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Students' learning styles and their performance in English language in senior secondary schools in Imo State, Nigeria

C. A. Obiefuna* and Joy Ngozi Oruwari

Department of Curriculum / Instruction, Alvan Ikoku Federal College of Education, Owerri, Nigeria.

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ABSTRACT

This quasi experimental research was conducted to assess the effects of students' learning styles on their performance in English language in Senior Secondary Schools in Imo State. Two research questions and two hypotheses guided the study. A purposive sampling technique was used to sample 300 students in the area of study. The study utilized both descriptive and inferential statistics in data collection and analysis. English Achievement Test (EAT) was used as the main instrument for pre-test and post-test. The research questions were answered with percentages and mean while the hypotheses were tested with ANCOVA at 0.05 level of significance. Relevant literature was reviewed accordingly. The result of the analysis showed that the learning style preference for English language students is converging. Result revealed that when teaching methods match the students learning styles they perform better. Also, in the study of English language gender variable has no significant impact on students' learning styles and performances. The findings have implications on the teaching and learning of English studies at the Senior Secondary Schools. It was therefore recommended among others that English language teachers should identity the learning style that soothes their students and use teaching strategies that complement them.

Keywords: Students' learning styles, English language, performance.

*Corresponding author. E-mail: carolobiefuna@yahoo.com. Tel: 08033185896.

INTRODUCTION

The polity is daily enthralled with talks regarding the falling quality of education in the country which many point at as the root cause of the country's inability to actualize her developmental aspirations. The use of conventional lecture method in delivering lessons by teachers is gradually taking over the utilization of other teaching methods like discussion, discovery, project and other teaching methods. This constant act of using lecture teaching method has hampered the teaching and learning process as it has hindered the students from identifying their learning styles and applying them while learning. When students are taught with the appropriate teaching methods that match their learning styles, they learn better and this helps to increase their academic achievements. The consistently low academic performances of the Nigerian students in the West African Senior School Certificate Examination (WASSCE) noted in Asikhia (2010), Nigerian Elites Forum (2012) and Ossai (2012), could be attributed to students not using a method that match their learning style (Table 1).

This documentary evidence revealed students' poor performances in English language despite the laudable efforts of the government and its well-articulated objectives of using it as a medium of interaction and interconnectedness in the world. This report is worrisome because secondary school students are projected leaders of tomorrow who will contribute meaningfully to national development, nation building and technological advancement. Thus, whatever hinders good academic performance in Nigeria should be identified and looked into so that the gains of teaching would be fully realized (Francis, 2014).

Modern education is facing a lot of problems. It is in an attempt to tackle these problems that the application of

Table 1. 3-year results in the three popular subjects in the May/June 2012 - 2014 WASSCE in Nigeria.

Subject	Percentage credit pass			Percentage of failure		
	2012	2013	2014	2012	2013	2014
English language	24.81	30.90	39.01	75.19	69.10	60.99
Economics	57.59	66.24	49.45	42.41	33.76	50.55
Mathematics	48.88	38.93	38.20	51.12	61.07	61.80

Source: WAEC Press Releases (2012, 2013, 2014).

innovative teaching-learning systems which is, the use of multiple teaching methods in teaching was introduced. Such new teaching-learning systems focus attention on the use of organized and combined set of people, materials, equipment, facilities and methodologies to accomplish the desired instructional specific objectives.

In view of the numerous importance of English language as earlier noted, there arises increasing needs for the teachers to use appropriate teaching methods in delivering their lessons (Izuagba, 2012). The students on the other hand should adapt to learning styles that will soothe or match their learning abilities and this in turn will result in better performances in the subject especially during external examinations.

According to Asikhia (2010), education at secondary school level is a major link between the primary and the tertiary institutions and plays a major role in helping the learner to the top. It is rather unfortunate that the secondary schools today are not measuring up to standard expected of them. One of the causes may be non-identification of the students' learning styles by the teacher and the utilization of an appropriate teaching method to match the learning styles so identified.

