



Perceived Influence of Preferred Learning Styles on Academic Achievement of Junior Secondary School Students in Rivers State

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ABSTRACT

This study investigated perceived influence of preferred learning styles on academic achievement of junior secondary school students in Rivers State. The study adopted descriptive survey research design. The Taro Yamene formula was used to draw a sample size of 398 (188 males and 210 female) from the population of 71,304 junior secondary schools students in Rivers State (Planning Research and Statistics Department, Rivers State Senior Secondary School Board). A self-structured questionnaire of 12-item titled “Perceived Influence of Preferred Learning Styles on Academic Achievement Questionnaire” (PIPLSAAQ) was used for data collection. The instrument was content and face validated by an evaluation expert. Using the Cronbach Alpha to measure the internal consistency of the instrument, a reliability coefficient value of 0.82 was obtained. The research questions were answered using mean and standard deviation while z-test statistic was used to test the null hypotheses at 0.05 level of significance. The findings of this study revealed that found that there is no significant difference in the mean scores of male and female students on the extent to which visual, auditory and kinesthetic learning styles influence their academic achievement in junior secondary schools in Rivers State. The study concluded that the appropriate learning strategy for the student according to their learning style, produces unimaginable results and multiple opportunities for the learner to become much more competent in learning. From the findings of the study, it was recommended among others that teachers/instructors need to take into account their students ‘diverse learning styles, design instructional methods that take care of those diversities and remain sensitive of such during the instruction process.

Keywords: Preferred learning styles, academic achievement, junior secondary school, Rivers State.

INTRODUCTION

The totality of wonderful progress and growth today are the outcome of human learning. Environments and all their content are liable to regular change. Human beings are continuously trying to learn and add to their knowledge in order to understand the regular changes and deal with them. Consequently, they can more easily deal with the new situations and cope with the ever changing life. The lifecycle of information and knowledge has shortened due to recent technological advances and increased production of knowledge and information (Pritchard, 2009). In order to overcome this situation, individuals must be taught how to learn and gain quick access to information instead of just using the transferred knowledge

and information. The factors influencing the learning process vary systematically. As a result, understanding this wide range of factors is important in overcoming the problems and deficiencies of the education system.

The preferred learning style of students is referred to as one of the basic factors affecting his learning process (Walsh, 2011). Learning styles is a concept used to establish different ways in which people process the information in the course of learning. In the view of Begam, Binti, Abdul and Kadir (2013), learning style is the way, a student processes, retains and studies new and challenging material. Students' academic achievement may be related to learning preferences or styles as learners). Learning style also entails individual's characteristic way to respond to certain forces in the instructional environment. Learning style according to Reid (2005) refers to an individual's natural, habitual and preferred way of absorbing, processing and retaining new information and skills. It is the uniqueness of how each learner receives and processes new information through their senses. Learning style is also defined as those Educational conditions under which a student is more likely to learn. Keefe (2009) defines learning styles as the composite of characteristic cognitive, affective and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with and responds to the learning environment. Other phrases like perceptual styles, learning modalities, and learning preferences are used interchangeable with learning style. Thus, learning styles are not really concerned with what learners learn; but, rather how they prefer to learn.

Learning style has become a major concern in most sectors of education over the years (Corbett & Smith, 2012). For example, the Dunn and Dunn learning styles model (1995) focused on five domains (environmental, emotional, sociological, physiological and physiological) and twenty- one elements across those domains. The purpose of learning styles theory is to identify students' styles of learning and then provide materials and methods, which foster efficient and lasting achievement within a reasonable amount of time. Regarding learning styles, Bailey (2000) asserted that studies about the influence of learning styles in enhancing academic achievement could serve to help a significant number of students improved their study habits, their learning flexibility and ultimately their performance. Learning styles basically are concerned with how students prefer to learn not what they learn. No one style is better than others. The different styles may complement one another instead of competing with one another (Reid, 2005). The important thing that is helpful to students is to allow them to become aware of their own learning style preferences, yet encouraging them to develop less preferred styles which may suit different learning activities.

