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VISUAL LEARNING STYLE AND ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN ANAMBRA STATE, NIGERIA

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ABSTRACT
The study determined the extent visual learning style enhance students' academic performance of senior secondary schools in Awka South L.G.A. of Anambra State, Nigeria. Survey research design was employed. A sample size of ten (10) senior secondary school students and six (6) teachers were selected from each school of twenty secondary schools in the LG.A, making the total number of respondents to be three hundred twenty (320). Data were gathered through the questionnaires retrieved from the respondents. Regression analysis was used to test the hypothesis with the aid of SPSS version 20. 0. at 5% level of significance. The study revealed that visual learning style has a positive significant effect on student academic performance of senior secondary schools in Awka South L.G.A. of Anambra State. This implies that thereby contributes immensely in student academic achievement. Based on the findings, the study advised teachers to consider the various learning preferences of their students, to develop instructional strategies that account for those preferences, and to be cognizant of these preferences throughout the teaching process.

Keywords: Visual learning style, Academic performance and Students

Introduction

Students' academic achievement has an impact on the economic, political, social, scientific, and technological growth of any nation. In any nation, a student's academic achievement is crucial since it determines the kind of graduates who will have a lasting influence on society. When a student's academic performance is poor, graduates from those institutions might not be able to carry out the tasks for which they were trained (Nja and Obi, 2019). Buildings collapsing is not surprising given that the civil engineer did not receive a good education. Patients in the medical field perish at the hands of quack practitioners. Because electrical engineers who lacked knowledge did a bad job wiring structures, fire outbreaks in residences, workplaces, and public spaces have become commonplace (Nja, Umali, Asuquo and Olim, 2019).

It will eventually result in more productive learning experiences if instructors are aware of the various learning style preferences of the students taking applied sciences courses. In fact, Alavi and Toozandehjani (2017)

came to the conclusion that understanding students' learning styles can improve their learning while also promoting students' self-actualization. Teevan, Michael, and Schlesselman (2011) further stress that understanding students' learning preferences might make it easier for teachers to choose the best teaching strategies and techniques to support their academic development. Additionally, this will give teachers and students constructive feedback on their accomplishments and areas for improvement in the teaching and learning process. Similar to how learning styles can affect curriculum design, understanding them can help teachers apply learner-centered curriculum models in the classroom. Identifying students' learning preferences, according to Dalmolin, Mackeivicz, Pochapski, Pilatti, and Santos (2018), will eventually enhance their educational experience. The academic achievement of students is predicted by learning styles, according to earlier research. When Jiraporncharoen, Angkurawaranon, Chockjamsai, Deesomchok, and Euathrongchit (2015) researched undergraduate students' learning styles and academic achievement, they discovered a strong correlation between the two. Students' academic performance can be improved by being aware of their strengths, such as their learning style, and knowing how to make the most of such skills, according to research by Barman, Aziz, and Yusoff (2014).

Although it has been established that students' learning styles do have a major impact on their academic accomplishment, these conclusions are largely based on studies done in other nations and differ from country to country. In order to meet the needs specific to its settings, a nation never ceases exploring and developing its unique methods of learning, according to Gokalp (2013). He concluded by saying that the teaching methods used in the majority of schools may not be compatible with the learning patterns of Nigerians. As a result, it is important to evaluate the connection between learning styles and academic accomplishment from a country-context perspective (Bennett, 1993), which is what this study aims to do. Since the learner is able to identify his or her preferred method of knowledge acquisition and the learning process they use in a learning situation, especially in the Nigerian context, the research's findings strengthen the notion that learning styles as determined by self-assessment tools improve academic achievement (Bethel-Eke and Eremie, 2017).

