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Abstract
This study examined the Influence of Convergent/ Divergent learning style on academic performance among Senior Secondary School Students in Katsina Zonal Education Quality Assurance. Two research hypotheses were formulated for the study, the study employed Survey Research Design. Nineteen (19) Schools were randomly selected from the targeted student’s population of twelve thousand, five hundred and forty (12,540) Students across the Zone, Three hundred and seventy (370) students were selected to make the sample for the study. The study adapted Hudson’s test of common objects for Con/ Div Test. The study used Academic Performance Test in Biology and English. The statistics used for data analysis was the T-test for independent sample. The findings of the present study concluded that Convergent learning styles has significant influence on student’s academic performance in Biology. And Convergent students performed better in biology. Divergent learning styles has a significant influence on students’ academic performance in English. And Divergent students performed better in English. It therefore recommended that Teachers, Parents and administrators should ensure they address all relevant students’ modalities while teaching or dealing with the students, so that, they will not only favour their own style inclination while teaching the Students. Student with Convergent Learning Style should be placed in Science classes and Divergent Students should be placed in Art classes, and Teachers should identify the students learning style before placement either of the classes.

Keywords: Learning Style, Convergent, Divergent, Meta-learning.

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The main goal of Educational Researches is to ensure achievement of Qualitative Education and knowledge development, so as to achieve a self-reliant and creative society. Education is one of the vital sectors that contribute towards the development of any society. It is the backbone of every nation. In a situation were by majority of the people living in a particular society are educated; they would be able to come up with many ideas in terms of their economic, political and social wellbeing. Learning styles have been shown to play an important role in the learning process. Each person has his own learning style strategy which can served as a determinants of how he interacts with his learning environment. Individuals have different pattern of which they prefer to absorb, retain and process new information (Cassidy & Eachus, 2010). The outcome from learning styles researches provides researchers with knowledge that can help them in improving the overall quality of learning, the learning environment, as well as the overall improvement in the learners’ academic performance.

Learning Style is the characteristic cognitive, affective, social, and physiological behaviour that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment. Learning style of person is the preferred way through which he process information while learning. This include Convergent/Divergent learning styles, Field dependent Field/Field Independent, Reflective/ Impulsive etc. It can also be defined as consistent preferences over time and subject matter of perceiving, thinking about, and organizing information in a particular way (Sternberg et-al, 2006). Some students, for example, prefer to think about the nature of a task, collect relevant information, and formulate a detailed plan before taking any action, whereas others prefer to run with the first idea they have and see where it leads. Some students prefer to work on several aspect of a task simultaneously, whereas others prefer to work on one aspect at a time in a logical sequence.

Convergent and Divergent thinking is a term proposed by Guilford in 1956. Guilford's findings were considerably extended by Hudson in 1966, Guilford central interest was to design a more comprehensive model of human intellectual abilities. Convergent thinking is the finding a single best solution to a problem that we are trying to solve (Williams, 2013). Many tests that are used in schools, such as multiple-choice tests, spelling tests, math quizzes, and standardized tests, are measures of convergent thinking. Divergent thinking is the process to create several unique solutions intending to solve a problem. The process of divergent thinking is spontaneous and free-flowing, unlike convergent thinking, which is systematic and logical. When using convergent thinking, we use logical steps in order to choose the single best solution. By using divergent thinking, instead of only choosing among appointed options, we search for new options. Convergent thinking stands firmly on logic and less on creativity, while divergent thinking is mostly based on creativity. We use divergent thinking mostly in open-ended problems that creativity is a fundamental part (Williams, 2013). Diversers perceive concretely and think reflectively and imaginatively. Divergent thinking is related to fluency (i.e., the ability to produce multiple ideas in response to a task rapidly), flexibility (i.e., the capacity to consider multiple approaches to a problem), originality (i.e., the tendency to produce novel ideas in response to a task), and elaboration (i.e., the ability to consider the implications and consequences of ideas). Divergent thinkers tend to choose the liberal arts and humanities.