In the view of ZaiolAbdi, Razae, Abullah, and Singh (2011), the following have been identified as the basic characteristics of learning styles: visual learning, auditory learning and kinesthetic learning. The visual learners learn best through seeing and prefer information to be presented visually in the form of pictures, posters, maps, diagrams, film, and others (Bailey, 2000). Lectures do not work well for them, use lists to organize their thoughts and observe teacher's body language and facial expressions to fully understand. They love colors and show interest in the world around them. Auditory learners prefer to collect information via listening. Some of these students learn best when the teacher explains things orally. The classroom activities they like to participate in are discussions, debates, role play and problem-solving, discuss ideas verbally with others and recite information over and over to better realize the learning materials. They benefit from formal lectures, repetition, questions, and presentations. Thus, auditory learners are talkative, conceptual, perceptual, and reflective and memory oriented (James & Gardner, 2005). Kinesthetic learners are movers of the educational world. They learn best when actively engaged in doing or touching something. They need to walk around or stand up while working. They enjoy physical activities, field trips, manipulating objects and hands- on experiences. They like to think out issues, ideas and problems while they exercise (Armstrong & Mahmud, 2008).

Learning styles are pragmatic manifestations of intelligences operating in natural contexts. Students have preferences to learning and they perceive information differently. Some students get information more from external (sensory) input, and others depend more on internal (sights, sounds, physical sensations and intuitive) input. They have different insights and hunches, and view possibilities differently. Their

external information is most effectively perceived in different ways as well, for example, visually (pictures, diagrams, graphs, demonstrations) as opposed to auditory (words and sounds). Students also prefer to process information differently. It may be actively (through engagement in physical activity or discussion) or reflectively (through introspection). In the end, it comes down to how well a person progresses toward understanding: sequentially (in continual steps) or globally (in large jumps) (Farks, 2003).

It is important for a student to recognize their own learning preferences to ensure academic achievement. In the opinion of She (2005), students learn better and enjoy their learning activities more, when the teaching style closely matches their learning styles. These learning styles should have to be coordinated with the information collected through their visual, auditory and kinesthetic through which they send, receive and store information (James & Gardner, 2005). According to the learning style of a student, if materials were prepared by the teachers, it had an influence on the student's attitudes, empathy, achievements and transfer of knowledge. This point was supported by the view of Zapalska and Dabb (2002) who stated that, the information absorption and retention capacity of a student depends on the learning resources provided by the teachers which results in good academic achievement of the student. Learning style is an individual's natural or habitual pattern of acquiring and processing information in learning situation. Students enter in classrooms with a wide range of background knowledge, experiences, cognitive abilities and dispositions. These dispositions create varied orientation and learning experiences to students (Saxeena, 2012).

The way in which the student approaches the learning tasks and the behaviour in learning situations determine their learning style. It is pointed out that, the learning style of an individual has relation to factors such as prior learning experiences, openness to interpersonal and intra-personal information, physical facilities, and learning environment. All the students do not process incoming information in the same way.

Students have varying learning styles and, no single teaching styles and no single teaching style can fulfill all students' needs. A students learning styles has to do with the way he or she process information in order to learn it and then apply it. As it also contributes towards academic achievement, it was decided to study about the different learning styles of junior secondary school students. By understanding different learning styles, teacher may gain insight into ways of making academic information more accessible to the diverse needs of learners.

Academic performance is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspects are most important procedural knowledge such as, skills or declarative knowledge such as facts. However, student performance has become a hot topic in education today, especially with increased accountability for classroom teachers. The ultimate goal for any teacher is to improve the ability level and prepare students for adulthood. Defining student performance and factors that impact progress is critical to becoming a successful teacher. Student performance measures the amount of academic content a student learns in a determined amount of time. Each grade level has learning goals or instructional standards that educators are required to teach. Standards are similar to a 'to-do' list that a teacher can use to guide instruction. Student performance will increase when quality instruction is used to teach instructional standards. The study therefore sought to investigate influence of preferred learning styles on academic achievement of junior secondary school students in Rivers State.

