	3.919	0.284		
Kinaesthetic	Male	328	3.490	0.321	-1.944	0.052
	Female	351	3.609	0.272		
Learning style	Male	328	3.671	0.253	-1.186	0.236
	Female	351	3.729	0.219		

Source: Field survey (2018) df = 677 (n = 679)

As contained in Table 16, there were no statistically significant differences between male and female students with regard to their learning style: visual, aural/auditory, read/write, and kinaesthetic. This implies that the kind of learning style used by DBE students of the college, is not influenced by the gender of the students [t = -1.186, df = 677, p = 0.236]. This further implies that gender has no impact on the adopted learning style of students.

The finding is in line with that of Su (2012) who has also found out that both male and female students are more sensate than intuitive. However, male students are significantly more visual than their female counterparts, whereas both male and female students are more visual than verbal. He concluded that gender has no effect on students' learning style. Mlambo (2012) has also found that learning preferences are independent of gender of students. Demirbas and Demirkan (2016) also conclude in their study that learning style preferences for students do not significantly differ by gender.

This shows that gender has no significant effect on students' learning style. Again, the finding that gender has no statistically significant effect on students' learning style, is inconsistent with that of Corbin (2017) who has indicated in his work that there are statistically significant gender differences in students' learning style.

The study further examined the gender difference between the respondents, with regard to their academic self-discipline, academic self-confidence and academic performance. The results are presented in Table 17.

Table 17: Gender Differences in Academic Performance, Academic Self-Discipline and Academic Self-Confidence of DBE Students of CoDE, UCC

Variable	Gender	N	Mean	SD	t-value	p-value
Academic Self-Discipline	Male	328	4.097	0.331	-0.351	0.725
	Female	351	4.119	0.311		
Academic Self-Confidence	Male	328	3.902	0.312	-0.680	0.497
	Female	351	3.943	0.279		
Students' Academic Performance	Male	328	2.954	0.407	-0.981	0.327
	Female	351	3.023	0.418		

Source: Field survey (2018) df = 677 (n = 679)

In relation to academic self-confidence and self-discipline ten close-ended items were used for each variable. These items were pooled together using an average responding score to create these variables. Also, the results in Table 17 indicate that there were no statistically significant differences between male and female students with regard to their academic self-discipline [t = -0.351, df = 677, p = 0.725], academic self-confidence [t = -0.680, df = 677, p = 0.497], and academic performance [t = -0.981, df = 677, p = 0.327]. The findings show that the gender of a student has no effects on the behaviour that he or she possesses to enable him or her persevere in all what it takes to

variables was explained by age group. Separate univariate ANOVAs on the different personality trait using Bonferroni adjusted alpha level of .01.

Table 19 presents the results of the ANOVAs. The results of the univariate ANOVAs showed statistically significant age differences in three out of the five personality traits: conscientiousness, F (3, 675) = 5.21, p = .001, partial eta squared = .02; agreeableness, F (3, 675) = 4.04, p = .007, partial eta squared = .02; and openness to experience, F (3, 675) = 5.79, p = .001, partial eta squared = .03. However, there was no significant age differences in extroversion; F (3, 675) = .57, p = .634, partial eta squared = .003; and neuroticism, F (3, 675) = 1.56, p = .198, partial eta squared = .007. *Post hoc* analysis using Bonferroni was conducted on conscientiousness, agreeableness, and openness to experience (Appendix F).

Table 19: Tests of Between-Subjects Effects in Terms of Age Group (Personality Trait)

Source	Criterion variable	Df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Extroversion	1	3978.935	5124.337	.000	.884
	Conscientiousness	1	3088.133	6022.527	.000	.899
	Agreeableness	1	3247.717	5311.253	.000	.887
	Openness to Experience	1	3778.172	3850.318	.000	.851
	Neuroticism	1	3121.486	3995.628	.000	.855
Age group	Extroversion	3	.444	.572	.634	.003
	Conscientiousness	3	2.673	5.212	.001*	.023
	Agreeableness	3	2.470	4.040	.007*	.018
	Openness to Experience	3	5.680	5.789	.001*	.025
	Neuroticism	3	1.217	1.557	.198	.007
Error	Extroversion	675	.776			
	Conscientiousness	675	.513			
	Agreeableness	675	.611			
	Openness to Experience	675	.981			
	Neuroticism	675	.781			

Source: Field survey (2018) *Significant, p < .05 (n = 679)

The results on the *post hoc* analysis indicate that in terms of conscientiousness, respondents below age 21 years (M = 2.72, SD = .77) exhibited less characteristics compared to those from 21 – 25 years (M = 3.17, SD = .70). Again, respondents aged 26 – 30 years (M = 2.99, SD = .71) exhibited less characteristics compared to those from 21 – 25 years (M = 3.17, SD = .70). In terms of agreeableness personality trait, respondents below age 21 years (M = 2.79, SD = .69) exhibited less characteristics compared to those from 21 – 25 years (M = 3.21, SD = .79). Similarly, respondents below age 21 years (M = 2.79, SD = .69) exhibited less characteristics compared to those above 30 years (M = 3.22, SD = .79).

In terms of openness to experience trait, respondents below age 21 years (M = 2.76, SD = 1.12) exhibited less characteristics compared to those from 21 – 25 years (M = 3.49, SD = .99). Also, respondents below age 21 years (M = 2.76, SD = 1.12) exhibited less characteristics compared to those from 26 – 30 years (M = 3.48, SD = 1.00), and finally, respondents below age 21 years (M = 2.76, SD = 1.12) exhibited less characteristics compared to those above 30 years (M = 3.52, SD = .93).

In effect, the result shows that age influences personality trait. This finding corroborates that of Corbin (2017) who has established in his work, that there are statistically significant age differences among students with regard to their personality trait. This explains that the various consistent traits or characteristics of DBE students of CoDE, UCC, which make them different from others, were slightly influenced by their age group. It appeared that older students had high trait on conscientiousness, agreeableness and openness to experiences than younger students. This means that the older students have a

more meaningful preferred way of dealing with new information as well as how they view situations, than the younger ones.

The findings are in line with the arguments of the lifespan perspective of personality model, which is based on the plasticity principle (Klimstra et al., 2012; Roberts et al., 2016). According to Roberts et al. (2016), there is a significant relationship that exists between an individual and his or her environment, which creates a dialectic situation between continuity and change throughout the lifespan of the individual. Therefore, as the individual grows in the community, he or she cumulatively adopts a high level of personality trait as compared to the low ones he or she exhibited when he or she was young. Large-scale longitudinal studies have demonstrated that the most active period of personality development, appears to be between the ages of 20-40 (Roberts et al., 2016). According to Roberts et al., personality grows increasingly consistent with age and plateaus sometime around age 50, but never reaches a period of total stability. However, the finding is incongruent with that of Blickle (2016) who has found out that age has no effect on people's personality trait.

Learning style differences

The result of Box's M test of equality of covariance violated the variance-covariance matrices assumption, $F = 3.15$, df1 = 30, df2 = 54020.35, $p < .001$, M = 96.58. All data on all the criterion variables did not violate the homogeneity of variance assumption ($p < .001$, see Appendix G). Since the homogeneity of variance and homogeneity of variance-covariance matrices were violated, Pillai's Trace multivariate test was performed. The results are presented in Table 20.

Table 20: Pillai's Trace Multivariate Tests for Age Differences in Learning Style

Effect	Value	F	Df	Error df	Sig.	Partial Eta Squared
Intercept	.949	3154.045	4	672	.000	.949
Age	.060	3.457	12	2022	.000*	.020

Source: Field survey (2018) *Significant, p< .05 (n = 679)

The result in Table 20 shows a statistically significant age difference in the combined learning style, Pillai's Trace $V = .06$. $F\ (12, 2022) = 3.46$, $p < .001$, partial eta squared = .02. This result implies that age accounted for 2% of the variance in learning style. Separate ANOVAs were performed for each learning style using Bonferroni's adjustment of .013 alpha level. The results are shown in Table 21.

Table 21: Tests of Between-Subjects Effects in Terms of Age Group (Learning Style)

Source	Dependent Variable	Df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Visual	1	4546.050	5389.551	.000	.889
	Aural/Auditory	1	4379.152	6490.168	.000	.906
	Read/Write	1	4952.798	7649.093	.000	.919
	Kinaesthetic	1	4476.186	7084.648	.000	.913
Age group	Visual	3	2.107	2.498	.059	.011
	Aural/Auditory	3	1.346	1.995	.113	.009
	Read/Write	3	2.912	4.498*	.004	.020
	Kinaesthetic	3	1.740	2.754	.042	.012
Error	Visual	675	.843			
	Aural/Auditory	675	.675			
	Read/Write	675	.648			
	Kinaesthetic	675	.632			

Source: Field survey (2018) *Significant, p < .05 (n = 679)

From Table 21, there is a significant difference in level of read/write learning style used by respondents based on their age groups, F (3, 675) = 4.50, p = .004, partial eta squared = .02. The results however revealed no significant difference in the level of visual, aural/auditory, and kinaesthetic learning style used in terms of age, visual: F (3, 675) = 2.50, p = .059, partial eta squared = .011; aural/auditory: F (3, 675) = 2.00, p = .113, partial eta squared = .009; and kinaesthetic: F (3, 675) = 2.75, p = .042, partial eta squared = .012.

The result on read/write learning style was followed up with a multiple comparison using Bonferroni (Appendix G). From the follow up tests, respondents aged from 21 – 25 years (M = 3.86, SD = .83) used read/write learning style more than those above 30 years (M = 3.57, SD = .91). Again, respondents aged from 26 – 30 years (M = 3.86, SD = .76) used read/write learning style more than those above 30 years (M = 3.57, SD = .91). This finding is consistent with that of Corbin (2017) who has established in his work, that there were statistically significant age differences among students with regard to their learning style.

Academic performance

One-way ANOVA was used to compare the academic performance of respondents in terms of their age. Table 22 presents the results. Table 22 further shows that students who were below 21 years (Mean = 3.026, SD = 0.361), and those who were within the age groups of 26 – 30 years (Mean = 3.001, SD = 0.428) and above 30 years (Mean = 3.008, SD = 0.394), performed better in their academic work with regard to CGPA, than the other

age groups. This implies that some age group of students can influence academic performance in class.

Table 22: Descriptive and ANOVA Table on the Age Group Differences among DBE Level 200 Students of CoDE, UCC Regarding their Academic Performance

Studied Variables	Age Group	N	Mean	SD
Students' Academic Performance	Below 21 years	33	3.026	0.361
	21-25 years	209	2.957	0.413
	26-30 years	315	3.001	0.428
	Above 30 years	122	3.008	0.394
	Total	679	2.989	0.413

Variable		Sum of Squares	df	Mean Square	F	Sig.
Students' Academic Performance	Between Groups	0.339	3	0.113	0.135	0.939
	Within Groups	564.505	675	0.836		
	Total	564.845	678			

Source: Field survey (2018) (n = 679)

The differences that exist between the groups as indicated were examined further, using an ANOVA table to find out whether the differences were statistically significant. The results in Table 22 show that there were no statistically significant differences between the various age groups with regard to their academic performance, $F(3, 678) = .135$, $p = .939$. This result implies that DBE students performed equally academically irrespective of their age difference. The findings that age has no statistically significant effect on students' academic performance do not corroborate that of Corbin (2017) who has established in his work, that there were statistically significant age

differences among students with regard to their academic performance which was measured using CGPA.