It was suggested by Muhammad (2010) that convergent pupils tended to specialize in the sciences and classics, but divergent pupils may be good in arts, history and modern language. He also found that between three and four times as many convergers do mathematics, Biology, physics and chemistry than for every one that goes into the arts. Results cited by
Jackson (2015) indicated that although the majority of science specialists entering university were Convergent thinkers, it is mainly the Divergent thinkers among them who finally achieved the better results. In another study Runco (2016) noted that there were particular domains of performance for example art and writing, that were more strongly related to divergent thinking than other areas as music and science. Haji Pour & Nezhad (2013) also verified that convergent style emphasizes recognizing the familiar outcome, reapplying techniques, and accumulating information. Divergent thinking, however, causes the learner to generate and evaluate many creative ideas and draw unexpected connections. The result of this study is also in line with Martin (2015) who studied the effects of convergent and divergent teaching methods on students’ performance on two mathematical problem-solving tasks. The purpose was to investigate the interaction between the convergent and divergent teaching methods and the thinking style (either convergent or divergent) of the learner implying that convergent thinkers scored significantly higher than did divergent thinkers on both dependent measures. This study will also look this finding into consideration.

Jackson (2015) distinguished between the groups of students; the first group was called the "high IQ" learners, who are good at intelligence tests, but relatively weak on the tests of creativity. The second group was labelled as the "high creative students" who are superior in their performance on the tests of creativity open-ended tests, but relatively weak on tests of "intelligence". The concept of convergence/divergence as a cognitive styles was explored by Hudson (1966, 1968). He suggested that the convergence/divergence dimension is a measure of bias, not a level of ability. The two ways of reasoning are called by Hudson "convergent and divergent thinking". He also noted that convergent /divergent thinking may be thought of as polar opposites. A convergent thinker is defined by Hudson (1966) as an individual whose performance on IQ tests is better than his/her performance on open-ended or "creativity tests", while a divergent thinker shows the reverse result. Guilford (1959, 1978) defined convergent thinking as thinking towards one right answer or towards a relatively uniquely determined answer, while divergent thinking is a way of thinking in which a number of ideas will be produced from a given set of information. In other words, a greater variety of answers to each question would more likely be found by divergent thinkers. Convergent thinkers see information as leading to a restricted answer or solution.

However, Hudson (1966) rejected the belief of many psychologists that divergent people are potentially creative and convergent people are potentially uncreative. He suggested that Convergers are naturally attracted towards one end of spectrum and Divergers to the other. Based on this, Hudson (1966) noted that convergent and divergent students use different tactics in dealing with the pressures of work and emotional experience. One tactic is not necessarily better or worse than another, hence its bipolarity makes the convergence/divergence dimension value-neutral, in the sense that each pole has its own characteristic strengths and weaknesses. Runco (2016) suggested that a divergent learning style is of course not completely synonymous with creative ability. It is just one component of creativity despite the fact that divergent thinking tests are psychometrically reliable and widely employed as estimates of creative potential. Results of Runco's study indicated that divergent thinking and creative performance scores were moderately related in the gifted school children samples, but unrelated in the non-gifted sample.

Despite the parents’ effort in guiding and helping the children at home, in their take home assignments, extra lessons and buying learning materials, the children still experience negative outcome with regard to their academic performance, this is because, they guide the children using negative approach to the student’s preferred learning style. Lacking the knowledge of this learning styles would also lead the parent to direct their children to the
wrong direction towards learning, because they do not know how to assist their children to excel in their academic performance. Educational psychologist and Teachers that lack the knowledge of identifying one learning style with the other, would end up mixing between unrelated learning styles without paying independent attention to each category of students based on their preferred learning style, as a result they would end up applying the same methods and procedures in dealing with the students in an academic setting, which would end up to student’s poor academic performance by not knowing that each learning style is independent on its own.