For a very long period, the problem of students' subpar academic performance in science education persisted unabatedly. Lack of instructional resources, an inadequate Chemistry lab, and other factors are frequently highlighted by researchers, at times the laboratory exist only in the consciousness of the teachers (Nbina and Obomanu, 2011; Nkanu, 2009; Oriade, 2008). Even if steps have been taken to address this issue, something is still lacking. An in-depth understanding of pupils' preferred learning styles is necessary. However, while trying to pinpoint elements

influencing learning-related performance, some learning-related notions, like perception of academic control and achievement motivation, have received a lot of attention (Cano-Garcia & Hughes, 2000). Learning style is one idea in particular that has offered some useful insights on learning in academic and other educational settings. Previous research indicates that both intellectual and non-intellectual elements influence students' academic achievement at all levels (Magulod, 2019). It is important to comprehend the preferred learning style and study habits of students. The interaction of students' preferred learning styles, study habits, and academic performance in applied science courses at Cagayan State University encouraged the researcher to look into the relationship between these variables. Additionally, finding the important variations between these factors when categorized in accordance with their socioeconomic status will help to paint a clearer picture of the potential personal learning interventions (Magulod, 2019). The development of skilled IT specialists and highly trained industrial technologists would also aid Nigerian society in progressing as it faces progress' challenges. In order to improve their academic performance and the quality of their learning experiences, the university will design and implement educational interventions based on an understanding of the students' intrinsic learning dispositions and attitude toward their studies. The study sought to determine the extent visual learning style enhance students' academic performance of secondary schools in Awka South L.G.A. of Anambra State, Nigeria.

Literature review

The phrase "learning style" refers to individual variations in how people learn. Every person processes experiences and information in a different way. The variety of approaches used to categorize learning styles is a result of confusing research and, in many cases, the application of learning style theory. There is currently no one widely used approach, although a number of potential scales and categories are in use instead (Bethel-Eke and Eremie, 2017). The majority of these scales and classifications, which concentrate on sensory modalities, personality types, environmental preferences, and/or cognitive styles, are more similar than different. A common and important critique in this field is that learning style theory and measurement lack conceptual frameworks.

At the very least, cognitive style can probably be seen as one important aspect of learning style. The definitions provided by Hartley (1998) are as follows: Learning styles are the manner in which people typically approach various learning activities, whereas cognitive styles are the ways in which various individuals often approach various cognitive tasks.

It is widely acknowledged that how people choose to or are predisposed to approach a learning scenario affects how well they perform and achieve their learning objectives. There are several definitions, theoretical claims, models, interpretations,

and measures of learning style, possibly because it has been the subject of such a large number of research and practitioner-based studies in the field. To some extent, this can be seen as a natural outcome of in-depth empirical research and is to be anticipated with any constantly evolving notion that shows helpful in comprehending an activity as important and pervasive as learning.

Learning style is a dispositional or characteristic term since it refers to a person's typical learning methodology. Dunn (1990) defined a person's "learning style" as the way they start to focus on, process, assimilate, and remember new and challenging material. According to McLaughlin (1999), learning style is the adoption of a regular and distinctive method of knowledge acquisition. According to Fleming (2001), the inventor of the VARK Model, it is an individual's traits and preferred methods of gathering, organizing, and thinking about information. In other words, it is how a person consistently behaves and performs when engaging in educational situations. It is a person's concentration style and how they gather and process information, knowledge, or experience. Each of us has a unique manner of learning and processing information. Individual learning styles are typically influenced by cognitive, emotional, contextual, and prior experience variables. Many students are unaware of this since they may have attended institutions where teachers only provided education in one manner, never encouraging them to discover and comprehend their individual learning styles (Ogbonna, 2017). Learning style is influenced by a person's personality, socialization within their culture, and overall human development.

Visual learning Style

It is a learning method where a student makes use of graphs, charts, maps, and diagrams. Additionally, sight is involved, with a focus on seeing, observing, seeing, and drawing. Visual learners learn well with images and think in pictures (Bethel-Eke and Eremie, 2017). They rely on nonverbal clues from the instructor or facilitator, such body language, to aid with comprehending. Visual learners occasionally choose to sit in the front of the room. Additionally, they make detailed notes about other materials being given. These are students who like visual learning methods. Charts, diagrams, graphs, maps, and other visual or graphically based materials that appeal to the sense of sight are crucial in the learning environment. Videos, PowerPoint presentations, and other media are required.

The group of people or students who have a visual learning style favor things that can be seen or observed, such as maps, diagrams, displays, graphs, charts, photographs, word pictures, flow charts, brochures, movies, various colors, etc (Murphy, Gray, Straja and Bogert, 2004). They pointed out that the term "visual learning style" refers to a manner of learning in which concepts, facts, and other information are linked to visual cues and methods. The verbs "show me," "let me have a look at it," and similar

expressions will be used by visual learners, and they will perform well after observing someone else do it first. In other words, example and description are likely to be given to students who are predisposed to a visual learning style.