All students learn, perhaps not in the same way. Some grasp information best by listening, while others learn better through reading, reasoning, or discovering concepts through a hands-on experience (Oguamanam, 2011). English language students experience different learning environments whilst acquiring voluminous information. To achieve this, each student must adopt his or her own learning style preference. Keefe (1987) stated that learning style is the composite of cognitive, affective and physiological characteristics that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment. He also suggested that teachers need to understand the learning strategies of students in order to facilitate their learning. It has also been argued that teachers should not only possess content knowledge but should also be acquainted with their learners' attribute (Gudmundsdottir, 1987 as cited in Francis, 2014). Oguamanam (2011) succinctly posits that:

> …when a student- learner's style differs from the teaching style, the way a teacher presents the subject matter may conflict with students' idea about learning thus, resulting in no learning. It is the duty of the teacher to appreciate individual learning differences and to assist the students in discovering their own learning process. It requires putting students at the centre of the classroom organization and responding to their needs and styles. (p.59)

Teaching methods vary considerably, while some teachers lecture, demonstrate or discuss, some focus on principles, and application while some others emphasize memorization and understanding. The extent of the content area students learn in a class is not only determined in part by the students' 'native' ability and prior preparation but also by the compatibility of learning styles and teachers' teaching methods. In order to meet the multiple learning goals, teachers need to adopt alternative methods in teaching (Oruwari, 2014).

Meaning of learning and learning styles

Kolb (1984:41) defines learning as "the process whereby knowledge is created through the transformation of experience". According to him, experience as the source of learning and development is built on these propositions:

i) All learning is re-learning. Learning is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested, and integrated with new and better refined ideas.
ii) Learning results from synergetic transactions between the person and the environment. In Piaget's terms, learning occurs through equilibration of the dialectic processes of assimilating new experiences into existing concepts and accommodating existing concepts to new experience. Learning is the process of creating knowledge.

Learning styles

Learning styles refer to a range of competing and contested theories that aim at accounting for differences in individuals' learning. These theories propose that all people can be classified according to their 'style' of learning, although the various theories present differing

views on how the styles should be defined and categorised. A common concept is that individuals differ in how they learn (Coffield et al., 2004). To address this, Ibe (2012) and Afurobi (2011) as cited in Oruwari (2014) maintained that students learn in many ways e.g. seeing and hearing, reflecting and acting, reasoning logically, memorizing and visualizing, drawing analogies and building models. Learning style is seen by Kolb (2000:1) as "the way we prefer to absorb and incorporate new information". Different people have different ways of learning, and that *per se;* those ways are neither good nor bad" (Smith and Kolb, 1986, in Kolb, 2000).

The term learning style is often used interchangeably with cognitive style. However, Parry (2000) notes that learning style is a more expansive term, including the domains of cognitive learning style, affective style, and physiological style. Cognitive learning style consists of the ways a human's senses interact with the environment to receive stimuli and process it into useful information. Butler-Tindel (1994) notes that an affective learning style examines how a person's emotions and personality interpret environmental stimuli. Given various preferences for perceiving and processing information, Kolb (1984) has suggested four different learning styles: Accommodator, Diverger, Assimilator and Converger.

1. Accommodator refers to a person who favours Concrete Experiencing and Active Experimentation learning dimensions (that is, a person who prefers to perceive information from feeling and process it by doing). In formal learning situations, people with the accommodating learning style prefer to work with others to get assignments done, set goals, do field work, and to test out different approaches to completing a project (Kolb, 2000). They answer the “what if” of education.
2. Diverger refers to a person who favors Concrete Experiencing and Reflective Observation learning dimensions (that is, a person who prefers to perceive information from feeling and learn about the processing of information by watching). In formal learning situations, people with the Diverging style prefer to work in groups, listening with an open mind and receiving personalized feedback. They answer the “why” of education.
3. Converger refers to a person who favors Abstract Conceptualization and Active Experimentation learning dimensions (that is, a person who prefers to perceive information by thinking and doing). In formal learning situations, people with this style prefer to experiment with new ideas, simulations, laboratory assignments, and practical applications. They answer the “how” of education.
4. Assimilator refers to a person who favors Abstract Conceptualization and Reflective Observation learning dimensions (that is, a person who prefers to learn by thinking and watching/listening). In formal learning situations, people with this style prefer readings, lectures, exploring analytical models, and having time to think things through. They answer the “what” of education.