Mismatching between the teaching and students preferred learning styles resulted to students choosing a negative learning style unsuitable for the Discipline they were belongs to, most teachers do not have the knowledge of these suitable and the best learning styles for the students and how best learners learn through them. Teachers and educational psychologist who do not understand the diversity of their learners in a typical classroom, would end up embracing the same traditional teaching styles in every context, using the same method and materials of instruction, given the same test and examination conditions, and have general perception to all the children regardless of their individual difference to learning style approach. Misconception of the style to be use in learning by the students’ and teachers, would end up mixing between unrelated procedures and students prepared styles. Likewise in the management, during grouping and grading of the children, misconception of the preferred student learning style strategy lead them to have general grouping of the children at the same strata and instructional situations, regardless of the differences among the students learning styles. It is in view of the above that, this research work study the learning styles on students’ academic performance in Katsina Zonal Education Quality Assurance.

**Theoretical Underpinning**

The paper focuses on the Kolb Experiential Learning Style theory, Kolb’s Experiential Learning Model (ELM) and Learning Style Inventory (LSI) has been widely utilized and modified to address the various issues regarding educational contexts. Kolb proposes a four-stage hypothetical learning cycle. Individuals will show a preference for or will cope with some stages better than others and learning is seen as continuous, interactive process (Kolb, 1984). The four stages of the ELM are described as: concrete experience (CE; experiencing) which favour experiential learning; abstract conceptualization (AC; thinking) where there is a preference for conceptual and analytical thinking in order to achieve understanding; active experimentation (AE; doing) involving active trial-and-error learning; and reflective observation (RO; reflecting) where extensive consideration is given to the task and potential solutions before there is any attempt at action. The four learning orientations form two orthogonal bipolar dimensions of learning. The individual who adopts a convergent approach uses abstract conceptualization to drive active experimentation. Action is based on abstract understanding of the task and projected strategies for successful completion of the task. Divergers combine reflective observation with concrete experience to devise an often creative solution. Divergers are often described as creative learners because of their propensity to consider multiple potential strategies for learning and problem solving, this implies the important of learning style in problem solving and emphasizes the role of learning style strategy in learning, when best use, will lead to success in academic encounters, and will lead to poor academic performance if use otherwise.

Based on the literature and theory reviewed, the study is aimed to answer the following key questions:
1. Will there be any difference in academic performance between Convergent and Divergent Students’ in Biology?
2. What are the difference in academic performance between Convergent and Divergent Students’ in English?

**Research Hypotheses**

The study is guided by the following null hypotheses:

- H01. There is no significant difference in the academic performance between Convergent and Divergent Students’ in Biology.
- H02. There is no significant difference in the academic performance between Convergent and Divergent Students’ in English.

**Research Method and Design**

This study used a descriptive survey research design. Because, in descriptive survey research design, data collection is carried out in a structured process, to describe the characteristics of a selected phenomenon and involves the collection of data without manipulation of variables (Learning Styles and Academic Performance). And it also enables many variables to be studied at a time. Survey designed was used for this study because it is commonly used in behavioral sciences especially in educational research, it is also an effective way of gathering data from different sources within a short period of time, (Kothari, 2010).

**Area of study**

This study was conducted in Katsina, which is one of the local government areas in Katsina State, located in the north-western part of Nigeria, and it’s the capital of the state. The LGA was established in 1987 covering an Area of 24,192 km2-Density: 323.7/km2 with a population of 429,400 as at 2016 Projection, the people are mostly Hausa by Tribe and of Islamic Religion. Their occupation is predominantly farming and trading.

**Population**

The population of this study consists of 21 Senior Secondary Schools and 12,540 SS II Students, in Katsina Zonal Education Quality Assurance. The Zone comprises of three local governments namely: Katsina, Jibia, and Kaita Local Government Areas. The researcher restricted himself only to public schools because of their uniformity in standard and norms.