Testing Hypotheses One and Two

The first and second research hypotheses of the study focused on the relationships between personality trait, learning style and academic performance of students. Each of the variables has been defined, explained and measured in the third chapter of this report. As indicated earlier, the items were measured using a unilinear scale. These items were pooled or combined together using means or average response scores to form the main variables. The five dimensions of personality trait and the four dimensions of learning style have been explained earlier. The Pearson product moment correlation was used to examine the relationship between the main variables. The two hypotheses formulated to be tested are presented as follows:

H^1_0: There is no statistically significant relationship between students' personality trait and their academic performance.

H^2_0: There is no statistically significant relationship between students' learning style and their academic performance.

The first bivariate relationship considered was students' personality trait and their academic performance, which was measured using their current CGPA. In testing the hypothesis, the study examined the relationships that existed between the individual dimensions of personality trait and students' academic performance, before pooling them together and examining again. The results are presented in Table 23.

Table 23: Correlation Matrix on Students' Personality Trait, Academic Self-Discipline, Academic Self-Confidence and Academic Performance

Variables	Academic Self-Discipline	Academic Self-Confidence	Academic Performance
Extroversion	0.419**	0.486**	0.438**
Conscientiousness	0.271*	0.297**	0.341**
Agreeableness	0.327**	0.330**	0.256*
Openness to Experience	0.421**	0.452**	0.424**
Neuroticism	0.184*	0.166*	0.118**
Personality Trait	0.424**	0.453**	0.411**
Academic Self-Discipline	1	0.787**	0.571**
Academic Self-Confidence	0.787**	1	0.554**
Academic Performance	0.571**	.554**	1

(n = 679)

Source: Field survey (2018)
*. Significant, p<.05 (2-tailed)
**. Significant, p<.01 (2-tailed)

The results in Table 23 illustrate that all the five dimensions or types of personality trait have positive and significant relationships with students' academic self-discipline, academic self-confidence and academic performance. Specifically, extroversion has a strong, positive and statistically significant relationship with academic self-discipline ($r = 0.419$, $p < 0.01$), academic self-confidence ($r = 0.486$, $p < 0.01$) and academic performance ($r = 0.438$, $p < 0.01$). This implies that the more or higher a student tends to gain energy in social situations or interact with others, the higher the output or effort he or she makes in the field of academics. Also, the higher the belief a student has in relation to his or her performance, the higher the behaviour that he or she will possess to enable him or her become perseverance in all what it takes to be an academic abiding student.

Based on the finding that emerged from Table 23, the study rejects the first null hypothesis that there is no statistically significant relationship between students' personality trait and their academic performance. The finding is incongruent with many research findings that revealed that extroversion negatively correlates with academic performance (Chamorro-Premuzic & Furnham, 2013; Eysenck, 2014; Furnham et al., 2009). Eysenck (2014) added that extroverted students would be most likely to socialise and participate in other activities, rather than studying, resulting in a low level of performance. In addition, Nijhuis (2017) also found in his investigations that extroverts tended to be poorer in reflective problem solving due to their reaching cognitive closure prematurely.

However, the finding is consistent with that of Rothbart et al. (2012) who have also found a positive association and influence between extroverted behaviour and academic outcomes. Besides, other researchers have also indicated that there is a meaningful correlation between extroversion and academic performance (Rothmann & Coetzer, 2015). Rothmann and Coetzer argued that this was due to extroverted students interacting more with their teachers, and so being able to increase their level of learning, and achieve high in academics. Blickle (2016) findings also confirmed a positive correlation between extroversion and academic performance, however, believed that this was due to higher energy levels and enthusiasm, leading to a desire to learn and understand.

Table 23 further indicates that conscientiousness has a moderate, positive and statistically significant relationship with students' academic self-discipline ($r = 0.271$, $p < 0.05$), academic self-confidence ($r = 0.297$, $p < 0.01$),

and academic performance ($r = 0.341$, $p < 0.01$). This shows that the higher students exhibit high levels of thoughtfulness, with good impulse control and goal-directed behaviours, the higher they develop self-discipline and self-confidence, and also perform higher in their academic activities. Therefore, as students tend to spend time preparing, finishing important tasks right away, paying attention to details, and enjoying having a set schedule, the better they perform in their academic output.

The finding that conscientiousness is positively related to students' academic performance is also in line with that of many researchers. Conscientiousness is a tendency to show self-discipline, act dutifully and aim for achievement amidst various challenges. It has been one of the big five factors, most consistently linked to academic performance (Ahn, 2013; Barkhi & Brozovsky, 2014; Day & Silverman, 2015). Diseth (2014) found a positive relationship between conscientiousness and academic performance.

Also, the finding that conscientiousness is positively related to students' academic self-confidence supports that of Poropat (2014) who also found that conscientious students tend to have increased confidence which helps them to stay focused on academic activities, leading to greater learning. This was later confirmed by Blickle (2016) who added that it provides significant advantage in stressful situations. Of all the Big Five Factors, many studies have found that conscientiousness remains the strongest correlate and influential of academic performance (Judge & Zapata, 2015; Rothmann & Coetzer, 2015).

The results further show that there is a statistically significant positive relationship between agreeableness and academic performance ($r = 0.256$, $p <$

0.05), and also between openness and academic performance ($r = 0.424$, $p < 0.01$). Therefore, the higher the level of agreeableness and openness personality trait exhibited by students, the higher the influence of their level of performance. This shows that as students tend to be well-liked, respected, and sensitive to the needs of others, the higher they perform in their academic work. Likewise, people on the low end of the agreeableness spectrum are less likely to be trusted and liked by others. They tend to be callous, blunt, rude, ill-tempered, antagonistic, and sarcastic, which usually result in their low performance in academic output. Also, the finding may mean that students who exhibit high traits or characteristics, such as imagination and insight, tend to be more adventurous and creative, which subsequently lead to their high achievements in academic activities.

The finding that openness is positively related to students' academic performance is consistent with that of Poropat (2014) who has found in a research that openness had a stronger correlation with academic performance, compared to measures of general intelligence. Poropat (2014) further speculated the relationship between openness and academic achievement through stating that the "thinking and curiosity" aspect of openness is expressed in a deep approach to learning, in which students follow their extrinsic interest in pursuit of intellectual satisfaction, which mediates the correlation between openness and academic achievement.

Blickle (2016) again found in his study that openness to experience is associated with academic performance. This is supported by the work of Hassan (2017) which states that openness is positively correlated with an open approach to learning. However, Ackeman and Heggestad (2012) have found in

their study that openness did not have significant correlation with academic performance. Similarly, Koseoğlu (2016) did not find a significant relationship between openness and academic performance in his study.

Even though, there is a statistically significant positive relationship between neuroticism and students' academic performance ($r = 0.118$, $p < 0.01$), the relationship can be described as weak, implying a weak link between neuroticism and academic performance. The finding means that students who exhibited high levels of neuroticism trait are characterised by sadness, moodiness and emotional instability. They also tend to experience mood swings, anxiety, irritability and sadness which result in low increase in their academic performance. The finding is incongruent with many researchers who indicate that those with low neuroticism trait tend to be more stable and emotionally resilient, which help in enhancing their academic performance significantly (De Fruyt & Mervielde, 2013; Ghazi et al., 2013).

The finding, regarding positive relationship between neuroticism and students' academic performance, is inconsistent with most studies that found a negative association between neuroticism and academic performance (Day & Silverman, 2015; De Fruyt & Mervielde, 2013; Ghazi et al., 2013). Poropat (2012) again found in his study that there was a negative correlation between neuroticism and academic performance at primary level. This shows that students with high emotional stability achieve higher academically. On the other hand, it has also been found in some other studies to be positively related to academic performance (De Raad & Schouwenburg, 2016; Eysenck, 2014). Besides, it has also been confirmed by Nijhuis (2017) that students who are

more emotionally stable have greater focus, and so are able to concentrate more on learning activities.

Again, the finding that agreeableness is positively related to students' academic performance is consistent with the submission of Husch (2013) who posits that those who score high on agreeableness scale are good, well nurtured, cooperative, functioning and accommodating, and that has found to be positively related to academic performance. These positive relationships associated with high agreeableness are believed by Poropat (2014) to help facilitating learning. The finding also confirms that of Guntern et al. (2017) who identified a positive relationship between agreeableness and academic performance. However, Busari (2017) reported a negative association between agreeableness and academic performance.

Overall, the results show that there is a statistically significant positive and moderate relationship between personality trait and students' academic performance ($r = 0.411$, $p < 0.01$). That is, the higher the level of personality trait demonstrated by a student, the higher his or her academic performance. This shows that the higher the traits or characteristics of an individual which make him or her different from others are demonstrated consistently, the higher he or she performs in academic activity or educational output.

Consistent with this study's finding, Vermetten et al. (2011) argued that correlations between academic performance and personality measures would mirror corresponding correlations of intelligence with personality. They added that measures of personality based on the FFM should be correlated with academic performance. This also relates to the evidence supporting the importance of personality factors for influencing socially valued behaviours,

and on the recognition of personality as a component of an individual's willingness to perform (Komarraju, 2012).

Furthermore, the finding that personality trait is positively related to students' academic performance is consistent with the finding that emerged from the work of Diseth (2014). Diseth found in his study that personality measures were correlated with academic performance. However, Ahn (2013) posits that just as with academic performance, early research on links between personality and work performance found variable results, leading to the conclusion that the general dimensions of personality are largely unrelated to work performance.

Table 23 further shows that there is a statistically significant positive relationship between academic self-discipline and academic performance ($r = 0.571$, $p < 0.01$), and also between academic self-confidence and academic performance ($r = 0.554$, $p < 0.01$). The two relationships can be described as strong. This explains that the more students become academic discipline and confident, the higher their level of performance in their academic activities. Therefore, as students begin to adapt or possess behaviours that enable them to become perseverance in all what it takes to be an academic abiding student, and believing that they can perform well in the field of academics, the higher the output or effort they make in the field of academics.

The findings are in line with many research findings in the area under discussion. Aragon et al. (2012) posit that in the social sciences, pedagogy and education argue for the strong relationship between academic self-discipline and academic performance, with lack of discipline considered as a factor in declining academic performance. Scholars are fairly unanimous in their

conclusion that the introduction of effective disciplinary practices in school is crucial to ensuring academic success, together with a safe learning environment, cultural environment that retain the priority of knowledge and understanding of the child's personality, and giving great attention to the child's needs (Orvis et al., 2010; Ng & Rao, 2012).

According to Tought (2012), academic self-discipline entails perseverance, meeting time schedules, goal-setting and planning for goal achievement and completion of unpleasant tasks. According to Tought, concurrent with its explanation of academic performance, the results can provide teachers, principals and parents with the tools necessary to improve performance in school. The findings imply that a well behaved academic self-discipline student is most likely to perform academically as against discipline problem students, since that behaviour is a potential factor to contribute to a decline in academic performance. Furthermore, the finding that academic self-confidence is positively related to students' academic performance, is in line with the comments of Aragon et al. (2012) who posit that students who have strong belief, firm, trustworthy, feeling certain, fully assured, self-reliant, bold; sure of oneself, one's cause; having no fear of failure, lead to an increase in their academic performance.