Some researchers have examined individuals' learning styles (Mbakwem and Mkpa, 2003; Loo, 2002), specifically, gender being an indicator of learning style, they argue that male and female students are differently attuned to the different learning styles. The Learning Style Instrument (LSI), Version 3 developed by Kolb has been established as a creditable tool to measure how one learns to understand new information (Kolb, 2000). Burd and Buchanan (2004) notes that an instructor will have to adopt teaching styles to accommodate students' learning styles.

Factors influencing learning styles

Many factors can influence students’ learning styles. These factors are: gender, age, academic achievement, brain processing, culture and creative thinking (Honigsfeld, 2001). Individual characteristics, past experiences, and ethnic background also affect students learning styles (Philbin et al., 1995). What is more, students use different sensory modalities for assimilating knowledge and information (Slater et al., 2007), other factors that affect students' learning style preferences include their classification and course level, environmental factors like school teaching methods and educational settings. Dunn (2000) notes that the physiological style domain includes environmental factors, such as sitting arrangement, temperature and lighting that affect learning.

Some learning styles models

Kolb/McCarthy learning cycle

Description: A significant impetus in the development of Kolb/McCarthy learning cycle model was Kolb's observation of the distress encountered by many students whose learning styles seemed mismatched to their disciplinary majors (Kolb, 1981). An underlying assumption of the model is that all learning entail a cycle of four learning modes, but each individual is likely to feel most comfortable in one of the four modes of the cycle based on his/her preference along two dimensions; Perception and Processing (Kolb, 1984; Harb et al., 1995). Perception (Abstract/Concrete) has been found to correlate with the Decision-making (Feeling/Thinking) mode of the Myers-Briggs model (Kolb, 1984). Processing (Active/Reflective) encompasses primarily the Orientation (Extrovert/Introvert) mode of the Myers-Briggs model (Kolb, 1984). Together, Perception and Processing reflect the major directions of cognitive development derived from the work of Piaget (1970) in Montgomery and Groat (2002).

The four learning styles in the Kolb model are also distinguished by the type of question that concerns each category: "Why?", "What?", "How?" and "What if?" Likewise, each academic field can be mapped against this same set of dichotomous dimensions according to the type of learning mode predominant in that discipline. Thus, according to this model, the concrete/reflective quadrant encompasses social science and humanities; the abstract/reflective quadrant reflects the physical sciences; the abstract/active incorporate science-based profession such as engineering; and finally, the concrete/active domain reflects the more social professions such as education.

Implication for teaching: The fact that students majoring in a given discipline are more likely to have a particular learning style characteristic or common to that faculty and practitioners in that field may seem entirely consistent with common sense notions of expert competence. On the other hand, Kolb has pointed out that selection and socialization processes may lead to such a homogenous disciplinary culture that becomes impermeable to other influences. Equally disturbing, one aspect of Kolb's research demonstrated that over time science students become more analytical and less creative, while arts students become more creative and less analytical. In other words, the educational process has the potential to accentuate the gap in capabilities between these groups of students.

The Kolb model suggests that learning should follow a "Learning Cycle" that answers the questions below. This implies that “by teaching through the (Kolb Learning) cycle" one can ensure that all learning styles have been addressed, in that all questions have been answered. The questions include the following: "Why are we learning this?" "What are the key points of this issue?" "How do I use this knowledge?" and "What are the implications of this information in other contexts?"