**Table 1**

*Population of SSII Students’ in Katsina Zonal Education Quality Assurance*

<table>
<thead>
<tr>
<th>S/N</th>
<th>Schools</th>
<th>Gender</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1.</td>
<td>SUNCAIS</td>
<td>905</td>
<td>112</td>
</tr>
<tr>
<td>2.</td>
<td>Dikko College, Katsina</td>
<td>557</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>GCK (Day Wing)</td>
<td>769</td>
<td>644</td>
</tr>
<tr>
<td>4.</td>
<td>GDSS Kofar Yandaka</td>
<td>1102</td>
<td>1400</td>
</tr>
<tr>
<td>5.</td>
<td>GDSS Kofar Sauri</td>
<td>518</td>
<td>194</td>
</tr>
<tr>
<td>6.</td>
<td>SOOSS Kambarawa</td>
<td>428</td>
<td>194</td>
</tr>
<tr>
<td>7.</td>
<td>GDSS Kofar Kaura</td>
<td>599</td>
<td>564</td>
</tr>
<tr>
<td>8.</td>
<td>KCK (Snr)Katsina</td>
<td>496</td>
<td>690</td>
</tr>
<tr>
<td>9.</td>
<td>GGCK (Snr) Katsina</td>
<td>-</td>
<td>923</td>
</tr>
<tr>
<td>10.</td>
<td>FSPSS, Katsina</td>
<td>65</td>
<td>60</td>
</tr>
</tbody>
</table>
Sample and Sampling Technique

Sample of this study was drawn from the total population of 12,540. The sample size stands at 370 students of Katsina Zonal Education Quality Assurance, and involve both male and female students, and the selection is guided by the provision of Krejcie and Morgan (1971). Krejcie and Morgan Table (1971) was used in selection of Nineteen (19) Schools from all the three Local Government of the Katsina Zonal Education Quality Assurance. And samples for this study was drawn with the aid of Research Advisor (2006), the sample for this study was selected using a formulae;

\[
\text{Number of Students per School} \times 370
\]

Total Population

However, Student samples were selected using simple random sampling technique, this gave every subject within the target population a chance to be included in the study. The schools selected during this study and the number of sample per school is indicated in the table below:

Table 2
Sample Size Distribution

<table>
<thead>
<tr>
<th>S/N</th>
<th>NAME OF SCHOOLS</th>
<th>SAMPLE MALE</th>
<th>SAMPLE FEMALE</th>
<th>TOTAL NO OF SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>GDSS Kofar Yandaka</td>
<td>44</td>
<td>30</td>
<td>74</td>
</tr>
<tr>
<td>2.</td>
<td>SUNCAIS</td>
<td>20</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>Dikko College, Katsina</td>
<td>10</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>4.</td>
<td>GCK (Day Wing)</td>
<td>21</td>
<td>20</td>
<td>41</td>
</tr>
<tr>
<td>5.</td>
<td>GDSS Kofar Sauri</td>
<td>11</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>6.</td>
<td>SOOSS Kamberawa</td>
<td>10</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>7.</td>
<td>GDSS Kofar Kaura</td>
<td>20</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>8.</td>
<td>KCK (Snr) Katsina</td>
<td>20</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>9.</td>
<td>GGCK (Snr) Katsina</td>
<td>-</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>10.</td>
<td>FSPSS, Katsina</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>11.</td>
<td>School of Blind Katsina</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>GDSS D/Safe, Katsina</td>
<td>8</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>13.</td>
<td>GDSS Jibia</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
</tbody>
</table>
The Instrument

Learning styles Test (L.S.T) are adapted by the researcher in the formation of the testing instrument (Convergent/Divergent test by Hudson, 1967. (Test for the uses of common things), as well as Biology and English test, extracted from WAEC 2016 past question paper to find out the difference in academic performance among students. In order to collect data for Convergent/Divergent Learning Style, the researcher adapted the Hudson (1967) test for the uses of common thing /object. The researcher used five common object used for our domestic purposes, that is: rope, cup, knife, key and wardrobe. Respondents were asked to give ten different alternative uses of each of the above mentioned items / common objects. Students that scored above 20 marks ware classified as divergent and below are categorized as convergent. 45 minutes was given to the respondents to answer the instrument.