Statement of the Problem

Many teachers today do not understand how learners learn. Consequently, it is evident that learners have not yet learned how to learn or discovered their preferred learning styles for different learning material or content in their various subjects. In another context, many teachers have not understood the different types of learners in the classroom, and they keep on embracing the same traditional teaching styles in every context. Hence, students become bored and inattentive in class, perform poorly on tests, get discouraged about their choice of career, and eventually drop out of school. Teachers confronted by poor grades, unresponsive or hostile learners, poor attendance and dropouts, know something is not working;

they may become overly critical of their students (making things even worse) or begin to wonder if they are in the right profession. These if not controlled and necessary solution provided, the level of academic achievement from students in that regards will continue to be mitigated. It is therefore imperative to understand learning style preference among the learners and how they influence academic achievement so as to develop effective and successful learners. Given the above, the study aimed at investigating perceived influence of preferred learning styles on academic achievement of junior secondary school students in Rivers State.

Purpose of the Study

The purpose of this study is to investigate perceived influence of preferred learning styles on academic achievement of junior secondary school students in Rivers State. Specifically, the objectives were to:

1. Identify the extent to which visual learning styles influence academic achievement of junior secondary school students in Rivers State.
2. Ascertain the extent to which auditory learning styles influence academic achievement of junior secondary school students in Rivers State.
3. Determine the extent to which kinesthetic learning styles influence academic achievement of junior secondary school students in Rivers State.

Research Questions

The following research questions were raised for the study:

1. To what extent does visual learning styles influence academic achievement of junior secondary school students in Rivers State?
2. To what extent does auditory learning styles influence academic achievement of junior secondary school students in Rivers State?
3. To what extent does kinesthetic learning styles influence academic achievement of junior secondary school students in Rivers State?

Hypotheses

The following null hypotheses were formulated and tested in this study:

1. There is no significant difference in the mean scores of male and female students on the extent to which visual learning styles influence their academic achievement in junior secondary schools in Rivers State.
2. There is no significant difference in the mean rating of male and female students on the extent to which auditory learning styles influence their academic achievement in junior secondary schools in Rivers State.
3. There is no significant difference in the mean rating of male and female students on the extent to which kinesthetic learning styles influence their academic achievement in junior secondary schools in Rivers State.

METHODOLOGY

The study adopted descriptive survey research design. The Taro Yamen formula was used to draw a sample size of 398 (188 males and 210 female) from the population of 71,304 junior secondary schools students in Rivers State (Planning Research and Statistics Department, Rivers State Senior Secondary School Board). A self-structured questionnaire of 12-item titled “Perceived Influence of Preferred Learning Styles on Academic Achievement Questionnaire” (PIPLSAAQ) was used for data collection. The instrument was content and face validated by an evaluation expert. Using the Cronbach Alpha to measure the internal consistency of the instrument, a reliability coefficient value of 0.82 was obtained. The research questions were answered using mean and standard deviation while z-test statistic was used to test the null hypotheses at 0.05 level of significance.

RESULTS

Research Question 1: *To what extent does visual learning styles influence academic achievement of junior secondary school students in Rivers State?*

Table 1: Descriptive statistics on the influence of visual learning styles on academic Achievement of junior secondary school students in Rivers State?

S/No	Items	Male (n ₁ = 188)			Female (n ₂ = 210)		
		\bar{x}	SD	Decision	\bar{x}	SD	Decision
1	Reading what the teacher writes on the board makes me often learn better.	2.91	1.50	High Extent	2.84	1.13	High Extent
2	I remember things very well when I read the instructions.	2.72	1.42	High Extent	2.90	1.36	High Extent
3	I understand better when I follow instructions.	2.85	1.33	High Extent	3.01	1.28	High Extent
4	Learning becomes easier by reading than by listening to someone.	2.50	1.09	High Extent	2.77	1.50	High Extent
5	Reading textbooks makes me learn more than by listening to lectures.	3.11	1.27	High Extent	3.04	1.62	High Extent
Grand Scores/Decision		2.82	1.32	High Extent	2.91	1.38	High Extent

Decision: Male and Female students accepted that items 1 - 5 on Table 1 implies that visual learning styles influence academic achievement of junior secondary school students in Rivers State to a **High Extent:** ($2.50 \leq \bar{x} \leq 3.49$).

