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RELATIONSHIP BETWEEN LEARNING STYLE AND ACADEMIC ACHIEVEMENT AMONG SECONDARY STUDENT IN WARRI SOUTH LOCAL GOVERNMENT AREA OF DELTA STATE

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ABSTRACT: The current study investigated the extent of relationship between learning style and academic achievement among secondary school student in Warri South Local Government Area of Delta State. To guide the study, 4 research questions and their corresponding null hypotheses were stated. The correlational research design was adopted for the study using a sample of 250 secondary school students drawn through proportional stratified sampling technique. 2 instruments were used for data collection which are the Learning Style Scale (LSS) and showed that the instruments possessed adequate psychometric qualities. For data analyses, that collaborative learning style has the greatest relationship with student's academic achievement, while avoidant learning style had a negative relationship with academic achievement. On the basis of the result, appropriate recommendations were made.

INTRODUCTION

Despite huge investment in education by the Nigerian Government, Abdusalami (20009:91) states that "in court of public opinion and professional stakeholders there is unanimous verdict in that the outcome is not commensurate to the investment". According to Duze (2011), this failed outcome is common across all tiers of education. In a metaphorical term, he stated that "a malnourished primary level brews a kwashiorkor secondary level that culminates in to a comatose tertiary level" (pi). This challenge has therefore necessitated the research into factors influencing academic achievement of students.

Academic achievement is defined as the extent to which students have attained the educational objectives of their level. One of the most commonly cited factor responsible for students' academic achievement is cognitive ability or what is popularly called Intelligence Quotient (IQ). However, Aremu and Oluwole (2001) have revealed that some non-cognitive factors also influence or contribute to students' academic achievement. Some of these factors identified include student-teacher relationship, personality, study habit, school readiness, family background, demographic characteristics, motivation, learning style of students, teachers' competence and instructional materials. Learning style is the primary focus of this study.

Many educators are becoming aware of the need to incorporate students' learning styles in the academic achievement discussion. There is an increasing emphasis on embracing the learning style of students as instructions are developed and delivered (Honigsfed & Dunn, 2006). The rationale here is that once an individual's learning style has been identified and nurtured, the individual is better equipped with the tools to function effectively in the school environment as well as satisfy his/her intellectual and emotional needs. The idealogy of learning style was adopted to incorporate the multiple ways people prefer to access and process information from the physical, emotional and social environment.

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Learning style is a way in which individual begin to concentrate, process, internalize and retain new information. Fleming (2001) who propounded the VAK model of learning style defined it as an individual's characteristic and preferred way of gathering, organizing and thinking about information Keefe in Baykul (2010) defined learning style as the cognitive, emotional and psychological features that are indicators of how learners, perceive the learning environment, how they interact with it and how they react to this environment.

This study is geared towards examining the different learning styles as identified by the Grasha-Richmann model. Grasha (1996) defines learning style as a child's preference in thinking and interacting with other children in different classroom environment and experiences. Grasha (1996) separated students into four groups: avoidant, collaborative, competitive, and dependent. This model is adopted for this work as it related to the practical every day experience of the child in the classroom.

Avoidant learners are not so enthusiastic about learning and taking part in classroom activities. Generally, they do not join their teacher and other students, they usually act indifferently to what is happening in the classroom. Collaborative students like sharing their ideas and studying with their teachers and classmates. These students expand their knowledge in group and team work. They prefer lectures with small group discussions and group project. Competitive students learn in order to perform better than their peers do to receive recognition for their academic accomplishment. They like to attract attention and they want to be remembered by their success in the class. Finally, Dependent learners look to teachers and other authority figures to tell them what to do, they are seldom inquisitive and they only learn what is needed. They prefer structures developed by teachers and prefer an authority to tell them what to do. (Bukyal, 2010).

As stated previously, academic achievement of student has been extensively investigated by researchers in relation to learning style. Roslan (2010) investigated students' learning styles as correlates of academic achievement of Malaysian students. But so far to the best of the researcher's knowledge, no study has been conducted investigating how academic achievement is related with learning styles of students. It is against this background that the research was spurred to investigate how students' learning styles are related with their academic achievement in Warri South Local Government Area of Delta State.