The second hypothesis focused on the relationship between learning style and students' academic performance. Again, the relationship between each of the dimensions of learning style and students' academic performance was addressed specifically. The dimensions are visual, aural/auditory, read/write, and Kinaesthetic. The Pearson product moment correlation was used to test the hypothesis. The results are presented in Table 24.

Table 24: Correlation Matrix on Students' Learning Style, Academic Self-Discipline, Academic Self-Confidence and Academic Performance

Variables	Academic Self-Discipline	Academic Self-Confidence	Academic Performance
Visual	0.365**	0.412**	0.531**
Aural/Auditory	0.432**	0.414**	0.487**
Read/Write	0.498**	0.463**	0.856**
Kinaesthetic	0.403**	0.411**	0.367**
Learning Style	0.575**	0.583**	0.777**
Academic Self-Discipline	1	0.787**	0.571**
Academic Self-Confidence	0.787**	1	0.554**
Academic Performance	0.571**	0.554**	1

(n = 679)

Source: Field survey (2018)
**. Significant, p<.01 level (2-tailed)

The results in Table 24 show that there is a strong, positive and statistically significant relationships between learning style and students' academic performance ($r = 0.531$, $p < 0.01$). This means that the higher the level of learning style demonstrated by a student, the higher his or her academic performance. Specifically, the results indicate that read/write ($r = 0.856$, $p < 0.01$) and visual ($r = 0.531$, $p < 0.01$) learning style have strong and moderate relationships with students' academic performance respectively.

Also, there were moderate and positive relationships between aural/auditory ($r = 0.487$, $p < 0.01$) and kinaesthetic ($r = 0.367$, $p < 0.01$) learning style and students' academic performance. Overall, the findings show that whenever the individual difference factors that represent enduring and stable approaches to gaining, processing, and storing information are high, the

academic performance of the student will also move in the same direction, and will be high.

The findings that emerged from Table 24 is consistent with that of Vaishnav (2013) who posits that there exists a positive high correlation between kinaesthetic learning style and academic achievement. The main effects of the three variables: visual, auditory and kinaesthetic were significant on academic achievement (Vaishnav (2013). Abidin et al. (2011) also investigated the relationship between learning style and overall academic achievement. Abidin et al. found out that there was a significant relationship between overall academic achievement and learning style. It was also found that the high, moderate and low achievers have a similar preference pattern of learning in all learning style. Moreover, the learning style framework does not change with subjects, where it actually plays an important role across all the subjects.

Furthermore, the findings further support the submission of Wilson (2014) who posits that students who are conscientious and analytical-minded, will probably perform better academically. It has also been implied in the literature that if learning style are harmonised with teaching methods, academic performance and achievement may increase. Many researchers support the view that matching learning style with teaching methods, improves students' academic performance (Demirbas & Demirkan, 2016; Ibe, 2015; Poropat, 2014; Wilson, 2014; Worley-Davis, 2016).

Lyons-Lawrence (2015) also found in his study that a correlation between post-test scores and visual perception helps to support the argument that students' learning style are related to their performance in instructional

settings. Furthermore, Lyons-Lawrence discovered that learners with a converged style performed better than others when learning to use a computer. This shows that by using specific learning style preference, educators and designers may be able to create more effective learning environments, such as the one offered through computer-mediated course delivery systems. This suggests that learning style, performance, and distance education may be related as they apply to effective learning environments.

However, the findings are inconsistent with that of Khalid et al. (2013) who have found out that there is no significant relationship between learning style as a whole with academic achievements, except for avoidance. Similarly, Gokalp's (2013) findings also show no significant relationship between learning style and academic achievements. Guntern et al. (2017) further found out in their study that there was no significant relationship between learning style and academic performance.

Testing Hypothesis Three

The rationale for the third hypothesis of the study was to examine the influence of personality trait and learning style on students' academic performance, and to find out as to whether the influence is direct or indirect. In examining the influence of these two variables, the study also looked at the effects of the mediating role of students' academic self-discipline and self-confidence on the influence of the independent variables on the dependent variable. The independent variables were personality trait and learning style while the dependent variable was students' academic performance. As indicated earlier, multiple items were used to elicit data on the independent and mediating variables. The facets or dimensions of the independent

variables have also been explained earlier. The study adopted the linear multiple regression analysis procedure to test the third hypothesis formulated.

H^3_0: Academic self-discipline and academic self-confidence do not significantly mediate (serial) the relationship between students' personality trait and learning style, and academic performance.

The independent variables were the five dimensions of personality trait (extroversion, openness to experience, agreeableness, conscientiousness and neuroticism) and the four dimensions or forms of learning style (visual, auditory, read/write and kinaesthetic). The segregation of the variables is shown in the conceptual framework of the study (Figure 1). It must be noted that researchers' argument on personality trait and learning style theories has for long, established mediators as variables that work to influence the academic performance of students.

Using the hierarchical multiple regression analysis to test the third hypothesis, a diagnostic test was first conducted to check for multi co-linearity among the independent and mediating variables. This was used to examine the possible undesirable situation where the correlations among the variables are strong. The PASW Version 18.0 was used to assess the Variance Inflation Factor (VIF) that measures multicollinearity in the regression model since multicollinearity, misleadingly inflates the standard errors, thereby making some variables statistically insignificant while they should otherwise be significant.

The VIF was used to measure how much the variance of the estimated coefficients increased over the case of no correlation among the independent and mediating variables. All the VIF values for the independent variables were

within the acceptable threshold. This shows that none of the values was greater than five (5), which means that there was no collinearity associated with the variables. The VIF values were also inversely related to the Tolerance values (VIF = 1/Tolerance). According to Pallant (2010), large VIF values (a usual threshold is 10.0, which corresponds to a tolerance of 0.10) indicate a high degree of collinearity or multicollinearity among the independent variables.

In addition, under the collinearity diagnostics table, condition index values of all the entered variables were less than 15, indicating that there was no problem. According to Pallant (2010), a condition index value greater than 15 indicates a possible problem while an index greater than 30 suggests a serious problem with collinearity. In all, it is clear that the contribution of the independent and mediating variables on the dependent variable was largely not as a result of the strong association between variables. The results of the analysis are presented in Tables 25, 26, 27 and 28.

The analysis involved testing of three models. In the first model, the dimensions of the two variables: personality trait and learning style were entered as independent variables. As depicted in Table 25, the variables that influence students' academic performance significantly in order of importance were read/write ($\beta = 0.317$, $p < 0.01$), visual ($\beta = 0.100$, $p < 0.01$), conscientiousness ($\beta = 0.096$, $p < 0.01$), kinaesthetic ($\beta = 0.085$, $p < 0.01$), aural/auditory ($\beta = 0.063$, $p < 0.05$), openness to experience ($\beta = 0.057$, $p < 0.05$), and neuroticism ($\beta = -0.073$, $p < 0.01$). With the exception of neuroticism, all the entered variables in the first model that were statistically

significant, contributed positively to students' academic performance. However, agreeableness was not significant in the first model.)

Table 25: First Model on the Influence of Personality Trait and Learning Style on Students' Academic Performance

	Unstandardised Coefficient		Standardised Coefficient		Collinearity Statistics	
GVariables	B	Std. Error	Beta (β)	Sig.	Tolerance	VIF
Extroversion	0.043	0.024	0.047	0.072	0.475	2.107
Conscientiousness	0.108	0.027	0.096**	0.000	0.574	1.742
Agreeableness	-0.044	0.025	-0.043	0.082	0.528	1.895
Openness to Experience	0.047	0.023	0.057*	0.047	0.386	2.589
Neuroticism	-0.068	0.021	-0.073**	0.001	0.609	1.642
Visual	0.089	0.023	0.100**	0.000	0.484	2.067
Aural/Auditory	0.063	0.026	0.063*	0.016	0.470	2.129
Read/Write	0.322	0.021	0.317**	0.000	0.701	1.427
Kinaesthetic	0.087	0.021	0.085**	0.000	0.792	1.262
Constant			1.064			
R			0.589			
R Square			0.347			
Adjusted R Square			0.336			
				(n = 679)		

Source: Field survey (2018)
* Significant, $p < 0.05$.
** Significant, $p < 0.01$ level.
Dependent Variable: Students' Academic Performance

The finding that conscientiousness has a statistically significant influence on students' academic performance is in line with that of Conrad and Patry (2012). The finding that emerged from Conrad and Patry's study indicates that conscientiousness is a critical factor with regard to academic performance. Furthermore, the effects of conscientiousness on academic performance are indirect. Therefore, it seems that mediated relationships

between conscientiousness and academic performance are ripe for future study.

In addition, the finding that neuroticism contributed negatively to students' academic performance is consistent with previous studies (Koseoğlu, 2016; Putnam et al, 2016). Neuroticism is one of the Big Five factors in which a high score indicates more negative traits. Neuroticism is not a factor of meanness or incompetence, but one of confidence and being comfortable in one's own skin. It encompasses one's emotional stability and general temper. According to Koseoğlu (2016), students who are high in neuroticism tend to experience a lot of stress, worry about many different things, get upset easily, experience dramatic shifts in mood, and feel anxious. These traits influence their academic performance negatively.

Furthermore, the finding that agreeableness is not a significant direct influencing factor of students' academic performance shows that DBE students of CoDE, UCC willingness to get along with people or their orientation to others does not influence their academic performance directly. In terms of percentage, the results further show that learning style contributed more to students' academic performance than personality trait. Specifically, read/write was the variable that contributed more to students' academic performance. It contributed 31.7 percent. This shows that DBE students of CoDE, UCC preference are for information displayed as words, and therefore they have a strong preference for read/write learning style. This may be so because in Ghana, being able to write well and read widely, are some of the attributes sought by employers of graduates.

It is however significant to observe that the total contribution of the independent variables to the variance on the dependent variable is 0.347 with an adjusted R^2 of 0.336. This means that learning style and personality trait are able to influence or explain 34.7 percent of the variance on students' academic performance. It further means that quite apart from the entered variables, other variables that are not yet considered in the model have a chance of contributing 65.3 percent to students' academic performance. The study, therefore, introduced the first mediator into the model to examine its effect.

The finding that learning style has the most significant influence on students' academic performance is in line with the finding of Abidin et al. (2011) who investigated the link between learning style and overall academic achievement. Abidin et al. found out that learning style have statistically significant influence on overall academic achievement of students. It was also found that the high, moderate and low achievers have a similar preference pattern of learning in all learning style. Moreover, the learning style framework does not change with subjects, where it actually plays an important role across all the subjects. In addition, Wilson (2014) also identified the extent to which learning style influence the educational process as well as the outcome of students in terms of academic achievement. Wilson's study showed that there was a lack of significant correlation between learning style and students' academic performance. However, learning style and instruction were reported to affect students' academic performance and achievement in science discipline.