Table 1 above shows a grand mean of 2.82 and a standard deviation of 1.32 for male students and grand mean of 2.91 and a standard deviation of 1.38 for female students in junior secondary schools. This implies that male and female students agreed that item 1 – 5 on table 1 constitute the extent to which visual learning styles influence academic achievement of junior secondary school students in Rivers State students in Rivers State.

Research Question 2: *To what extent does auditory learning styles influence academic achievement of junior secondary school students in Rivers State?*

Table 2: Descriptive statistics on the influence of auditory learning styles on academic Achievement of junior secondary school students in Rivers State?

S/No	Items	Male (n ₁ = 188)			Female (n ₂ = 210)		
		\bar{x}	SD	Decision	\bar{x}	SD	Decision
6	I understand the instructions given by my teacher.	2.65	1.30	High Extent	2.81	1.31	High Extent
7	I learn better when someone tells me how to do something in class.	2.80	1.19	High Extent	2.76	1.27	High Extent
8	I remember things I have to hear in the class better than things I have read.	2.93	1.22	High Extent	2.99	1.30	High Extent
9	When the teacher gives a lecture I learn better in class.	2.58	1.27	High Extent	2.67	1.34	High Extent
10	When I listen to someone I learn better in the class.	2.73	1.39	High Extent	2.54	1.26	High Extent
Grand Scores		2.74	1.27	High Extent	2.75	1.30	High Extent

Decision: Male and Female students accepted that items 6 - 10 on Table 2 implies that auditory learning styles influence academic achievement of junior secondary school students in Rivers State to a **High Extent:** ($2.50 \leq \bar{x} \leq 3.49$).

Table 2 above shows a grand mean of 2.74 and a standard deviation of 1.27 for male students and grand mean of 2.75 and a standard deviation of 1.30 for female students in junior secondary schools. This implies that male and female students agreed that item 6 – 10 on table 2 entails the extent to which

auditory learning styles influence academic achievement of junior secondary school students in Rivers State students in Rivers State.

Research Question 3: *To what extent does kinesthetic learning styles influence academic achievement of junior secondary school students in Rivers State?*

Table 3: Descriptive Statistics on the influence of kinesthetic learning styles on academic achievement of junior secondary school students in Rivers State?

S/No	Items	Male (n ₁ = 188)			Female (n ₂ = 210)		
		\bar{x}	SD	Decision	\bar{x}	SD	Decision
11	I choose to learn better by doing something in class.	3.11	1.22	High Extent	3.02	1.15	High Extent
12	I learn better when I do things in class.	2.87	1.31	High Extent	2.90	1.24	High Extent
13	I enjoy learning in class by doing some experiments.	3.04	1.18	High Extent	3.00	1.30	High Extent
14	I understand things better in the class when I participate in role-playing.	2.64	1.26	High Extent	2.55	1.28	High Extent
15	When I participate in related activities I learn much better.	2.71	1.09	High Extent	2.81	1.21	High Extent
Grand Scores		2.87	1.21	High Extent	2.86	1.24	High Extent

Decision: Male and Female students accepted that items 11 - 15 on Table 3 implies that kinesthetic learning styles influence academic achievement of junior secondary school students in Rivers State to a **High Extent:** ($2.50 \leq \bar{x} \leq 3.49$).

Table 3 above shows a grand mean of 2.87 and a standard deviation of 1.21 for male students and grand mean of 2.86 and a standard deviation of 1.24 for female students in junior secondary schools. This implies that male and female students agreed that item 11 – 15 on table 3 entails the extent to which kinesthetic learning styles influence academic achievement of junior secondary school students in Rivers State students in Rivers State.

Testing of Hypotheses

Hypothesis 1: There is no significant difference in the mean scores of male and female students on the extent to which visual learning styles influence their academic achievement in junior secondary schools in Rivers State.