Validity of the Instruments

In order to ascertain the face and content validity of the instruments, the researcher subjected the research instruments to experts and colleagues for Validation, The instrument were also validated after a careful scrutiny and deliberations by the team of Experts of research methodology at various Universities.

Findings

Null Hypothesis H01: There is no significant difference in the academic performance between Convergent and Divergent Students’ in Biology.

Table 3

Result analyzing the difference in academic performance between Convergent/Divergent Students’ in Biology

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Df</th>
<th>t-value</th>
<th>p-value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergent Learning style</td>
<td>199</td>
<td>18.301</td>
<td>6.845</td>
<td>368</td>
<td>2.551</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>And acad. Perf in Biology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divergent Learning style</td>
<td>171</td>
<td>10.447</td>
<td>3.410</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>And acad. Perf. in Biology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>370</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p ≤ 0.05

Convergent students has higher mean score of 18.301 and SD of 6.845, this shows that convergent learners performed better than their divergent counterpart and this also clearly shows that Convergent students performed better in Biology. Analysis shows that the t-value computed is 2.551 and the p-value is .000 observed at a degree of freedom of 368. Since the critical p-value of .000 is less than the alpha value of 0.05, the hypothesis is rejected. This
implies that, there is a significant difference in academic performance between Convergent and Divergent Students’ in Biology.

\textbf{H02:} There is no significant difference in academic performance between Convergent and Divergent student in English.

In testing the above hypothesis, data of Convergent and Divergent learning style and students’ academic performance in English were used:

\textbf{Table 4}

\textit{Result analyzing the difference in academic performance between Convergent/Divergent Students’ in English}

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Df</th>
<th>t-value</th>
<th>p-value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergent Learning style And acad. Perf. In English</td>
<td>176</td>
<td>10.832</td>
<td>2.223</td>
<td>368</td>
<td>1.461</td>
<td>0.002</td>
<td>Sig.</td>
</tr>
<tr>
<td>Divergent Learning styles And acad perf in English</td>
<td>194</td>
<td>15.627</td>
<td>5.853</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>370</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at $p \leq 0.05$

Analysis shows that the t-value computed is 1.461 and the p-value is 1.461 observed at a degree of freedom of 368. Since the critical p value 0.002 < the alpha value of 0.05, means rejecting the hypothesis. This implies that, there was a significant difference in academic performance between Convergent and Divergent Students’ in English, since Divergent Students performed better in English academic performance with a Mean Score of 15.627 and SD of 5.853, which is higher than that of Convergent Students with a mean of 10.832 and SD of 2.223. This clearly shows that convergent learners performed better in English.

\textbf{Discussion of Results}

Hypothesis one clearly show that, there is a significant difference in academic performance between Convergent and Divergent Students’ in Biology. This finding is supported Basiru (2016), the study compare the effects of convergent and divergent teaching methods on learning articles. The findings indicated positive effects of both convergent and divergent teaching methods on English; however, contrary to what had been hypothesized at the outset of the study, the Divergent approach proved more effective than the Convergent one in improving the participants’ knowledge of English Language.