However, the finding that learning style have a significant influence value on students' academic performance is incongruent with that of

Kidanemariam et al. (2014) who also examined the influence of learning style on students' academic performance. The data showed that 1.2 percent variation in academic performance in the fundamental concepts in chemistry was linked to the variations in learning style, and this variation was not statistically significant at $p < 0.05$. This implies that the role of learning style on academic performance on the fundamental concepts, considered in this study was not statistically significant. Hence, it is possible to conclude from this study, that the influence of learning style on academic performance is less likely to be the same across fundamental concepts in chemistry (Kidanemariam et al., 2014).

In relation to the finding that personality trait and learning style have significant influence on students' academic performance, one may posit that it is consistent with the comments of Chamorro-Premuzic and Furnham (2013). Chamorro-Premuzic and Furnham posit that learning style and personality trait together may influence academic performance of university students. Furthermore, it has been established that openness to experience is related to certain learning style that appear to be positively associated with academic success (Gokalp, 2013).

In the second model, academic self-discipline which was the first mediating variable considered, was entered into the model to examine its role. The theory here is that the potency of the independent variables can be enhanced by the mediating variable. That is, the mediating variable can help enhance the contribution of the independent variables on the dependent variable. The result of the second model is presented in Table 26.

Table 26: Second Model on the Influence of Personality Trait and Learning Style on Students' Academic Performance

	Unstandardised Coefficient		Standardised Coefficient		Collinearity Statistics	
Variables	B	Std. Error	Beta (β)	Sig.	Tolerance	VIF
Extroversion	0.029	0.024	0.032	0.217	0.469	2.132
Conscientiousness	0.111	0.026	0.098**	0.000	0.574	1.743
Agreeableness	0.046	0.025	0.045	0.064	0.528	1.896
Openness to Experience	0.029	0.023	0.036	0.208	0.379	2.639
Neuroticism	-0.066	0.021	-0.072*	0.021	0.609	1.642
Visual	0.098	0.022	0.111**	0.000	0.481	2.079
Aural/Auditory	0.046	0.025	0.047	0.069	0.463	2.158
Read/Write	0.283	0.022	0.278**	0.000	0.627	1.595
Kinaesthetic	0.058	0.021	0.057**	0.005	0.741	1.349
Academic Self-Discipline	0.122	0.022	0.123**	0.000	0.603	1.659
Constant			1.464			
R			0.611			
R Square			0.493			
R Square Change			0.146*			
Adjusted R Square			0.471			
					(n = 679)	

Source: Field survey (2018)
* Significant, p<.05 (2-tailed)
** Significant, p<.01 (2-tailed)
Dependent Variable: Students' Academic Performance

Table 26 shows that conscientiousness, neuroticism, visual, read/write, and kinaesthetic were still statistically significant when students' academic self-discipline was introduced into the first model. However, openness to experience and aural/auditory variables lost their significance level at 0.05. Academic self-discipline ($\beta = 0.123$, $p < 0.01$) was statistically significant

when it was entered into the model. Read/write variable contributed 27.8 percent to students' academic performance while academic self-discipline and visual contributed 12.3 percent and 11.1 percent respectively. Neuroticism still contributed negatively to students' academic performance. This shows that students' academic self-discipline has a significant role to play when examining the influence of personality trait and learning style on students' academic performance.

As Table 26 stands, when academic self-discipline was entered into the first model in order to generate the second model, the beta coefficients of conscientiousness, neuroticism, read/write, and kinaesthetic shrank while that of visual increased. This shows that the explanatory powers of the independent variables are shared with students' academic self-discipline. The total contribution (R^2) of the variables when academic self-confidence was introduced to the first model, increased from 0.347 to 0.493, while the adjusted R^2 increased to 0.471. The results further show that when academic self-discipline entered into the first model, the rate of increase of the R^2 was 29.6 percent.

In the third model, the second mediating variable which was academic self-confidence was entered into the second model to serve as a mediating factor. The results are shown in Table 27.

Table 27: Third Model on the Influence of Personality Trait and Learning Style on Students' Academic Performance

Variables	Unstandardised Coefficient		Standardised Coefficient		Collinearity Statistics	
	B	Std. Error	Beta (β)	Sig.	Tolerance	VIF
Extroversion	0.081	0.030	0.083**	0.007	0.341	2.933
Conscientiousness	0.061	0.021	0.066**	0.004	0.600	1.667
Agreeableness	0.046	0.025	0.044*	0.016	0.527	1.896
Openness to Experience	0.097	0.046	0.098**	0.001	0.752	1.329
Neuroticism	-0.026	0.023	-0.032*	0.025	0.378	2.648
Visual	0.222	0.054	0.242**	0.000	0.807	1.239
Aural/Auditory	0.223	0.057	0.237**	0.000	0.753	1.329
Read/Write	0.382	0.022	0.377**	0.000	0.627	1.596
Kinaesthetic	0.094	0.027	0.106**	0.000	0.477	2.096
Academic Self-Discipline	0.186	0.053	0.197**	0.001	0.743	1.346
Academic Self-Confidence	0.145	0.051	0.158**	0.005	0.762	1.312
Constant			0.746			
R			0.893			
R Square			0.797			
R Square Change			0.304*			
Adjusted R Square			0.784			

Source: Field survey (2018)
*Significant, $p < .05$
**Significant, $p < .01$
Dependent Variable: Students' Academic Performance

The point being established here is that the independent variables, do not directly influence academic performance of DBE students of CoDE, UCC, and that they do so indirectly when students' academic self-discipline and self-confidence are considered. When an academic self-confidence variable was entered into the second model as a mediating variable, the beta coefficients of

the model, the rate of increase of the R^2 was 38.1 percent. This finding reinforces most researchers' arguments, that academic self-discipline and academic self-confidence are mediating variables that help in boosting the influence of personality trait and learning style on academic performance.

Further analysis was conducted to establish the direct, total, and indirect effect of personality trait and learning style on academic performance through academic self-discipline and self-confidence. A model was estimated simultaneously taking into consideration the dimensions of the two independent variables (extroversion, openness, conscientiousness, agreeableness, neuroticism, visual, auditory, read/write, and kinaesthetic). A Serial-Multiple Mediation Model 6 was conducted to find out how the effect of the predictors on the criterion is explain through causal effect of one mediator to the other. Statistical significance of the tested model in the current research was studied through the software developed by Hayes (2018), the approach based on ordinary least-squares regression, and the bootstrap method. The analysis used 10,000 bootstrap samples using 95% confidence level. The summary of the mediation analysis can be found in Table 28.

The results, as shown in Table 28, have revealed that although the effect of personality trait and learning style on academic performance is explained by academic self-discipline and self-confidence, the serial path seem to differ with specific dimensions of the predictors. For extroversion to influence academic performance, the relationship needs to be serially mediated by academic self-discipline and self-confidence, b=0.009, *BootCI* [0.000-0.012].

Table 28: Direct, Total and Indirect Effect of X's on Y through Self-Discipline and Self-Confidence

	Total Effect of X on Y				Direct Effect of X on Y				Indirect Effect (Ind) of X on Y				
	Point Est.	*Boot SE*	*Boot LLCI*	*Boot ULCI*	Point Est.	Boot SE	Boot LLCI	Boot ULCI	*No.*	*Point Est.*	*Boot SE*	*Boot LLCI*	*Boot ULCI*
Extroversion (X_{A1})	.043*	.024	-.004	.091	.020	.024	-.027	.067	Ind1	.009*	.005	.002	.020
									Ind2	.009*	.005	.000	.020
									Ind3	.005*	.003	.000	.012
Conscientiousness (X_{A2})	.100*	.024	.053	.146	.085*	.023	.040	.130	Ind1	.006	.004	-.000	.014
									Ind2	.005*	.003	.000	.012
									Ind3	.004	.003	-.000	.012
Agreeableness (X_{A3})	-.013	.023	-.059	.032	-.033	.023	-.077	.011	Ind1	.009*	.004	.002	.019
									Ind2	.004	.003	-.002	.011
									Ind3	.007*	.004	.002	.016
Openness (X_{A4})	.061*	.020	.023	.099	.030	.020	-.009	.068	Ind1	.014*	.006	.003	.027
									Ind2	.007*	.004	.001	.016
									Ind3	.011*	.005	.003	.021
Neuroticism (X_{A5})	-.019	.019	-.056	.018	-.024	.018	-.060	.012	Ind1	.005	.003	-.000	.012
									Ind2	-.003	.003	-.009	.001
									Ind3	.004	.003	-.000	.009

Table 28 continued

Visual Learning (X_{B1})	.382*	.035	.314	.450	.319*	.032	.257	.380	Ind1	.046*	.016	.018	.082
									Ind2	.009	.006	-.001	.022
									Ind3	.010	.007	-.001	.025
Auditory Learning (X_{B2})	.359*	.041	.278	.441	.251*	.039	.175	.326	Ind1	.077*	.022	.036	.124
									Ind2	.003	.006	-.007	.016
									Ind3	.029*	.013	.006	.057
Read/Write Learning (X_{B3})	.789*	.021	.749	.829	.728*	.022	.686	.770	Ind1	.033*	.012	.012	.057
									Ind2	.004	.004	-.001	.013
									Ind3	.024*	.008	.008	.041
Kinaesthetic Learning (X_{B4})	.305*	.034	.239	.372	.169*	.034	.103	.235	Ind1	.098*	.024	.056	.148
									Ind2	.014*	.008	.001	.033
									Ind3	.025*	.012	.002	.051

X(Predictors)- Personality trait [X_{A1}-X_{A5}] and Learning Style [X_{B1}-X_{B4}]; M(Mediators)- Academic Self Discipline (ASD) and Self Confidence (SC); Y (Criterion)- CGPA

*Significant, $p < .05$

Ind1= Predictor [X_{A1}.....X_{B4}] ⟶ ASD ⟶ CGPA

Ind2= Predictor [X_{A1}.....X_{B4}] ⟶ ASC ⟶ CGPA

Ind3= Predictor [X_{A1}.....X_{B4}] ⟶ ASD ⟶ ASC ⟶ CGPA

Source: Field survey (2018)

Similar result was found for agreeableness, b=0.007, *BootCI* [0.002-0.016] and openness, b=0.011, *BootCI* [0.003-0.021], suggesting that academic self-discipline and self-confidence are serial mediators in the influencing factors and the criterion. Only self-confidence was found as a mediator between conscientiousness and academic performance, b=0.005, *BootCI* [0.000-0.012]. Neuroticism was not found as a significant influencing factor to any of the outcome variables in the model.

The study, again, found a significant serial mediation of academic self-discipline and self-confidence between auditory (b=0.007, *BootCI* [0.002-0.016]), read/write (b=0.024, *BootCI* [0.008-0.041]), and kinaesthetic (b=0.025, *BootCI* [0.002-0.051] learning style with academic performance. The results for visual learning style came out to be different. Only academic self-discipline was found as a significant mediator between visual learning style and academic performance, b=0.046, *BootCI* [0.018-0.082].

Based on the results, a final model was designed which reflects the trend of results as already underscored (Figure 3). The model was found to be fit based on the assertion of Hayes (2018) that the Mean Square Error (MSE) of the model should be closer to zero. In the case of this model, MSE obtained was .139 which shows that the model is fit.