Table 4: Test of Difference in the mean scores of male and female students on the influence of visual learning styles on academic achievement of junior secondary school students in Rivers State.

Gender	\bar{x}	SD	N	Df	α	z-cal.	z-crit.	Decision
Male	3.37	1.08	188	396	0.05	1.08	1.96	H ₀
Female	3.82	1.19	210					Accepted

Table 4 shows that the z-calculated value of 1.08 using degree of freedom of 396 at 0.05 level of significance is less than the z-critical value of 1.96 which indicates that the null hypothesis that “there is no significant difference in the mean scores of male and female students on the extent to which visual learning styles influence their academic achievement in junior secondary schools in Rivers State” is accepted. This implies that male and female students of junior secondary schools in Rivers State are in agreement that visual learning styles influence academic achievement of junior secondary school students in Rivers State.

Hypothesis 2: There is no significant difference in the mean rating of male and female students on the extent to which auditory learning styles influence their academic achievement in junior secondary schools in Rivers State.

Table 5: Test of Difference in the mean scores of male and female students on the influence of auditory learning styles on academic achievement of junior secondary school students in Rivers State.

Gender	\bar{x}	SD	N	Df	α	z-cal.	z-crit.	Decision
Male	3.16	1.17	188	396	0.05	1.15	1.96	H ₀
Female	3.53	1.31	210					Accepted

Table 5 shows that the z-calculated value of 1.15 using degree of freedom of 396 at 0.05 level of significance is less than the z-critical value of 1.96 which indicates that the null hypothesis that “there is no significant difference in the mean scores of male and female students on the extent to which auditory learning styles influence their academic achievement in junior secondary schools in Rivers State” is accepted. This implies that male and female students of junior secondary schools in Rivers State are in agreement that auditory learning styles influence academic achievement of junior secondary school students in Rivers State.

Hypothesis 3: There is no significant difference in the mean rating of male and female students on the extent to which kinesthetic learning styles influence their academic achievement in junior secondary schools in Rivers State.

Table 6: Test of Difference in the mean scores of male and female students on the influence of kinesthetic learning styles on academic achievement of junior secondary school students in Rivers State

Gender	\bar{x}	SD	N	Df	α	z-cal.	z-crit.	Decision
Male	3.44	2.01	188	396	0.05	1.04	1.96	H ₀
Female	3.69	2.38	210					Accepted

Table 6 shows that the z-calculated value of 1.04 using degree of freedom of 396 at 0.05 level of significance is less than the z-critical value of 1.96 which indicates that the null hypothesis that “there is no significant difference in the mean scores of male and female students on the extent to which kinesthetic learning styles influence their academic achievement in junior secondary schools in Rivers State” is accepted. This implies that male and female students of junior secondary schools in Rivers State are in agreement that kinesthetic learning styles influence academic achievement of junior secondary school students in Rivers State.

DISCUSSION OF RESULTS

The study investigated perceived influence of preferred learning styles on academic achievement of junior secondary school students in Rivers State, and found that there is no significant difference in the mean scores of male and female students on the extent to which visual learning styles influence their academic achievement in junior secondary schools in Rivers State. This implies that male and female students of junior secondary schools in Rivers State accepted that visual learning styles influence academic achievement of junior secondary school students in Rivers State. In line with this finding, Bailey (2000) opined that in visual learning, learners learn best through seeing and prefer information to be presented visually in the form of pictures, posters, maps, diagrams, film, and others. Lectures do not work well for them, use lists to organize their thoughts and observe teacher’s body language and facial expressions to fully understand. They love colors and show interest in the world around them. Learning styles are pragmatic manifestations of intelligences operating in natural contexts. Students have preferences to learning and they perceive information differently. Some students get information more from external

(sensory) input, and others depend more on internal (sights, sounds, physical sensations and intuitive) input. They have different insights and hunches, and view possibilities differently. Their external information is most effectively perceived in different ways as well, for example, visually (pictures, diagrams, graphs, demonstrations) as opposed to auditory (words and sounds). Students also prefer to process information differently. It may be actively (through engagement in physical activity or discussion) or reflectively (through introspection). In the end, it comes down to how well a person progresses toward understanding: sequentially (in continual steps) or globally (in large jumps) (Farks, 2003).