Statement of the problem

WAEC analysis of percentage performance of candidates in ten popular schools in West African senior secondary certificate examination for 2012, 2013 and 2014 revealed 75.19, 69.10 and 60.99% percentage failure respectively in English language. Oruwari (2014) blamed poor performance of English language students in external examination on English language teachers' insensitivity to the nature of the English language when planning instructional activities in the classroom. According to Oruwari (2014), English language is not one of the subjects that can be mastered by mere memorization of the basic rules. It requires total determination, sound theoretical knowledge and intensive practice in application. One begins to wonder if other factors could be responsible for the large number of failures in English language other than the ones already identified. Could knowledge and utilization of learners' learning styles in selecting appropriate teaching methods help to improve performance? Would matching teaching strategies with students learning styles, make their performance to be enhanced? This is the problem of the study?

Purpose of the study

Generally, this study investigated students' learning styles and their effects on their performance in English language. Specifically, the study sought to:

1. Find out the learning style preference of the English language students
2. Ascertain whether interaction of gender and learning style has any effect on students' performances in English language.

Research questions

The following research questions were raised to guide this study:

1. What are the learning styles that exist amongst English language students in Owerri Municipal Council?
2. What interaction effects have gender and learning styles in adjusted mean scores of the students at post-test?

Hypotheses

Ho_1: There is no significant difference in the adjusted English language mean scores of students in the learning styles groups (Assimilating, Accommodating, Converging and Diverging) and Control group at post-test at 0.05 level of significance.

Ho_2: There is no significant interaction between gender and treatment in the adjusted English language mean scores of students at post-test at 0.05 level of significance.

METHODOLOGY

The research study was carried out using quasi-experimental research design. The research design that was adopted are intact groups, pretest, treatment-control and post-test. The research work was carried out in Owerri Municipal Council of Imo State, Nigeria. The population comprised all senior secondary school class 2 (SS2) in all the 8 (eight) public senior secondary schools in Owerri Municipal Council totaling 3004. Two sampling techniques were used; stratified and simple random sampling. First the population was stratified into co-educational or mixed schools, all boys’ schools and all girls’ schools. A purposeful sampling technique was used to sample one school from each category so as to cover the three types of schools that were involved. Two instruments were used for data

Table 2. The learning style preference of the English language students.

Learning styles	Frequency	Percentage	Sum	Mean	Std. Error	Std. deviation	Variance
Diverger	101	34.8%	424.00	10.6000	.71302	4.45278	19.8
Assimilator	86	29.7%	374.00	9.5897	.59571	3.76761	14.195
Converger	63	21.7%	354.00	9.3158	.52223	3.00000	9.000
Accommodator	40	13.8%	264.00	8.0000	.44162	2.72233	7.411
Total	290	100%					

collection: Kolb Learning Style Inventory (LSI) 1999 version and English Language Achievement Test (ELAT). The reliability of the instrument was established by the use of Crobach alpha statistics and Kuder Richardson Fomular (k-R) 20, respectively. The reliability coefficients for the two instruments were 0.82 and 0.80, respectively. The research questions were answered using mean and standard deviation while the hypothesis was tested using analysis of co-variance (ANCOVA).

RESULT

Research Question 1: What are the learning styles that exist amongst SS 2 English language students in Owerri Municipal Council?

Table 2 shows that the learning style preference of English language students is Diverging learning style with a frequency of 101 (34.8%) followed by Assimilating and Converging with a frequency of 86 (29.7%) and 63 (21.7%) respectively and finally accommodating learning style with a frequency of 40 (13.8%).

Research Question 2: What interaction effects has gender and learning styles in adjusted English language mean scores of the students at post-test?

Table 3 shows that the adjusted English language mean scores for male and female Assimilating group at posttest are 50.23 and 53.66, respectively. It can also be observed that whereas the adjusted English language mean score for female group is above the average of the adjusted English language mean, the adjusted English language mean score for the male group is below the average of the adjusted English language mean. It can therefore be inferred that there is a difference in the adjusted English language mean scores of male and female Assimilating group at posttest with females achieving better than the males

Table 3 shows that the adjusted English language mean scores for male and female Accommodating group at posttest are 41.67 and 43.68, respectively. It can therefore be inferred that there is a difference in the adjusted English language mean scores of male and female Accommodating group at post-test with females achieving better than the males.