STATEMENT OF THE PROBLEM

Amongst the goals of education is the inculcation of the right types of values and attitudes for the survival of the individual and the society and the acquisition of appropriate skills, abilities and competencies, both mental and physical, as equipment for the individual to live in and contribute to the development of his society. But despite the lofty educational goals, the reverse seems to be the case. The case of students performing poorly in standardized examination such as West African Senior School Certificate Examination (WASSCE), the ever present scourge of examination malpractice,, the high dropout rate of students especially after secondary school readily come to mind. Likewise, the nation's tertiary institutions churn out graduates annually that lack the rudimentary skills of independent living and contribution to society.

The above mentioned problems evident in the nation's education system calls for a prompt review of the standards and assumption that guides our national education philosophy and future prospects. It is this researcher's position that a neglected aspect of the whole questions on why students perform poorly within and outside school is because individual differences in such areas as motivation and learning style has not been adequately prioritized. Thus, teachers, administrators and parents view students as uniform, and therefore expect all to perform equally without taking into cognizance what motivates them and how they (students) approach learning experiences and environments.

This wholesale perspective has led to necessary comparison, which could be discouraging to some students, and cause them to become truants and even abandon schooling. This provides a window for them to engage in the earlier stated undesirable behaviour such as examination malpractice. It is true that individual

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differences exist between learners especially as regards motivation and learning style, it therefore becomes pertinent to understand how it predicts their academic achievement. The problem of this study therefore is to investigate how learning style of students is related to students' academic achievement.

Aim and Objectives of the Study

The aim of this study is to investigate how students' learning styles is correlated with their academic achievement in Warri South Local Government Area of Delta State. In specific terms, this study investigated:

1. Find out the relationship between avoidant learning style and students' academic achievement.
2. Find out the relationship between collaborative learning style and students' academic achievement.
3. Find out the relationship between competitive learning style and students' academic achievement
4. Find out the relationship between dependent learning style and students' academic achievement.

Research Questions

The following research questions were answered to obtain the findings or results of the study.

1. What is the relationship between avoidant learning style and students' academic achievement?
2. What is the relationship between collaborative learning style and students' academic achievement?
3. What is the relationship between competitive learning style and students' academic achievement?
4. What is the relationship between dependent learning style and students' academic achievement?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant relationship between avoidant learning style and students' academic achievement.
2. There is no significant relationship between collaborative learning style and students' academic achievement.
3. There is no significant relationship between competitive learning style and students' academic achievement
4. There is no significant relationship between dependent learning style and students' academic achievement.

CONCEPTUAL FRAMEWORK

Academic Achievement

Academic achievement refers to the outcome of education – the extent to which a student, teacher or institution has achieved their educational goals (Annie, Haward & Mildred, 1996). It could also be viewed as performance by individuals in the objectives related to various types of knowledge and skill. These objectives are social established based on the age, prior learning and capacity of individual with regard to education, socialization and qualification (McCombs & Marzano, 1990). Academic achievement could be seen as the quality of the performance in terms of test and class exercise with academic content. In other words, it is the attainment of a given standard of excellence or qualified standard of academic performance i.e. the extent or the degree of success an individual has in his/her studies. Academic achievement is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspect are most important – procedural, knowledge such as skills or declarative knowledge such as facts.

Achievement is a term which is probably more loosely used than any other in education. When we talk about achievement as a term, we may be referring to level of attainment in basic skills such as reading and mathematics or levels of attainment in a much wider range of school activities. Academic achievement as noted by Gipps (1990) is probably most often defined in terms of levels of standard in basic knowledge and skills and are therefore related to test scores and exam results. Individual differences in academic performance have been linked to difference in intelligence and personality. Students with higher mental ability as demonstrated by **IQ** test (quick learner) and those who are conscientiousness (linked to

effort and achievement motivation) tend to achieve highly in academic setting.

Learning style

According to Pashler, McDaniel, Rohrer, and Bjork (2009) learning style is growing in popularity. The popularity and prevalence of the learning-styles approach may be a product of its success in fostering learning and instruction. However, there are reasons to suspect that other factors- in addition to, or instead of, actual effectiveness- may play a role in the popularity of the learning- styles approach.