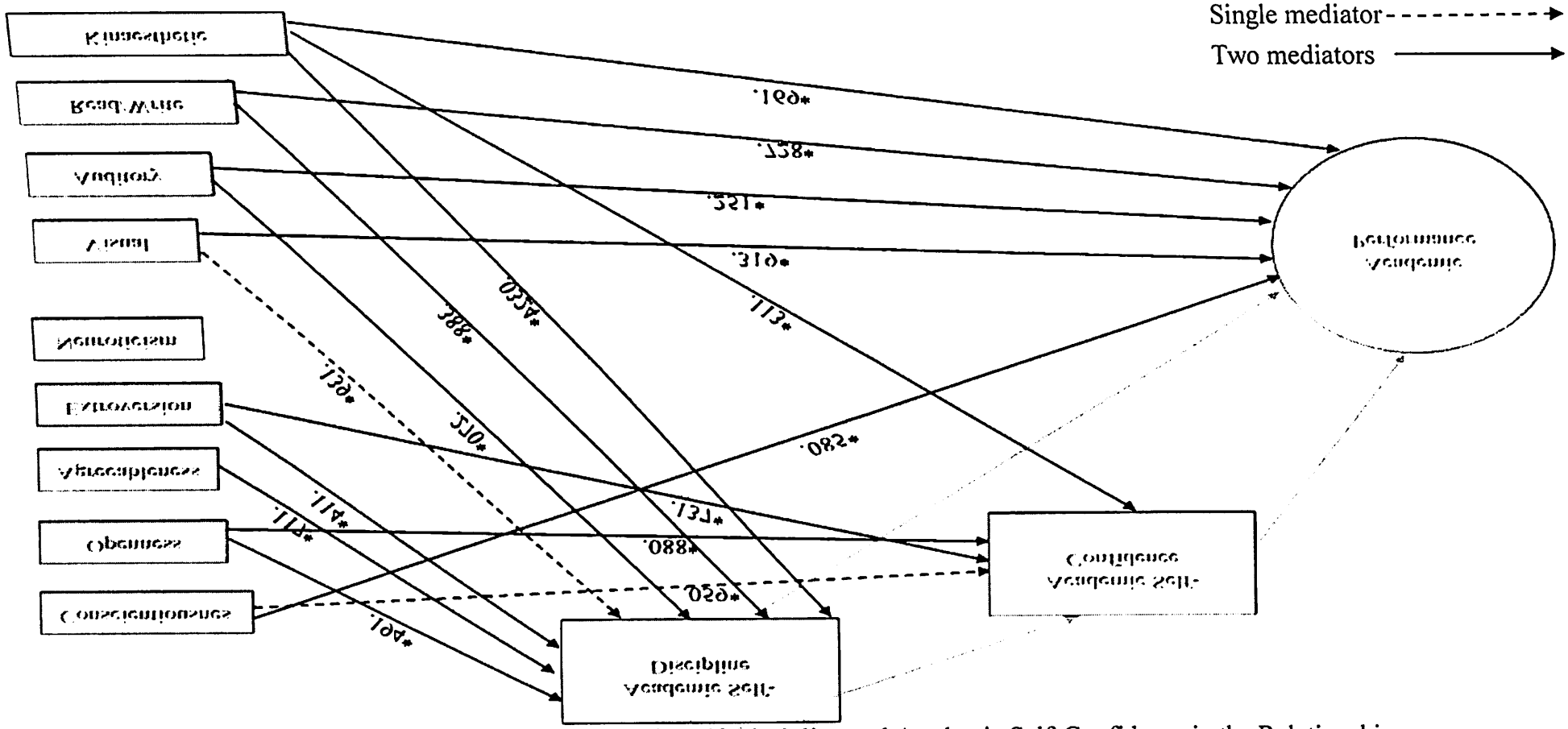

Figure 3: Final Model of the Serial Mediation of Academic Self-Discipline and Academic Self-Confidence in the Relationship among Personality Trait, Learning Style, and Academic Performance

Source: Field survey (2018); *Significantat.05level

The findings mean that the various traits or characteristics that make a student different from others, and also the various enduring and stable approaches that students use in gaining, processing and storing information, have a significant influence value on academic performance. However, this influence can be described as being not strong since the interventions of academic self-discipline and academic self-confidence will be required to strengthen it to enhance their academic performance significantly. That is, when students begin to believe that they can perform well in the field of academics, and also behave in a way that make them become determined in all what it takes to be academic abiding students, then their adopted personality trait and learning style stand to strongly influence their academic performance significantly.

The findings are in line with the views, submissions and findings of other researchers. However, there are few that do not corroborate the findings of this study. According to Aragon et al. (2012), many research findings in the social sciences, pedagogy and education, argue for the strong relationship between academic self-discipline and academic performance, with lack of discipline considered as a factor in declining academic performance. Ng and Rao (2012) aver that students who exhibit a high level of discipline end up developing a high level of confidence in their academic activities, and that is crucial to ensuring academic success. However, this goes together with a safe learning environment, cultural environment that retains the priority of knowledge and understanding the child's personality and giving great attention to the child's needs (Ng & Rao, 2012). Academic self-discipline and academic self-confidence are therefore, proposed as a mediating variables

between the individual's inherited abilities, their learning style and the opportunities afforded by the academic environment of higher education (Jeronimus et al., 2013).

The findings further support the views of Rimmerman (2016) who posits that personality trait and learning style are good influencing factors of students' academic performance. The point being established here is that if students perceive these variables in positive terms, it will help them in boosting their confidence level with regard to academic issues by first being academic self-disciplined. Therefore, enhancement of students' academic self-discipline through counselling programmes will in turn, make them more confident of themselves with regard to their academic work, which in the long run, will also help improve their academic performance significantly. This means that students are to be assisted through counselling programmes to learn to be academically self-disciplined. Besides, they must also be assisted not only to see the need to exert some level of effort in their academic work but also be conscientious to develop academically. This will no doubt help to boost their academic work, and through that a significant increase in their academic performance can be realised.

In addition, Koseoğlu (2016) also examined the extent to which the big five model and learning style can influence academic achievement, and indicated that personality trait and learning style play defining roles in shaping academic achievement. Conscientiousness and agreeableness, two of the Big Five personality trait, related positively to all the four facets learning style. Again, Koseoğlu has found out that the results of the Big Five personality trait explained 17 percent of the variance in grade point average and learning style

added five percent, indicating that both contribute to academic performance. This suggests that when students process information thoroughly and meticulously, and combine such an approach with intellectual curiosity, their academic performance will be enhanced.

According to Corbin (2017), behaviours that spring from discipline entail perseverance, meeting time schedules, goal-setting and planning for goal achievement and completion of unpleasant tasks. These characteristics of academic self-discipline have a positive influence on students' academic performance (Corbin, 2017). This implies that a well behaved academic self-discipline student is most likely to perform academically as against discipline problem students, since that behaviour of any problem student is a potential factor to contribute to a decline in his or her academic performance.

However, the findings do not corroborate the submissions and findings of Furnham et al. (2009), Rimmerman (2016) and Guntern et al. (2017). Furnham et al. (2009) conclude based on the findings of their study that learning style and personality trait do not directly influence students' academic performance, but rather it is the intelligence of the students that influences academic performance significantly. However, the study established that personality trait and learning style adopted by students are largely determined by their level of intelligence. Rimmerman's (2016) focused on finding out whether personality trait and learning style influenced performance in distance education. Even though, the study found out that personality trait and learning style do not influence students' academic performance significantly, there was a moderate relationship between the independent and dependent variables.

Also, Guntern et al. (2017) convey diverse results about the association between personality trait, academic success and learning style among medical students. They reported that the personality trait; conscientiousness and openness to experience correlated significantly with academic performance and learning style. On the other hand, there was no significant influence of personality trait and learning style on academic performance, according to their findings. This shows that students need academic guidance and counselling in general, since it can be of help to them to adjust to their learning process. In other words, students need guidance and counselling services since this can help them solve their emotional, social, financial, mental, academic, time management, work, and home/family problems effectively, which in the long run, can also help enhance their academic performance.

In addition, the results show that DBE students of the college encounter more psycho-social problems which can subsequently, affect their academic progress. Therefore, there is the need for an effective counselling programme that targets students' personality trait, learning style, academic self-discipline and self-confidence in order for them to develop thoroughly, resulting in their abilities to pursue their studies unimpeded. The findings are in line with the assertion of Rashid (2015) who posits that the challenges faced by distance learners can be narrowed or eliminated through effective implementation of support services such as counselling, to meet these needs of students. This can take the form of counselling through various media.

Counselling students to be aware and appreciate their strengths and weaknesses, with regard to their respective personality trait and learning style,

can help them develop positive academic self-discipline and self-confidence. Consequently, this can help them to know themselves better, and also be in positions of finding effective and enduring solutions to their daily issues. Again, guidance and counselling programmes can be of help to students to develop life skills needed to deal with problems before they occur, and enhance personal, social and academic growth (Jumana & Meera, 2016).

Chapter Summary

The chapter presents results and discussion regarding the influence of personality trait and learning style on students' academic performance. The results have been presented with their associated explanations. With the help of tables, the study analysed and presented the quantitative data using both descriptive and inferential statistics. The results show that openness to experience, extroversion and conscientiousness are the most significant personality trait demonstrated by students. Also, read/write and visual are the most demonstrated learning style exhibited by students. The results further show that gender and age have significant effects on students' personality trait. Unlike gender, age was found to influence learning style of students.

Furthermore, the findings show that personality trait and learning style are positively related to students' academic performance. With regard to the regression analysis, the results in the first model revealed that personality trait and learning style explained 24.7 percent of the variance in influencing students' academic performance, with read/write (31.7%), visual (10.0%), and conscientiousness (9.6%) being the strongest explanatory variables that significantly influenced students' academic performance. The results in the second and third models when academic self-discipline and self-confidence

were introduced as mediating variables showed that the rates of increase were 29.6 percent and 38.1 percent respectively.

This means that the explanatory powers of the independent variables in influencing students' academic performance are shared with the mediating variables. With the exception of neuroticism, conscientiousness, and visual learning style, the other variables had a significant indirect effect on academic performance through academic self-discipline and self-confidence. Whereas conscientiousness had a significant indirect effect on academic performance through academic self-confidence alone, visual learning style had significant indirect effect on academic performance through academic self-discipline.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

In this chapter, a summary of the study, the conclusions drawn as well as recommendations made, are presented. The contributions of the study to knowledge and suggestions for further research have also been presented.

Summary

The summary of the study comprised two parts. The first part focused on the overview of the study while the second part focused on the key findings.

Overview of the Study

Generally, the study investigated the influence of personality trait and learning style on academic performance of DBE distance learners of UCC, taking into consideration, the mediating effects of academic self-discipline and academic self-confidence. The position of the study on truth and reality as explained earlier through engagement with the literature influenced the adoption of the quantitative approach to this study. The descriptive survey design was adopted for the study.