Academic performance

Academic success has, to some extent, caught the interest of many researchers over the years. Learning style is a predictor of academic accomplishment, according to studies by Rasimah and Zurina (2008) and Sunan, Suntorapot, and Jaruwan (2011) on learning style and student academic achievement. Based on his research on learning styles and academic accomplishment: a case study of Iranian high school girls' pupils, Rahmani (2012) further stated that learning styles are the best predictors of academic achievement. The results were different from those of Majid (2011), who claimed that learning styles are not indicators of academic success. Once more, students have preferences for particular learning styles, and these choices may vary across male and female students. Contrary to studies (Breckler, Joun, & Ngo, 2009; Halim, 2006) that claimed males and females do not differ in their learning, several recent studies (Keri, 2002) hold that males and females learn differently. Additionally, the findings of a study on gender disparities in first-year medical students' preferences for learning styles by Choudhary, Dullo, and Tandom (2011) revealed statistical variations or differences between the learning styles of male and female students. Males and women were discovered to have different learning styles, and generally speaking, men seemed to find congruence between traditional schooling and their learning style whereas women seemed to find the opposite to be true, according to Philbin, Meier, Huffman, and Boveri's 1995 study. In contrast, Slater, Lujan, and Dicarlo's (2007) study on whether gender influences first-year medical students' learning preferences found no statistically significant difference between male and female learning preferences and found that female students preferred visual, aural, and read/write learning styles more than their male counterparts did.

Empirical Studies

The learning preferences, study practices, and academic accomplishment of students enrolled in applied science courses at one campus of a public higher education institution in the Philippines were evaluated by Magulod (2019). The study used a descriptive correlational research design with a total of 75 respondents who were chosen at random for the investigation. The survey's findings showed that while students in applied sciences courses had a modest level of study habits, their preferred learning styles were visual, collaborative, and kinesthetic. Students' academic performance in applied science courses was significantly correlated with their learning preferences, study techniques, and study habits. The study's findings can help instructors create and deliver effective instructional interventions. Nja et al. (2019) looked into how learning preferences affected the academic performance of Science Education

majors at the University of Calabar in Nigeria. The learning model employed for this study included individual and group models as well as visual, auditory, kindergarten, global analytical, impulsive, and reflective models. The study was conducted using an expo facto design. All University of Calabar students studying science education were included in the target audience. The Learning Styles Questionnaire (LSQ) and the Introduction to Science Education Result raw scores from the 2017/2018 second semester exams were the two tools employed in the study (ISER). Results indicated that pupils prefer distinct learning techniques. Analysis of the data showed that students' preferences for learning styles varied significantly. The relationship between students' academic performance and learning preferences was favorable. The result of the study revealed that learning styles are statistically significant predictors of academic achievement of students. Again, male and female students differ significantly in their learning styles. Bethel-Eke and Eremie (2017) look into the academic performance and learning styles of junior secondary school pupils in Rivers State and how that can affect counseling. For this study, a correlational research design was used. The Taro Yamane formula was used to determine a sample size of 345 respondents from the study's population of 2,554 respondents. The outcome of the statistical analysis revealed a substantial correlation between students' academic success and visual learning preferences. Students' academic achievement was also found to be significantly correlated with their auditory and kinesthetic learning preferences. The study came to the conclusion that students' academic performance is improved by their use of visual, auditory, and kinesthetic learning modalities.

Research Method

Descriptive survey research design will be adopted for the study, because it is used for studies that use questionnaire to explore the opinions of given population or its representative sample on existing phenomena (Uzoagulu 2011).