Most learning-styles taxonomies are "type" theories: That is, they classify people into supposedly distinct groups, rather than assigning people graded scores on different dimensions. The assumption that people actually cluster into distinct groups are measured by this test has received little support from objective studies (e.g., Druckman& Porter, 1991), but this lack of support has done nothing to dampen its popularity. It seems that the idea of finding out" what type of person one is" has some eternal and deep appeal and this has promoted the development of type-based learning-style assessments. Another very understandable part of the learning-styles idea may reflect the fact that people are concerned that they, and their children, be seen and treated by educators as unique individuals. It is also natural and appealing to think that all people have the potential to learn effectively and easily if only instruction is tailored to their individual learning styles.

The terms learning style and cognitive style are, on some occasions, used interchangeably, whilst at other times they are afforded separate and distinct definitions. Cognitive style is described by Allport in Cassidy (2004) as an individual's typical or habitual mode of problem solving, thinking, perceiving and remembering, while the term, learning style, is adopted to reflect a concern with the application of cognitive style in a learning situation (Riding & Cheema, 1991). Riding and Cheema (1991) go on to describe cognitive style in terms of a bipolar dimension (wholist-analytic) while learning style is seen as encompassing a number of components which are not mutually exclusive. It is also likely that cognitive style – at the very least – can be regarded as one significant component of learning style. Hartley (1998) provides the following definitions: cognitive styles are the ways in which different individuals characteristically approach different cognitive tasks; learning styles in which individuals characteristically approach different learning tasks.

Despite this difficulty in operationalizing the construct of learning style, effort would be made to present the definition sof some scholars on the meaning of learning style. Learning is lifelong process and is a continuous and never ending one. Learning style according to Felder and Silverman (1988) is the characteristic strengths and preferences in the ways individuals take in and process information. Dunn (1990) accordingly viewed it as the way in which an individual begins to concentrate on, process, absorb, and retain new and difficult information. In like manner, McLoughlin (1999) defined learning style as adopting a habitual and distinct mode of acquiring knowledge. Fleming (2001) who proposed the VARK Model similarly defined learning style as an individual's characteristics and preferred ways of gathering, organizing, and thinking about information. Duff (2004) also viewed it as the composite of characteristic cognitive, affective, and psychological factor that serves as an indicator of how an individual interact with and respond to the learning environment. According to Pashler et al (2009:106) "the term learning styles refers to the view that different people learn information in different ways," while Grasha (1996:41) defined learning styles as "personal qualities that influence a student's ability to acquire information, to interact with peers and the teacher, and otherwise participate in learning experiences. Based on the above learning style can be viewed as the variations in one's ability to accumulate as well as assimilate information. basically, one's learning style is the method that best allows one to gather and use knowledge in a specific manner. So, in a nutshell, an individual's learning style is the way an individual prefers to learn. It does not have anything to do with how intelligent you are or what skills you have learned. It has to do with how one's brain works most efficiently to learn new information.

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THEORETICAL FRAMEWORK

As stated previously most learning-styles taxonomies are "type" theories: That is, they classify people into supposedly distinct groups, rather than assigning people graded scores on different dimensions. One can trace the lineage of these theories back to the first modern typological theorizing in the personality field, which was undertaken by the psychiatrist and psychoanalyst C.G. Jung (1964).Jung's ideas were explicitly incorporated into a psychological test developed in the United States, the Myers-Briggs Type Indicator. This test became very popular starting in 1940s and remains widely used to this day. The Myers-Briggs categorizes people into a number of groups, providing information that is said to be helpful in making occupational decisions. Thus as stated Pashler et al (2009), this may be one of the reason for the proliferation of learning type models. According to a conservative estimate by Coffiel et al. (2004), over 71 models of learning style model or theories exist. In this section of this work, The Grasha-Reichman Learning Style Theory is briefly examined and their theoretical value presented. The theoretical review done below is by no means exhaustive, readers looking for in-depth review should consult Coffields et al (2004).

Grasha-Reichman Learning Style Model

Grasha and Sheryle Reichman developed the Grasha – Reichman Learning style model in 1984 to determine student style of classroom participation. This model focuses on student attitudes toward learning, classroom activities, teachers, and peers rather the studying the relationship among methods and achievement.