Table 3 shows that the adjusted English language mean scores for male and female diverging group at posttest are 56.93 and 62.93, respectively. It can therefore suggests that there is a difference in the adjusted English language mean scores of male and female diverging group at post-test with females achieving better than the males.

Table 3 shows that the adjusted English language mean scores for male and female converging group at posttest are 45.23 and 42.63, respectively. It equally indicates that there is a difference in the adjusted English language mean scores of male and female converging group at post-test with males achieving better than the females.

Analysis and results with respect to hypotheses

H_1: There is no significant difference in the adjusted English language mean scores of students in the learning styles groups and control group at post-test.

Table 4 shows that the computed-F (37.96) is greater than the critical-F (2.37), and the level of significance 0.05) is greater than the Probability (0.00). This result rejects the null hypothesis that there is no significant difference in the adjusted English language mean scores of students in the learning styles groups and control group at post-test, and accepts the alternate hypothesis that there is significant difference in the adjusted English language mean scores of students in the learning styles groups and control group at posttest. Pair-wise multiple comparisons were generated from Table 4 to find out which of the pair(s) caused the significant difference as expressed by the hypothesis.

Table 5 shows that for Assimilation and Control, Probability (0.000) is less than the level of significance (0.05). This implies that the adjusted English language mean difference of the groups is significant at 0.05. One can conclude that Assimilating group with higher adjusted English language mean score achieves better than the Control group with lower adjusted English language mean score.

Table 5 also shows that for Accommodating and Control, Probability (0.001) is less than the level of significance (0.05). This implies that the adjusted English language mean difference of the groups is significant at 0.05. One can conclude that Accommodating group with higher adjusted English language mean score achieves

Table 3. Mean analysis of the adjusted English language mean scores of the learning styles groups (Assimilating, Accommodating, Converging, and Diverging) at post-test.

Group	Posttest adjusted English language mean difference	Adjusted English language mean difference	Average of the adjusted English language mean difference
Male Assimilation	50.23	3.43	51.91
Female Assimilation	53.66		
Male Accommodating	41.67	2.01	42.67
Female Accommodating	43.68		
Male Converging	45.23	1.50	43.93
Female Converging	42.63		
Male Diverging	56.93	5.80	59.83
Female Diverging	62.73		

Table 4. Presentation or result of ANCOVA analysis testing for significant differences in the adjusted English language mean scores of students in the learning styles groups (Assimilation, Accommodating, Converging and Diverging), Control group and Gender-wise at post-test.

Source	Sum of squares	Df	Adjusted academic mean square	F-computed	F-critical	Probability
Corrected Model	16976.84	10	1697.68			
Intercept	19837.61	1	19837.61			
Covariate		1	1766.17			
Group	11807.80	4	2951.95	37.96	2.37	0.00
Sex	56.65	1	56.65	0.72	1.84	0.40
Group × Sex	408.83	4	102.21	1.31	2.37	0.27
Error	10810.50	139	77.77			
Total	552300.00	150				
Corrected Total	27787.33	149				

Table 5. Pair-wise comparisons of the adjusted English language mean scores of students in different learning styles and control groups at post-test.

Experimental group	Adjusted English language mean scores	Prob (p).	Significant (p < 0.05)?
Assimilating vs. Control	51.94 33.01	0.000	Yes
Accommodating vs. Control	42.68 33.01	0.001	Yes
Diverging vs. Control	59.83 33.01	0.000	Yes
Converging vs. Control	43.23 33.01	0.000	Yes

better than the Control group with lower adjusted English language mean score.