Currently, the diploma level of CoDE, UCC, has a student population of 28602. The target population for the study was all DBE students of the college while the accessible population was all level 200 DBE students who were 9,534 in number. The sample size for the study was 763. The study employed probability and non-probability sampling techniques in the selection of respondents. Specifically, the stratified sampling procedure that makes use of the random number method of simple random sampling technique was used

to select the respondents, after using the proportional sampling technique to sample 8.0% of the population, based on the regional stratum. The table of random sampling numbers that was designed and formulated by the researcher, using Microsoft Excel tool, was used to select the respondents based on the stratum. The study made use of both primary and secondary data.

Questionnaire was used to collect data from the respondents. In order to ensure the validity and reliability of the instrument that were used for the study, a pilot study was carried out. The Cronbach's alpha of the questionnaire generated with regard to the variables were within the range of 0.700 – 0.884. The various ethical issues considered by the IRB of UCC, were adhered to, as expected. In addition, the researcher maintained objectivity, presented the true research findings, used the research results for academic purposes only, as outlined in the research protocol of the IRB of UCC.

The data were analysed using both descriptive and inferential statistics. Specifically, data on the background characteristics of the respondents were analysed, using descriptive statistics, such as frequency counts and percentage distributions while that of the first research question of the study was analysed, using means and standard deviations. The independent sample t-test was also used to analyse data regarding the second research question while one-way multivariate analysis (MANOVA) and one-way between groups ANOVA were used to analyse the third research question. With regard to the first and second hypotheses of the study, the Pearson product moment correlation was used to analyse the data in order to test them. Lastly, data regarding the third hypothesis of the study, were analysed using hierarchical

multiple regression analysis together with serial multiple mediation analysis. The key findings that emerged from the study were as follows:

Key Findings

The first research question of the study examined students' personality trait and learning style. The key findings that emerged were:

1. In relation to BFM, DBE students of CoDE, UCC demonstrated that they exhibit more of openness to experience and extroversion than the other personality trait.
2. Generally, respondents have significant level of consistent traits which makes them different from others.
3. Respondents have different factors that allow them to gain, process, and store information differently.
4. DBE students of the college prefer using read/write learning style.
5. Respondents indicated further that they used visual learning style in their learning process. However, kinaesthetic learning style was the least learning style used by the students.

The second and third research questions of the study ascertained the effects of gender and age differences between students, with regard to their personality trait, learning style and academic performance. The main findings that emerged were:

1. There was a statistically significant gender difference in male and female students, with regard to their extroversion traits.
2. The kind of learning style used by DBE students of the college, were not influenced by gender of students.

3. Similarly, gender had no effect on students' academic self-discipline, academic self-confidence, and academic performance.
4. Age had no influence on students' learning style. Also, age did not influence academic performance. In relation to their personality trait, the results showed that there was a statistically significant difference among the various age groups.

The first and second hypotheses examined the relationship between students' personality trait, learning style and academic performance. The key findings that emerged were:

1. All the five dimensions or types of personality trait had positive and significant relationships with students' academic self-discipline, self-confidence and academic performance.
2. There was a strong, moderate and statistically significant relationship between personality trait and students' academic performance.
3. There was a moderate, positive and statistically significant relationship between learning style and students' academic performance.
4. Specifically, the results showed that read/write and visual learning style were strongly and moderately related to students' academic performance respectively. Also, there were moderate and positive relationships between aural/auditory and kinaesthetic learning style and students' academic performance.

The third hypothesis tested the mediation effect of personality trait and learning style on academic performance through academic self-discipline and self-confidence. The main findings that emerged were:

1. The variables that influenced students' academic performance significantly, in order of importance, were read/write, visual, conscientiousness, kinaesthetic, aural/auditory, openness to experience, and neuroticism.
2. With the exception of neuroticism, all the entered variables in the first model that were statistically significant, contributed positively to students' academic performance. However, agreeableness was not significant in the first model.
3. The total contribution of personality trait and learning style to the variance in students' academic performance was 34.7 percent.
4. Dimensions of learning style such as read/write, visual, aural/auditory and kinaesthetic contributed 37.7 percent, 24.2 percent, 23.7 percent, and 10.6 percent respectively.
5. Also, academic self-discipline and academic self-confidence contributed 14.6 percent and 30.4 percent respectively.
6. With regard to the five dimensions of personality trait, they were all statistically significant. However, they contributed less than 10 percent each to students' academic performance.
7. Neuroticism contributed negatively to academic performance.
8. Learning style contributed more to students' academic performance than personality trait.
9. Furthermore, the mediating variables: academic self-discipline (14.6%) and academic self-confidence (30.4%) contributed meaningfully in boosting students' academic performance. This shows that students'

academic self-discipline and self-confidence are significant factors that help in boosting their academic performance.

10. The total contribution (R^2) of the variables when both mediating variables were considered was 0.797, while the adjusted R^2 increased to 0.784.
11. With the exception of neuroticism, conscientiousness, and visual learning style, the other variables had a significant indirect effect on academic performance through academic self-discipline and self-confidence. Whereas conscientiousness had a significant indirect effect on academic performance through academic self-confidence alone, visual learning style had significant indirect effect on academic performance through academic self-discipline.

Conclusions

From the findings of the study, the following conclusions are drawn: First, the researcher concludes that openness to experience traits that students demonstrate has a significant influence on their academic performance more than any of the constructs of personality trait. This means that all things being equal, students of this calibre will always perform above average. This is so, because they have the ability to entertain new ideas and also, think outside the box. In relation to learning style, the students prefer using read/write and visual learning style which also have a significance influence on their academic performance more than any of the remaining constructs. However, kinaesthetic learning style is the least learning style used by the students.

Secondly, the gender of students has no influence on their personality trait and learning style. Also, gender has no effect on students' development of positive behaviours that make them academically discipline students.

Likewise, the belief that students have that they can perform well in the field of academics is not influenced or determined by their gender. Similarly, gender has no effect on the outcome of education with regard to DBE students of CoDE, UCC.

Thirdly, the various consistent traits or characteristics of the students, which make them different from others, are slightly influenced by their age group. That is, older students have greater level of dealing with new information, as well as how they view situations, than the younger ones. Fourthly, the study can also conclude that there is a significance relationship between personality trait and learning style, and students' academic performance. Besides, all the five dimensions of personality trait of students have significance relationship with their academic self-discipline, academic self-confidence and academic performance. This is to say that the greater the consistent level of individual traits, the more he or she performs well in his or her academic activity. Similarly, the greater the individual difference factors that represent enduring and stable approaches to gaining, processing, and storing information, the more students' performance is strongly influenced especially when the mediating variables are taken into consideration.

Lastly, the study concludes that the various traits or characteristics that make a student different from others, and also the various enduring and stable approaches that students use in gaining, processing and storing information have a significant influence on students' academic performance. However, this influence cannot be described as a strong one especially in the absence of the mediating factors. This explains that when students begin to believe that they can perform well in the field of academics, and also behave in a way that make

them become focus in all what it takes to be academic abiding students, then their adopted personality trait and learning style taking into consideration, the effects of the mediating variables, will strongly influence their academic performance. This suggests that the cause of unsatisfactory performance of students cannot be completely attributed to their personality trait and learning style.

Recommendations

Based on the key findings and conclusions drawn for this study, the under listed recommendations are made to enhance students' personality trait, learning style and academic performance through counselling service.

1. The findings that emerged from the first research question of the study indicated that students' personality trait and learning style influence academic performance. Therefore, the study recommends to the management of the College to embark on series of workshops on students' personality trait and learning style for regional resident tutors, centre coordinators and course tutors. This will aid them to become very sensitive to these influencing variables, and help students to develop them well to increase performance on the programme.
2. The Counselling Unit of the College should introduce the use of self-reporting instruments to students and encourage them to use as and when they deem it fit. This will enable the unit to be aware of counselling needs of students especially the influencing variables (personality trait and learning style). This recommendation will be successful in its implementation if pre-counselling service is effectively delivered during orientation for freshmen.

3. It is also recommended that all the regional study centres should have one well-staffed Counselling Unit to serve students in all the study centres in the region. If this recommendation is given the needed attention, it will go a long way to improve students' performance on the programme as their psychological and academic needs can be effectively identified and attended to through counselling.
4. It is again recommended to the Counselling Unit of the College to ensure that much attention is paid to academic self-discipline and academic self-confidence of students since they have the capacity to boost academic performance of students in the College.
5. Finally, it is recommended to the course tutors of the College to be very sensitive to individual disparities, and be guided by it in their facilitation in class.

Implications for Counselling

1. Students who exhibit a high level of openness have the willingness to learn new things, consider new ideas and have an open mind in general. Besides, Rimmerman (2016) opines that distance learners with high openness to experience are most likely to be fond of learning, enjoy arts work and engage in creative career or hobby. A student of CoDE, UCC with this trait can be assisted through counselling to understand and appreciate his or her trait, and to read from other sources for more information and ideas to enrich his or her understanding of the contents of the modules they use. It can also enrich their discipline and confidence level, thereby boosting their academic performance.

2. Conscientious students concentrate on a couple of goals and strive hard to achieve them. Since in career counselling, it is worth knowing that students with high conscientiousness are most likely to excel in leadership positions, and to doggedly pursue their goals with determination and forethought, it will be prudent to encourage them through counselling to take up leadership positions in the college and even beyond, that is after schooling. They can also be encouraged through counselling to set up very high academic goals and strive hard to achieve them.
3. In relation to agreeableness, Poropat (2014) avers that this factor concerns how well people get along with others. The two main facets of this trait, according to Poropat (2014), are cooperativeness and empathy, which refer to consideration to other people's needs and "politeness", also referring to kindness, civility and trust. Poropat (2014) further asserts that more agreeable students tend to be extrinsically motivated due to a better compliance with educational instruction. Relating this to CoDE students will imply to a Counsellor that encouraging students of this trait through counselling to form study groups will help them a lot in their academic work as they can have their study habits improved. Also, they can be assisted through counselling to learn sharing ideas and educational materials with course mates and other friends to enrich their intellectual horizon.
4. Neurotic students express the tendency to experience negative or unpleasant emotions such as fear, sadness, embarrassment, nervous, anxiety and guilt among others. For counselling implication, students of such calibre can be assisted through counselling to allay the fear and

anxiety of writing both quizzes and examinations. Assisting such students in this direction through counselling will go a long way to help them make good grades in examinations.

5. With regard to aural/auditory learners, they prefer to hear whiles learning. In other words, they take in information best when it is spoken or heard. This therefore implies to a Counsellor that students of this calibre turn to enjoy activities which involve discussions, story-telling and any other speaking activity. For this reason, directive as against non-directive form of counselling should be used when counselling them since that approach demands much talking from the Counsellor (counsellor-centred) as against the client (client-centred), where he/she does much talking in counselling session.
6. Students who are known to demonstrate read/write learning style in their learning process are perceived to learn better through reading/writing. In other words, they have the ability to read at length and reproduce it in a form of summary in writing. For a Counsellor, it implies that such students do not usually rely or depend solely on their course tutors as the only source of knowledge, but rather, prefer reading wide from other sources for more information. In line with this, they can be assisted through counselling to have access to where very relevant books and other educational materials can be located in the university.
7. In relation to visual learners, they have been identified as those who are typically proficient in pattern recognition (Blickle, 2016). They learn better when they see what they are learning. This means that the use of teaching/learning materials in facilitating face-to-face in the college must

be given serious considerations since its effectiveness can produce results among students. Counsellors have to consistently insist on this to enhance performance of visual learners in the college. Also, because visual learners often doodle or scribble, and are good in taking down notes in class, Counsellors are to provide such students with writing materials (pen & paper) if possible, when counselling. Counselling, in most cases should be directive to enable such students take down notes for reference.