Grasha who was a teaching assistant then at the University of Cincinnati was earlier interested in styles that he thought to be negative (avoidant competitive and dependant). Based on this he conducted series of analysis, he proposed and has developed six styles students use in learning in actual classroom environment which are Avoidant Collaborative, Competitive, and Dependant.

Avoidant students, according to this model are often characterized as uninterested in attending class, do not enjoy participating with students and teachers in the classroom, and are generally turned off by classroom activities. Collaborative students enjoy sharing ideas with others, working with others and prefer a classroom with group class activities. Competitive students prefer to compete with other students and stimulating classroom discussion. Dependent students seek authority figures; prefer clear deadliness and instruction on assignments and like clear instruction with little ambiguity.

This model of learning style is distinct from previous models of learning style as "it is based on students' responses to actual classroom activities rather than on a more general assessment of personality of cognitive traits" (Montgomery & Groat, 1998, p.5) Students may have all six of the learning style but usually gravitate towards one or two of the styles.

This theory of learning style has been adopted as the framework of this study because of the following reasons. First, this model was developed and validated to be used for similar population of this study, and secondly, this model promotes understanding of learning styles in a broad context spanning six categories. Students possess all six learning styles to a greater or lesser extent. This type of understanding prevent learning style stereotyping and provides a rationale for pursuing personal growth and development in the under used learning style areas (Diaz & Cartnel, 1999). Finally, this model is based on actual and real classroom setting. The present study therefore is anchored on the Grasha-Reichmann learning style model and was chosen because most student possess vary degree of the learning style preference of these model and thus will respond to it.

EMPIRICAL REVIEW

Haynes (2012) conducted a study to investigate if differences exist in learning styles between students who select a traditional course delivery method versus a technology-enhanced course delivery method. Participants included 113 males and 195 females who were enrolled in a College of Business Principles of Marketing Course for non-business majors at a large university in the southeast. The students who were enrolled in the course completed an

online questionnaire including the Grasha-Reichmann Student Learning Style Scale (GRSLSS) and demographic questions. A casual-comparative research design was used to identify a cause-effect relationship between the two groups of students. Data analyses included a factorial multivariate analysis of variance (MANOVA) and analyses of variances (ANOVAs). Results from this study indicated a significant difference in course delivery methods and gender across all learning styles and no interactions between course delivery methods and gender. ANOVAs revealed a significant difference between the independent, avoidant, dependent, and participant learning styles between students who enrolled in the traditional and technology-enhanced course delivery methods. Students who enrolled in the traditional course delivery method had more of a dependent and participant learning style and students who enrolled in the technology-enhanced course delivery method had more of an independent and avoidant learning style.

Court and Molesworth (2003) studied second year undergraduate Marketing Communication students using three of the six GRSLSS learning styles, including dependent, independent, and collaborative. They used both quantitative and qualitative research methods to gather data. A questionnaire was used to assess the learning styles of 157 second year undergraduate marketing communication students. Interviews with a small sample of students were conducted to explore deeper information not obtained through the questionnaire. Most online students were dependent learners. They preferred precise direction, their notes contained most of the information given to them in class by a tutor, they wanted detailed notes and hand-outs to reduce ambiguity, and over half of the students relied on lecturers to tell them what they needed to know. These students also preferred highly organized sessions and wanted close supervision on course projects. The information about the students was similar to what Grasha noted as having a dependent learning style.

The study conducted by Susan, Suntonrapot and Juruwan (2011) was designed to investigate the learning style of students and how it influence mathematics achievement of public school students in Thailand, with a sample of 508 students. Data was collected through the learning style scale, while descriptive statistics and exploratory factorial analysis was used for data analysis. A coefficient of 0.38 was obtained which indicated that learning style positively influences mathematics academic achievement.

On the contrary, Majid (2011) who investigated the relationship between learning style, locus of control and academic achievement found no relationship between learning style and students' academic achievement among 700 Iranian students drawn through simple random sampling technique. For his study, he utilized a correctional research design, while data was collected using Kolb-Learning Style Questionnaire. Data analysis was done with Pearson product moment, multiple regression and analysis of variance.