The study further found that there is no significant difference in the mean scores of male and female students on the extent to which auditory learning styles influence their academic achievement in junior secondary schools in Rivers State. James & Gardner, (2005) supported this finding in his study where he found that auditory learners prefer to collect information via listening. Some of these students learn best when the teacher explains things orally. The classroom activities they like to participate in are discussions, debates, role play and problem- solving, discuss ideas verbally with others and recite information over and over to better realize the learning materials. They benefit from formal lectures, repetition, questions, and presentations. Thus, auditory learners are talkative, conceptual, perceptual, and reflective and memory oriented. It is important for a student to recognize their own learning preferences to ensure academic achievement. In the opinion of She (2005), students learn better and enjoy their learning activities more, when the teaching style closely matches their learning styles. These learning styles should have to be coordinated with the information collected through their auditory through which they send, receive and store information (James & Gardner, 2005). According to the learning style of a student, if materials were prepared by the teachers, it had an influence on the student's attitudes, empathy, achievements and transfer of knowledge. This point was supported by the view of Zapalska and Dabb (2002) who stated that, the information absorption and retention capacity of a student depends on the learning resources provided by the teachers which results in good academic achievement of the student. Learning style is an individual's natural or habitual pattern of acquiring and processing information in learning situation. Students enter in classrooms with a wide range of background knowledge, experiences, cognitive abilities and dispositions. These dispositions create varied orientation and learning experiences to students.

Finally the study found that there is no significant difference in the mean scores of male and female students on the extent to which kinesthetic learning styles influence their academic achievement in junior secondary schools in Rivers State. In line with this finding, Armstrong and Mahmud (2008) established that kinesthetic learners are movers of the educational world. They learn best when actively engaged in doing or touching something. They need to walk around or stand up while working. They enjoy physical activities, field trips, manipulating objects and hands- on experiences. They like to think out issues, ideas and problems while they exercise. The way in which the student approaches the learning tasks and the behaviour in learning situations determine their learning style. It is pointed out that, the learning style of an individual has relation to factors such as prior learning experiences, openness to interpersonal and intra-personal information, physical facilities, and learning environment. All the students do not process incoming information in the same way. Students have varying learning styles and, no single teaching styles and no single teaching style can fulfill all students' needs. A students learning styles has to do with the way he or she process information in order to learn it and then apply it. As it also contributes towards academic achievement, it was decided to study about the different learning styles of junior secondary school students (Saxeena, 2012). By understanding different learning styles, teacher may gain insight into ways of making academic information more accessible to the diverse needs of learners.

CONCLUSION

The current study identified the learning styles of school students. Furthermore, it identified the preferred learning styles on the student academic achievement. The students in this study were found to prefer both visual, auditory and kinesthetic style to the other learning styles. Teaching needs to be designed to include

different learning opportunities and appropriate assessments to ensure that, the learning is accessible to the largest number of students. Applying a mix of teaching approaches to the classroom and in planning the learning opportunities for students should benefit the maximum numbers of students. Even the successful language development depends on the degree of understanding of one's own learning style and on choosing appropriate learning strategies that fit his or her learning style. The appropriate learning strategy for the student according to their learning style, produces unimaginable results and multiple opportunities for the learner to become much more competent in learning. The competency thus gained will motivate them to build self-confidence and help them to develop themselves as a great success in their world.

RECOMMENDATIONS

From the findings of study, the following recommendations are made:

1. Teachers/instructors need to take into account their students' diverse learning styles, design instructional methods that take care of those diversities and remain sensitive of such during the instruction process.
2. Teachers should also help their students to understand their learning style preferences and make use of such to develop life-long learners.
3. Teacher should have an insight into ways of making academic information more accessible to the diverse needs of learners to ensure effective use of visual, auditory and kinesthetic learning style.

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