Contribution to Knowledge

Generally, within the context of doctoral research, an original contribution to knowledge is a very shaded term since it does not mean an enormous breakthrough, but rather to demonstrate that one has a good grasp of how research is normally conducted in a proposed area of study being specialised in. According to Creswell (2014), the ability of any research to contribute to knowledge could be displayed in four key areas. These are developing a concept, thinking through the methodology, building on an existing study and being able to change directions. In this regard, this study can be seen as generally, building on existing studies to add to knowledge in the field of counselling with regard to selected constructs such as personality trait, learning style, academic self-discipline and self-confidence.

Among the modest contributions made by this study in that area is that the findings from earlier studies reviewed, show that personality trait and learning style of distance learners, influence academic performance. However, the present study introduced two new dimensions by treating academic self-discipline and self-confidence as mediators and boosters in strengthening the influence.

Again, the findings suggest that institutions of higher education should develop and implement teaching and learning initiatives which focus on improving the quality of students' personality trait and learning style. Research into the relationship between personality trait and learning style will in the light of the results of this study, constitute a fundamental aspect of student learning requiring practical development. Also, by creating students' awareness of their own personality trait and learning style, it becomes possible to encourage stylistic versatility, and by making clear of the difference between the various personality trait and learning style. Through this, the students will be better placed to monitor their own intellectual progress, and consequently deal appropriately and effectively with academic demands.

Furthermore, the findings also make a significant contribution to knowledge in the area of intervention and facilitation of courses in class. The findings presented in the study, suggest that interventions in the form of practical study skills courses or modules are unlikely to succeed due to the difficulties in motivating the more expedient students to adopt study behaviours requiring perseverance and conscientiousness. Arguably, it may be more useful to encourage these students to develop their conceptual skills and broaden their 'abstract orientation' as a means of encouraging them to adopt deep learning behaviour.

Suggestions for Further Research

The main purpose of this study was to investigate the influence of personality trait and learning style of UCC distance learners' on their academic performance, taking into consideration the mediating effects of academic self-discipline and academic self-confidence. The researcher could

not extend the study to cover university regular students in UCC. For this reason, the researcher recommends further studies to expand the scope of this study to include regular students in UCC and other private and public universities as well.

Additionally, it is worthwhile for future research/further studies by other graduate students and researchers to focus on other equally important mediating variables, such as parenting style and socio-economic status, which can explain the relationship between personality trait and learning style, and academic performance, especially for students who are dominated by neurotic trait. This is because less evidence was found on the effect of neurotic personality trait on academic performance through academic self-discipline and self-confidence.

Chapter Summary

The chapter presents a comprehensive overview of the entire thesis work which focuses on the influence of personality trait and learning style on students' academic performance, focusing on CoDE, UCC students. The chapter begins with an overview of the study, which includes the purpose, and the research methods employed. It also summarises the key findings of the study, followed by the conclusions from the results discussed in the results and discussion section. The chapter ends with some recommendations and implications for counselling based on the key findings, contribution to knowledge and above all, suggestion for further research.

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APPENDICES

APPENDIX A

SAMPLE OF RANDOM NUMBER TABLE GENERATED FOR UPPER-EAST REGION

67	62	108	98	83	51	102	136	123	72	169	46	128	130	41	134	161	**16**	111	154	37	69	167	124	184	64
217	162	147	148	121	174	28	196	160	103	223	120	173	192	69	93	183	26	216	30	46	158	217	76	214	237
213	**19**	68	45	43	199	227	126	211	210	176	159	145	203	230	197	113	212	90	139	27	161	86	225	156	**1**
232	**5**	33	171	246	185	28	29	177	82	83	47	54	93	67	73	152	43	173	213	136	**16**	42	242	100	118
40	56	172	40	153	236	228	162	31	31	150	225	206	220	223	**9**	131	83	110	80	70	241	227	63	76	94
81	213	117	70	25	194	206	83	211	90	**6**	34	62	213	121	163	51	178	221	109	63	76	26	241	148	245
171	67	116	113	**18**	221	175	42	48	37	57	64	72	119	200	**8**	78	196	205	225	90	57	**10**	29	166	22
193	229	241	222	84	85	67	72	50	211	236	23	167	80	70	120	185	**11**	35	214	138	115	212	33	47	149
60	**20**	62	**14**	127	33	243	39	**16**	232	35	117	124	**17**	103	200	211	190	70	64	235	49	197	190	125	124
61	126	237	107	22	240	225	69	203	225	178	96	224	230	163	157	**4**	170	203	168	96	51	120	77	56	57
57	127	24	35	217	124	209	176	237	244	75	67	100	131	76	**1**	110	22	120	68	115	116	58	**12**	152	123
50	95	202	175	71	228	112	213	38	51	128	45	239	86	164	69	54	168	151	174	64	208	**14**	**16**	87	167

APPENDIX B

QUESTIONNAIRE FOR STUDENTS

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF GUIDANCE AND COUNSELLING

TOPIC: Influence of Personality trait and Learning style on Academic Performance of Distance Learners of University of Cape Coast, Ghana.

Dear Respondent,

This is a questionnaire that is meant for research purpose only. I know how busy you are, all the same, you will be contributing greatly to this study if you spend a little bit of your time to respond to the statements below as frankly as possible. Please be assured that every bit of information that is provided will be treated confidentially.

Thank you.

Please provide your index number to confirm your studentship: .....

Instructions: The following is a list of statements concerning students' personality trait, learning style, academic self-discipline and academic self-confidence. The items are categorised under five main sections i.e. A-E. For section A, tick where it applies to you. For sections B-E, kindly read each statement carefully and indicate the extent to which it applies to you by ticking (√) the column that best describes your choice. Each statement must be ticked (√) once only. Please note that one (1) represents the highest disagreement to the items while five (5) represents the strongest agreement to the items.

SECTION A: Background Characteristics of Respondents

1. Indicate your region of study:
   a. Brong-Ahafo [ ]
   b. Ashanti [ ]
   c. Eastern [ ]
   d. Volta [ ]
   e. Greater-Accra [ ]
   f. Northern [ ]
   g. Upper East [ ]
   h. Western [ ]
   i. Upper West [ ]
   j. Central [ ]

2. Gender of respondent:
   a. Male [ ]
   b. Female [ ]

3. Age of respondent:
   a. 18 – 21 years [ ]
   b. 21 – 25 years [ ]
   c. 26 – 30 years [ ]
   d. Above 30 years [ ]

SECTION B: Personality Trait

Statements on Students' Personality Trait	1	2	3	4	5
• I see myself as someone who always remains reserved in class.					
• I see myself as someone who has an assertive personality.					
• I see myself as someone who is outgoing and sociable.					
• I do not see myself as someone who feels shy to contact friends for academic assistance.					
• I see myself as someone who has enough energy for academic work.					
• I see myself as someone who perseveres until a task is completed in class.					
• I see myself as someone who draws plans and sticks to them.					
• I see myself as someone who gets disorganised easily when learning.					
• I see myself as someone who does things efficiently in academicals.					
• I see myself as someone who easily gets distracted when learning.					
• I see myself as someone who likes to cooperate with others in class.					
• I see myself as someone who learns well in the mist of others.					
• I see myself as someone who finds faults with friends upon non-performance in class test.					
• I see myself as someone who can be cold towards friends when not getting academic assistance from them.					
• I see myself as someone who learns well when I keep teaching my mates.					
• I see myself as someone who initiates new ideas to solve problems in class.					
• I see myself as someone who prefers work that is routine.					
• I see myself as someone who has an active imagination.					
• I see myself as someone who is curious about many different things.					
• I feel good in class with any little contribution I make.					
• I see myself as someone who can be moody for days.					
• I see myself as someone who often gets nervous in class.					
• I see myself as someone who remains calm in a tense situation.					
• I see myself as someone who is emotionally stable, not easily upset.					
• I see myself as someone who gets worried a lot about things.					

SECTION C: Learning Style

Statement on Students' Learning Style	1	2	3	4	5
• I seem to learn better when information is presented through words.					
• I learn with ease by watching programmes on computer or television.					
• I learn better when information is presented through pictures, charts and diagrams.					
• I learn better by seeing or visualizing.					
• I seem to keep things in mind and recall them better when I see them.					
• I learn better when I get involved in class discussions.					
• I enjoy learning by listening to discussions on tape.					
• Working in a group enhances my recalling ability of facts.					
• I memorize and recall better how words are spelt by spelling them "out loud" in my head.					
• I understand concepts and theories better from verbal explanations in class.					
• I learn with ease in class when I take down notes during face-to-face interactions.					
• I learn complex procedures in doing things by reading written directions.					
• I learn better by writing down important facts or points as tools for remembering them.					
• I learn new information better by reading about it in a text book.					
• I learn better when I am alone in a quiet place.					
• I recall facts with ease when I learn through demonstrations in class.					
• I usually learn without difficulties when I touch or manipulate objects.					
• I find it extremely difficult to concentrate if I sit still throughout a whole lesson in class.					
• I learn better by creating cards with notes and using them as a study tool.					
• I mostly learn better through trial and error.					

SECTION D: Academic Self-Discipline

Statements on Students' Academic Self-Discipline	1	2	3	4	5
• I always make sure to complete my class assignments on schedule.					
• I often set-goals and strive to achieve them in my studies.					
• I make sure to be present in class before a lesson begins.					
• I do not allow friends to disrupt my attention in class.					
• I always make sure to participate in class activities.					
• I always abide by rules and regulations in class to enhance my studies.					
• I avoid making/receiving calls when learning.					
• I set high academic standards at the beginning of every semester for myself and strive to achieve them.					
• I do not move out of class even when a teacher is being boring to my liking.					
• I prepare a personal timetable at the beginning of every semester to guide me in my studies.					

SECTION E: Academic Self-Confidence

Statements on Students' Academic Self-Confidence	1	2	3	4	5
• I can always manage to solve difficult problems in class if I try a little bit hard.					
• I am confident that I can deal efficiently with unexpected events.					
• I can solve most academic problems in class upon investing the necessary effort.					
• I can always succeed in passing class tests.					
• I satisfy my parents with my academic work.					
• I always pay attention during class hours.					
• I always succeed in finishing all my homework in good time.					
• I express my opinion(s) very well in argument to convince my course mates.					
• I can always maintain a leading position in class no matter the competition.					
• I always have the courage to ask questions in class to enhance my understanding of issue under discussions.					