Khalid et al (2013) conducted a study which aims to if students' learning styles influences the academic achievement of 100 students' in the arts and science streams in the northern part of

West Malaysia. To measure learning styles, six dimensions from the GRLSS (Grasha-Riechmann Learning Styles Scale) that are free style, avoidance, cooperation, dependent, competition, and participation will be used as the factors, while final exam sat for by the students in Form Five and Four were used for academic achievement data. The data was analyzed and interpreted using descriptive and inferential statistics o SPSS ver. 19. 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. The Pearson Correlation analysis showed no significant relationship between learning styles as a whole with academic achievements, except for avoidance. The main findings also showed no significant relationship between learning styles and academic achievements.

Uzuntiryaki (2007) investigated the effect of students' learning styles on their chemistry achievement, and whether matching between teaching and learning style also affects students' chemistry achievement. Two hundred and sixty-five tenth-grade students enrolled in a chemistry course and seven chemistry teachers participated in the

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study. Data was analyzed using both descriptive statistic and ANOVA. Results showed that there was a statistically significant difference among students with different learning styles with respect to chemistry achievement. Students in facilitator/personal model/expert teaching style and delegator/facilitator/expert teaching style had better understanding of chemistry concepts, but there was no statistically significant effect of matching between student's leaning styles and teachers' teaching styles on students' chemistry achievement.

RESEARCH METHODS

RESEARCH DESIGN

The research design used for this study is the correlational research design. According to Kpolovie (2010, p 101) "correlational research is adapted for investigation of the magnitude and direction of relationship that exists between a dependent variable (criticism variable) and one or more independent variable. Therefore, in this research data from learning styles was correlated with students' academic achievement.

POPULATION OF THE STUDY

The population for the current study is made up of all the public school students in senior secondary school (SSS) level in Warri South Local Government Area of Delta State but the researcher decided to use only students in SS2. The total number of SS2 students in the area during the 2016/2017 academic session is 6750 (Source: Post Primary Education Board Warri South, 2017). This population was chosen for the study because it is this researcher beliefs that they can adequately read, understand and respond to the instrument developed for data collection. In addition, they are not in the examination year.

SAMPLE AND SAMPLING TECHNIQUE

On the basis of the sample size and the recommendations by Krejcie and Morgan (1970) on the minimum sample size, the researcher decided to utilize a sample of 250 students. Proportional stratified sampling technique was used to select the sample size from six public secondary schools in the area.

INSTRUMENT FOR DATA COLLECTION

The instruments for data collection are Learning Style Scale (LSS) and Mathematics, English Language Achievement Test (MEAT). The Learning Style Scale (LSS) was designed to assess students' learning style and adapted from Grasha (1996). The instrument is made up of 40 items designed to assess students' learning preference in the four learning styles according to the Grasha-Reichmann learning style model. The learning styles are Avoidant (AVO), Collaborative (COL) Dependent (DEP), and Competitive (COM). The instrument is constructed on a four point Likert Scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (2014) to access the Mathematics and English Language Achievement of SS2 students because these two subjects are among the core subjects in the senior secondary school curriculum. MEAT is a 30 item multiple choice form objective test with 25 items each assessing Mathematics and English Language academic achievement.

VALIDITY OF THE INSTRUMENT

Face and content validity of the three instruments were established for the study. Firstly, the face validity of the LSS was conducted by giving copies of the instrument to two experts in educational psychology to study the instrument and indicate what it appears to measure superficially. The face validity of MEAT was ensured by sending copies of MEAT to two mathematics and two English Language Teachers, their response revealed that the instrument is a true measure of students' academic achievement in English and Mathematics. Content validation of the instruments was done similarly to that of the face validation. But in addition, copies of the instrument were give n to experts including the topic of the study, purpose of the study with its specific objectives, research questions and hypotheses. The items considered relevant by the experts were the one that was included in the final version of the instrument.

RELIABILITY OF THE INSTRUMENT

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To ensure the reliability of the instruments, Cronbach alpha (a) technique was used for both the LSS and MEAT. For the LSS, the instrument was administered on 2o students who were not be part of the sample for the study and then Cronbach alpha coefficient was used for reliability analysis. The alpha coefficients of 0.75,0.82,0.67, and0.77 was obtained for the avoidant, collaborative, dependent, and competitive learning styles respectively, while the total item reliability is 0.76. For the MEAT, the Mathematics and English Language sections yielded a value of 0.82 and 0.79 respectively.