Population of the Study: The population for this study consists of the twenty secondary schools in Awka South Local Government Area of Anambra State. The elements of the population involve the teachers and students of these secondary schools. Here is the list of secondary schools in Awka South Local Government Area:

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Table 3.1: Secondary Schools in Awka South

S/N	**Secondary Schools**
1	Bishop Crowther Seminary, Awka
2	Igwebuike Grammar Secondary School, Awka
3	St. John of God School, Awka
4	Girls Secondary School, Awka
5	Community Secondary School, Umuokpu
6	Capital City Secondary School, Awka
7	Kenneth Dike Memorial Secondary School, Awka
8	Ezi-Awka Community Secondary School, Awka
9	Community Secondary School, Okpuno
10	Nneoma Community Secondary School, Nibo
11	Community Secondary School, Mbaukwu
12	Emeka Aghasili High School, Nise
13	Community Secondary School, Agulu-Awka
14	Community Secondary School, Amawbia
15	Union Secondary School, Umuawulu
16	Union Secondary School, Amawbia
17	Ezike High School, Nibo
18	Holy Cross High School, Umuawulu Mbaukwu
19	Community Secondary School, Isiagu
20	Krosa Model Schools, Amawbia

Sample and Sampling Technique: The simple random sampling technique was used to enable the researcher gather data that can be generalized on the entire. However, for the purpose of effective representation of the population in the study, a sample size of ten (10) senior secondary school students and six (6) teachers were selected from each school, making the total number of respondents to be three hundred twenty (320).

Instruments for Data Collection: The instrument for data collection was a structured questionnaire. The instrument was distributed and collected from the respondents personally by the researcher. This method enabled the researcher to obtain at least 70% return of the filled questionnaires. It will help the researcher to offer assistance to the respondents where necessary.

Reliability of the Instrument: To ascertain the reliability of the instrument, the instruments were administered to the sampled teachers and students of the senior secondary schools in Awka education zone. The result of their responses was correlated using Cronbach Alpha formula. The Coefficient Value of 0.82 shows that the research instruments are reliable.

Model Specification: The researcher specified the regression equation model, which took the following form:

$Y = \beta o + \beta_1 X_1 + \mu$

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Where:
Y = Academic performance (dependent variable)
X = Visual learning Style (independent Variable)
β_0 = constant term (intercept)
β_1= Coefficients of performance
μ = Error term (stochastic term)
Explicitly, the equation can be defined as:
Visual learning Style = *f* (Academic Performance) + μ
Representing the equations with the variables of the construct, hence the equations below are formulated:

$ACP_{it} = \beta_0 + \beta_1 VLSit + \mu_{it}$ - - -

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Test of Hypothesis

Ho: Visual learning style has not significantly affect student academic performance of senior secondary schools in Awka South L.G.A. of Anambra State.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	.999	.999	7.79786

a. Predictors: (Constant), VLS

The Table 2 above shows that the coefficient of determination is R^2 = 0.999 and the Adjusted R^2 is 0.999. Adjusted R^2 = 0.999 implies that almost 100% of the variations in student academic performance of the sampled secondary schools is influenced by joint interaction of visual learning style (VLS), while about 0.02% of the variance is explained by other factors not captured in the study model.

Table 3: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	187633.580	1	187633.580	3085.739	.000[b]
	Residual	182.420	3	60.807		
	Total	187816.000	4			

a. Dependent Variable: ACP
b. Predictors: (Constant), VLS

Table 4: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.013	5.441		-.186	.864
	VLS	1.004	.018	1.000	55.549	.000

a. Dependent Variable: ACP

From table 3 and 4 shows that the regression equation or model that was used to predict students' academic performance is highly significant at 5% level of significance (p-value = 0.00). Based on the coefficients value of 1.004 and t-value of 55.549, with p-value of 0.000, was found to have a positive effect and this effect was also statistically significant as its p-value is less than 0.05 value. This result, therefore suggests that we should accept our alternate hypothesis which stated that visual learning style has a positive significant effect on student academic performance of senior secondary schools in Awka South L.G.A. of Anambra State.

Conclusion and Recommendation

The study sought to determine the extent visual learning style enhance students'

academic performance of secondary schools in Awka South L.G.A. of Anambra State, Nigeria. Regression analysis was used to test the hypotheses with the aid of SPSS version 20. 0. at 5% level of significance. The study revealed that visual learning style has a positive significant effect on student academic performance of senior secondary schools in Awka South L.G.A. of Anambra State. The implication is that students will perform well after watching someone else conduct the experiments since a visual learning style is a predictor of academic accomplishment. Consequently, the facilitator can aid students in understanding by using nonverbal indicators like body language.

Based on the findings, the study advised teachers to consider the various learning preferences of their students, to develop instructional strategies that account for those preferences, and to be cognizant of these preferences throughout the teaching process.

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