THANK YOU

APPENDIX C

INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
FACULTY OF EDUCATIONAL FOUNDATIONS
DEPARTMENT OF GUIDANCE AND COUNSELLING

Telephone: 0332091854
Email: dgc@ucc.ecdu.gh

UNIVERSITY POSTOFFICE
CAPE COAST, GHANA

21st June, 2017

Our Ref:

The Chairman,
Institutional Review Board
U. C. C.
Cape Coast

Dear Sir,

LETTER OF INTRODUCTION: JOHN EKOW LARYEA

We introduce to you, Mr. John Ekow Laryea, a PhD Guidance and Counselling student from the Department of Guidance and Counselling, University of Cape Coast. He has successfully defended his proposal and seeks ethical clearance to collect data on **'Personality-Traits and Learning Styles of Students of College of Distance Education, University of Cape Coast'.**

We would be most grateful if you could provide him with the necessary assistance for ethical clearance for his study.

Thank you.

Dr. Bakari Yusuf Dramanu
HEAD OF DEPARTMENT

APPENDIX D

REQUEST FOR SUPPORT LETTER

College of Distance Education,
University of Cape Coast,
Cape Coast.

25th April, 2017.

The Head
Department of Guidance and Counselling
Faculty of Educational Foundation
College of Educational Studies
University of Cape Coast,
Cape Coast

Dear Sir,

REQUEST FOR AN INTRODUCORY LETTER

With special reference to the guidelines of the Institutional Review Board (IRB), University of Cape Coast, I, John Ekow Laryea a doctoral student of the department with registration number **ED/GCP/14/0018**, write to request for an introductory letter to IRB to enable me obtain an ethical clearance to administer my instruments (questionnaire and interview guide) in ten study centres of College of Distance Education (CoDE), University of Cape Coast. When given, it will enable me collect data for my thesis entitled **"Personality-Traits and Learning Styles as Predictors of Academic Performance of Students of College of Distance Education, University of Cape Coast, Ghana".**
I would be very grateful to you if prompt action is taken in the processing of this request to facilitate the data collection procedure.
I am counting on your usual cooperation.

Thank you.

Yours faithfully,

.....
Mr. John Ekow Laryea
Ph.D. Student (Department of Guidance and Counselling)

APPENDIX E

ETHICAL CLEARANCE

C/O Directorate of Research, Innovation and Consultancy

24TH AUGUST, 2017

Mr. John Ekow Laryea
Department of Guidance and Counselling
University of Cape Coast

Dear Mr. Laryea,

ETHICAL CLEARANCE –ID :(UCCIRB/CES/2017/24)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional Approval** for the implementation of your research protocol titled **'Personality-Traits and Learning Styles as Predictors of Academic Performance of Students of College of Distance Education, University of Cape Coast.'**

This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

Samuel Asiedu Owusu
Administrator

APPENDIX F

OUTPUT RESULTS

Personality Traits

Box's Test of Equality of Covariance Matrices[a]	
Box's M	130.010
F	2.808
df1	45
df2	50549.916
Sig.	.000
Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.	
a. Design: Intercept + A2	

Levene's Test of Equality of Error Variances[a]					
		Levene Statistic	df1	df2	Sig.
Extroversion	Based on Mean	2.399	3	675	.067
	Based on Median	2.328	3	675	.073
	Based on Median and with adjusted df	2.328	3	670.125	.073
	Based on trimmed mean	2.359	3	675	.070
Conscientiousness	Based on Mean	.856	3	675	.464
	Based on Median	.373	3	675	.772
	Based on Median and with adjusted df	.373	3	655.551	.772
	Based on trimmed mean	1.004	3	675	.390
Agreeableness	Based on Mean	.115	3	675	.951
	Based on Median	.136	3	675	.938
	Based on Median and with adjusted df	.136	3	666.854	.938
	Based on trimmed mean	.101	3	675	.960
Openness to Experience	Based on Mean	1.326	3	675	.265
	Based on Median	.327	3	675	.806
	Based on Median and with adjusted df	.327	3	633.295	.806
	Based on trimmed mean	1.276	3	675	.282
Neuroticism	Based on Mean	9.377	3	675	.000
	Based on Median	8.250	3	675	.000

	Based on Median and with adjusted df	8.250	3	662.399	.000
	Based on trimmed mean	9.340	3	675	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2

Descriptive

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Conscientiousness	Less than 21 years	33	2.7212	.76802	.13369	2.4489	2.9935	1.80	4.40
	21-25 years	209	3.1732	.69701	.04821	3.0782	3.2683	1.80	5.00
	26-30 years	315	2.9917	.71387	.04022	2.9126	3.0709	1.00	5.00
	Above 30 years	122	3.0918	.73951	.06695	2.9593	3.2244	1.00	5.00
	Total	679	3.0524	.72272	.02774	2.9980	3.1069	1.00	5.00
Agreeableness	Less than 21 years	33	2.7879	.69451	.12090	2.5416	3.0341	1.60	4.20
	21-25 years	209	3.2067	.78554	.05434	3.0996	3.3138	1.40	5.00
	26-30 years	315	3.0660	.78421	.04419	2.9791	3.1530	1.00	5.00
	Above 30 years	122	3.2230	.79177	.07168	3.0810	3.3649	1.00	5.00
	Total	679	3.1240	.78721	.03021	3.0647	3.1833	1.00	5.00
Openness to Experience	Less than 21 years	33	2.7576	1.12334	.19555	2.3593	3.1559	1.20	4.20
	21-25 years	209	3.4890	.99185	.06861	3.3537	3.6243	1.20	5.00
	26-30 years	315	3.4825	.99875	.05627	3.3718	3.5933	1.20	5.00
	Above 30 years	122	3.5197	.92769	.08399	3.3534	3.6860	1.20	5.00
	Total	679	3.4560	1.00103	.03842	3.3805	3.5314	1.20	5.00

Multiple Comparisons

Bonferroni

Dependent Variable	(I) Age of respondent	(J) Age of respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Conscientiousness	Less than 21 years	21-25 years	-.45199*	.13413	.005	-.8069	-.0971
		26-30 years	-.27053	.13102	.236	-.6172	.0762
		Above 30 years	-.37059	.14050	.051	-.7424	.0012
	21-25 years	Less than 21 years	.45199*	.13413	.005	.0971	.8069
		26-30 years	.18146*	.06388	.028	.0124	.3505
		Above 30 years	.08140	.08159	1.000	-.1345	.2973
	26-30 years	Less than 21 years	.27053	.13102	.236	-.0762	.6172
		21-25 years	-.18146*	.06388	.028	-.3505	-.0124
		Above 30 years	-.10006	.07636	1.000	-.3021	.1020
	Above 30 years	Less than 21 years	.37059	.14050	.051	-.0012	.7424
		21-25 years	-.08140	.08159	1.000	-.2973	.1345
		26-30 years	.10006	.07636	1.000	-.1020	.3021
Agreeableness	Less than 21 years	21-25 years	-.41882*	.14648	.026	-.8064	-.0312
		26-30 years	-.27815	.14308	.314	-.6567	.1004
		Above 30 years	-.43507*	.15343	.028	-.8411	-.0291
	21-25 years	Less than 21 years	.41882*	.14648	.026	.0312	.8064
		26-30 years	.14067	.06976	.265	-.0439	.3253
		Above 30 years	-.01625	.08909	1.000	-.2520	.2195

	26-30 years	Less than 21 years	.27815	.14308	.314	-.1004	.6567
		21-25 years	-.14067	.06976	.265	-.3253	.0439
		Above 30 years	-.15692	.08339	.362	-.3776	.0637
	Above 30 years	Less than 21 years	.43507*	.15343	.028	.0291	.8411
		21-25 years	.01625	.08909	1.000	-.2195	.2520
		26-30 years	.15692	.08339	.362	-.0637	.3776
Openness to Experience	Less than 21 years	21-25 years	-.73142*	.18555	.001	-1.2224	-.2404
		26-30 years	-.72496*	.18125	.000	-1.2046	-.2454
		Above 30 years	-.76210*	.19437	.001	-1.2764	-.2478
	21-25 years	Less than 21 years	.73142*	.18555	.001	.2404	1.2224
		26-30 years	.00646	.08838	1.000	-.2274	.2403
		Above 30 years	-.03068	.11286	1.000	-.3293	.2680
	26-30 years	Less than 21 years	.72496*	.18125	.000	.2454	1.2046
		21-25 years	-.00646	.08838	1.000	-.2403	.2274
		Above 30 years	-.03713	.10563	1.000	-.3166	.2424
	Above 30 years	Less than 21 years	.76210*	.19437	.001	.2478	1.2764
		21-25 years	.03068	.11286	1.000	-.2680	.3293
		26-30 years	.03713	.10563	1.000	-.2424	.3166

*. The mean difference is significant at the 0.05 level.

Learning Style

Box's Test of Equality of Covariance Matrices[a]	
Box's M	96.584
F	3.147
df1	30
df2	54020.351
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + A2

Levene's Test of Equality of Error Variances[a]					
		Levene Statistic	df1	df2	Sig.
Visual	Based on Mean	3.511	3	675	.015
	Based on Median	2.530	3	675	.056
	Based on Median and with adjusted df	2.530	3	669.216	.056
	Based on trimmed mean	3.305	3	675	.020
Aural/Auditory	Based on Mean	4.134	3	675	.006
	Based on Median	2.756	3	675	.042
	Based on Median and with adjusted df	2.756	3	641.458	.042
	Based on trimmed mean	3.695	3	675	.012
Read/Write	Based on Mean	5.715	3	675	.001
	Based on Median	4.722	3	675	.003
	Based on Median and with adjusted df	4.722	3	657.694	.003
	Based on trimmed mean	5.321	3	675	.001
Kinaesthetic	Based on Mean	4.648	3	675	.003
	Based on Median	4.623	3	675	.003
	Based on Median and with adjusted df	4.623	3	655.016	.003
	Based on trimmed mean	4.646	3	675	.003

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + A2

Descriptive

Read/Write

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Less than 21 years	33	3.8848	.56796	.09887	3.6835	4.0862	2.20	5.00
21-25 years	209	3.8603	.82927	.05736	3.7472	3.9734	1.40	5.00
26-30 years	315	3.8584	.76409	.04305	3.7737	3.9431	1.40	5.00
Above 30 years	122	3.5656	.91080	.08246	3.4023	3.7288	1.20	5.00
Total	679	3.8077	.81088	.03112	3.7466	3.8688	1.20	5.00

Multiple Comparisons

Dependent Variable: Read/Write

Bonferroni

(I) Age of respondent	(J) Age of respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 21 years	21-25 years	.02456	.15073	1.000	-.3743	.4234
	26-30 years	.02644	.14723	1.000	-.3631	.4160
	Above 30 years	.31927	.15789	.261	-.0985	.7371
21-25 years	Less than 21 years	-.02456	.15073	1.000	-.4234	.3743
	26-30 years	.00187	.07179	1.000	-.1881	.1918
	Above 30 years	.29471*	.09168	.008	.0521	.5373
26-30 years	Less than 21 years	-.02644	.14723	1.000	-.4160	.3631
	21-25 years	-.00187	.07179	1.000	-.1918	.1881
	Above 30 years	.29284*	.08581	.004	.0658	.5199
Above 30 years	Less than 21 years	-.31927	.15789	.261	-.7371	.0985
	21-25 years	-.29471*	.09168	.008	-.5373	-.0521
	26-30 years	-.29284*	.08581	.004	-.5199	-.0658

*. The mean difference is significant at the 0.05 level.