METHOD OF DATA ANALYSIS

Pearson product moment correlation was used for analyzing the research questions while x-test was used to test the null hypothesis at 0.05 alpha level.

RESULT PRESENTATION

Table 1: Relationship between avoidant learning style and academic achievement.

Variable	N	Mean	SD	r	p	α	Decision
Avoidant	250	25.70	6.18	-0.943	0.0005	0.05	Reject HO1
Academic Achievement		28.78	8.28				

From the data analysis done and displayed in Table 1, it is observed that on avoidant learning style, students had a mean value of 25.70 (SD= 6.16), while their academic achievement yielded mean value of 28.78 (SD-8.28).When the values reported by the students for avoidant learning style and academic achievement were correlated using Pearson product moment correlation, an r-value of-0.943 was obtained with a p-value of 0.0005 which was less than the chosen alpha of 0.05. Since the p-value obtained was lesser than the chosen alpha, it therefore means that there is a strong negative and significant relationship between avoidant learning style and academic achievement of secondary school students in Warri South Local Government Area of Delta State which led to the rejection of the null hypothesis.

Table 2: Relationship between collaborative learning style and academic achievement

Variable	N	Mean	SD	r	p	α	Decision
Collaborative	250	29.66	8.07	0.501	0.0005	0.05	Reject HO2

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Academic Achievement		28.78	8.28				

As shown in table 2, it is evident that on collaborative learning style, students had a mean value of 29.66 (SD = 8.07), while their academic achievement yielded mean value of 28.78 (SD = 8.28). When the values reported by the students for collaborative learning styles and academic achievement were correlated using Pearson product moment correlation, an r-value of 0.501 was obtained with a p-value of 0.0005 which was lesser than the chosen alpha of 0.05. Since the p-value obtained was less than the chosen alpha, it therefore means that there is a moderate positive and significant relationship between collaborative learning style and academic achievement of secondary school students in Warri South Local Government Area of Delta State.
The null hypothesis was therefore rejected.

Table 3: Relationship between competitive learning style and academic achievement.

Variable	N	Mean	SD	r	p	α	Decision
Competitive	250	28.69	8.27	0.421	0.0005	0.05	Reject HO3
Academic Achievement		28.78	8.28				

From the data analysis done and displayed in Table 3, it is observed that on competitive learning style, students had a mean value of 29.69 (SD = 8.27), while for their academic achievement a mean value of 28.78 (SD = 8.28). When the values reported by the student for collaborative learning style and academic achievement were correlated using Pearson product moment correlation, a correlational coefficient of 0.421 was obtained with a p-value of 0.0005 which was less than the chosen alpha of 0.05. Since the p-value obtained was lesser than the chosen alpha, it therefore means that there is a moderate positive and significant relationship between collaborative learning style and academic achievement of secondary school students in Warri South Local Government Area of Delta State, therefore the null hypothesis was rejected.

Table 4: Relationship between dependent learning style and academic achievement.

Variable	N	Mean	SD	r	p	α	Decision
Dependent	250	26.63	5.09	-0.177	0.005	0.05	Reject HO4

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Academic Achievement		28.78	8.28				

As shown in Table 4, it is obvious that students reported dependent learning yielded a mean value of 26.33 (SD = 5.08), while their score on academic achievement yielded mean of 28.78 (SD = 8.28). When the values reported by the students for dependent learning style and academic achievement wee correlated using Pearson product moment correlation, a correlational coefficient of -0.177 was gotten with a p-value of 0.005 which was less than the chosen alpha, it therefore means that there is a weak negative and significant relationship between dependent learning style and academic achievement of secondary school students in Warri South Local Government Area of Delta State. The null hypothesis was therefore rejected.

DISCUSSION

The result from the study revealed that there is a strong negative relationship between avoidant learning style and academic achievement of students in Warri South Local Government Area of Delta State.. The meaning of this result is that individual or students who are mainly avoidant learners will have difficulty excelling in their academic activities. On the basis of the instrument administered, students who reported high values on the section of avoidant learning styles are most likey to score low on their academic achievement as tested using the MEAT. This result is not surprising to this research, because when students daydream in class, or prefer teachers not to engage them, or see classroom activities as boring, such students are most likely not going to learn well, thus the reported negative correlation between the learning style and academic achievement.