Table 5 shows that for Converging and Control, Probability (0.000) is less than the level of significance (0.05). This implies that the adjusted English language mean difference of the groups is significant at 0.05. One

can conclude that Converging group with higher adjusted English language mean score achieves better than the Control group with lower adjusted English language mean score.

Table 5 also shows that for Diverging and Control, Probability (0.000) is less than the level of significance (0.05). This implies that the adjusted English language mean difference of the groups is significant at 0.05. One can conclude that Diverging group with higher adjusted English language mean score achieves better than the Control group with lower adjusted English language mean score.

H_2: There is no significant interaction between gender and treatment in the adjusted English language mean scores of students at posttest.

Table 4 shows that computed-F (0.73) is less than critical-F (2.37), and the level of significance (0.05) is less than Prob. (0.395). This result accepts the null hypothesis that there is no significant interaction between gender and treatment in the adjusted English language mean scores of students at post-test.

DISCUSSION

The finding shows that the four learning styles of Kolb were represented amongst the English language students. In the study, the percentage occurrence for Diverging (28.67), Assimilating (26.00), Converging (23.33) and Accommodating (22.00) are shown in Table 2. This high percentage for the Diverging students could be due to the fact that English language is a subject that involves situations that call for generalization of ideas, such as “brain storming” session (Nwigwe and Izuagba, 2014). People with divergent learning style have broad cultural interests and like to gather information. These findings corroborate with the findings of Novin et al. (2003), who carried out an investigation into the preferred learning styles of English language and other arts subjects. According to their findings, English language majors most preferred a Diverger learning style. Divergers are concrete experience people, learning from specific experience, relating to people, sensitive to feelings and people, open-minded and adaptable to change (Litzinger and Osif, 1993:78-79). Students who prefer a Diverger learning style make decisions and solve problems using group project, field trip and subjective test using specific experiences.

The result of the study showed no significant difference in the English language mean scores of the students with different learning styles and their gender. This is evidenced in Table 4 where the result shows that computed-F (0.73) is less than critical-F (2.37), and the level of significance (0.05) is less than Prob. (0.395). This result accepts the null hypothesis that there is no significant interaction between gender and treatment in the adjusted English language mean scores of students at posttest. This finding corroborates the findings of Merritt (2008) and it is likely that with the increasing amount of evidence that gender has little or no impact upon the performances of the students with different learning styles. The reason for this result could be that the four learning styles of Kolb are gender friendly in the sense that it does not favour a particular gender. The above finding could be attributed to the characteristics of four learning styles as propounded by Kolb (1984), the learning styles are cognitively based in that they promote thinking at every stage in the classroom, and equally encourage learners' active participation in the classroom.

Conclusion

The study investigated the learning styles of senior school students and their academic achievement in English language. It focused on the influence of variables such as gender on the learning style and students performances. The result indicated that when teaching methods match the students’ learning styles the students perform better.

RECOMMENDATIONS

Based on the achievement of students with the different learning styles, the results revealed that when teaching methods match the students’ learning styles they perform better and gender does not affect the findings of the study, the following recommendations:

1. For better performances in English language, English language teachers should identify the learning style of their students and use teaching strategies that complement them. The use of multiple teaching methods will greatly enhance the process of teaching and learning and make it effective and rewarding.
2. Students at risk of poor academic achievement especially the slow learners and under achievers should be identified and direct individual and group counseling approaches should be utilized to help them improve their learning styles.
3. Curriculum planners and experts should plan and organize the curriculum bearing in mind individual differences in learning styles of students.
4. Teachers, curriculum planners and experts should apply the use of equal measure in the method of teaching male and female students in schools.

Educational implications

The implications for the English language students are

significant. First to assume a particular teaching method is more appropriate for English language students may be incorrect. Secondly, matching the appropriate teaching methods to a specific students' learning style appear to produce the best educational result for the students.

Teachers should endeavor to identify the individual differences in the learners and associate them with their learning styles, only then will he/she be able to discover the appropriate teaching method that will complement the learners' style

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