The findings of this result is a further confirmation of that obtained by Khalid et al (2013) among students in Western Malaysia. In their study, they found out that students who were high on avoidant learning style have difficulty excelling academically. However, this study differ in the instrument used as the present study used an adapted instrument, while their study used adopted instrument.

As shown from the result presented in Table 4.2, there is a positive relationship between collaborative learning style and academic achievement using students in Warri South Local Government Area of Delta State. This result implies that students who scored highly on the section of collaborative learning style are prone to score moderately in their academic activities. However, the reported moderate positive relationship indicates that not all those who prefer collaborative learning style also scored high in their academic achievement. The result that collaborative learning style is positively related to academic achievement is not surprising to this researcher. This is because those students who involve themselves in study groups and seek help from fellow students after making effort, or learn better by sharing ideas with other students are also likely to retain more information from learning. This could be a probable explanation for the positive relationship between collaborative learning style and academic achievement.

This result is similar to that obtained by Sasan et al (2011) who found out that learning style of students shape their academic achievement positively in Thailand. Despite the similarity in results, the sample from both study differed to a reasonable extent. Also the study confirms an earlier study by Court and Molesworth (2003) who found out that collaborative learning style is positively related to academic achievement of marketing communication students in the United State.

From the data presented in Table 4.3, there is a positive relationship between competitive learning style and academic achievement among students in Warri south Local Government Area of Delta State. This result implies that students who scored highly on the section of completive learning style are prone to score highly in their

academic activities. However, the reported moderate positive relationship indicated that not all those who prefer competitive learning style also scored high in their academic achievement. The result that competitive learning style is positively related to academic achievement is not surprising to this researcher. This is because those students when students feel that they should do better than other students, they are motivated to study and learn deeply. Also this students are conscious of what they will achieve in test in comparison to other students, therefore they like to study and become the best among their peers.

In the study conducted by Haynes (2012), a significant positive relationship between competitive learning styles and academic achievement was obtained, just as gotten from the present study. However in his study, the sample were undergraduates in a university, while in the present study the sample constituted secondary school students. Also the statistical technique used were different in that while the present study used simple correlational statistics, his study used factorial multivariate analysis of variance.

The result from the study revealed that there is a weak negative relationship between dependent learning style and academic achievement of students in Warri South Local Government Area of Delta State. The meaning of this result is that individual or students who are mainly dependent learners will have difficulty excelling in their academic activities. One the basis of the instrument administered, students who reported high values on the section of dependent learning styles are most likely to score low on their academic achievement as tested using the MEAT. Conversely, those who score low on the section of dependent learning style are most likely to score highly academically as tested using MEAT. This result is not surprising to this research, because when students depend fully on teachers without critical thinking ability, they lack the ability to search for knowledge and missing link in what the teacher has taught. Thus, the reported negative correlation between dependent learning style and academic achievement.

The findings of this result is a further confirmation of that obtained by Khalid et al (2013) among students in Western Malaysia. In their study, they found out that students who were high on dependent learning style difficulty excelling academically. However, this study differ in the instrument used as the present study used an adapted instrument, while their study used adopted instrument.

CONCLUSION

The study has shown that different learning styles have different effect on the academic achievement of secondary school students. While collaborative learning styles has a positive relationship with academic achievement, avoidant learning style had a negative relationship with academic achievement among secondary school students.

RECOMMENDATIONS

Based on the results of the study, the following recommendations were made.

1. Teachers should aim to understand and integrate individual learning style and differences in their classroom. This they can do by adopting a variety of learning methods as well as providing stimulating learning materials when engaged in classroom discussion.
2. To motivate students, they should be in deep concern for identifying students' preferred learning styles as this can contribute meaningfully towards the optional academic development of students.
3. After class activities should be provided for students where they are permitted to follow their passion and are allowed to explore their chosen projects and learning styles.
4. Counselors should help to promote an awareness of different learning styles and the career path available to them based on their career path.

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