The study is also in line with that of Hudu (2010) finding in this domain he investigated the difference of convergent and divergent learning style and Biology academic performance of SS2 students. He suggested that problem-solving could be best done by convergent then divergent teaching and convergent teaching was superior to divergent teaching on routine problems. Therefore, the findings of his study clearly shows that Convergent learner performed better in Biology, which indicated that Student with Convergent Learning Style should be placed in Science classes and Divergent Students should be placed in Art classes, as such will give each of the category of Student a room to function as part of the class. Jackson, (2015) who reported that, while convergent bias was associated with more high
level students' passes in the first year study, there is significant difference in the relative success of convergent students in the second year. However, they found that there is a relationship between student’s choice of faculty (arts or science) and their learning style. This study is in agreement with that of Jackson (2015).

Hypothesis two revealed that, there is a significant difference in academic performance between Convergent and Divergent Students’ in English. The findings of the present study are in line with Ann (2013), who studied the difference of convergent and divergent methods for teaching spelling and creativity. Ann found a significant difference in achievement between convergent and divergent children and he founded significant interaction between teaching method and students’ academic performance. Kabir (2015) studied using reflective/impulsive approach to practice articles with geographical names. Kabir opined that article is one of the most problematic issues in teaching English. Students find it difficult to use the article correctly and often make mistakes. Joseph (2015) studied using field dependence/ field independence learning style; Joseph founded a significant difference between these two methods. He set out an eight-level hierarchy of learning styles by putting more emphasis on English Language using field independence learning. The findings of the study are also in agreement with Martin (2015), who believed that pupils taught by convergent teaching method were more successful. Martin studied the effects of convergent and divergent teaching methods on students’ performance on English problem-solving tasks. The purpose was to investigate the interaction between the convergent and divergent teaching methods and the thinking style (either convergent or divergent) of the learner implying that convergent thinkers scored significantly higher than did divergent thinkers on both dependent measures. The findings of the present study clearly indicated that, Divergent students are founded to be good in English language, and being it a general core subject, it is recommended that teachers should employed different teaching method that will convey all the category of student along, by giving due consideration to each Student Learning style.

**Conclusion and Recommendations**

Based on the result generated from the analysis of the data at 0.05 level of significant, it was concluded that, Divergent learning styles has significant influence on student’s academic performance in Biology. And divergent students are conclusively found to performed better in biology, As a results Divergers should be placed in science classes, and since Convergent learning styles were also found to have a significant influence on Divergent students’ in English. And divergent students performed better in English. Students with divergent style of learning should be placed in Art Classes as they can best learn when approach with open ended solution to a problem. The present study yielded some important insights into the learning styles and academic performance among secondary school students and the study recommended among others that the convergent learners performed better in Biology, therefore, student with convergent learning style should be placed in Science classes and divergent students should be placed in Art classes, and teachers should identify the students learning style before placement into either of the classes.

Secondly, the divergent students are founded to be good in English language, and being it general core subject, it is recommended that teachers should employed different teaching method that will convey all the category of student along, with giving due consideration to Student individual learning style. Convergent learners learn best when approach with close ended problems, it is recommended that learning materials should be provided that will carry all category of student along for self-discovery and independent learning. And this research encourages teachers to improvise where necessary. Students with divergent learning styles need independent learning, career counsellors should also take advantage of knowledge of the
students learning styles to guide them on the type of careers they are likely to succeed. Teachers, parents and administrators should ensure they address all relevant students’ modalities while teaching or dealing with the students, so that, they will not only favour their own style inclination while teaching the Students.

This research work will be of great relevance to the parent, teachers, students, and educational psychologist, through the knowledge of learning styles, parent will know the best learning strategy of their children in order to assist them to understand choose and learn based on their best suitable learning preparedness. The parents will also help the teachers and curriculum planners to effectively carrying out their duties through helping the Students at home. This research will help in recognize the importance of learning styles preferences among students, and how teachers can best assist the students to choose and act on his learning style strategy, in order to excel in his academic performance. The study of Students’ academic performance will become a means to assist teachers understand their learners’ learning style preferences and adjust it to maximize learning and hence improve academic performance. The knowledge of learning styles will help students to know about their own learning style and can take control or direct their own learning through modifying their styles, habit and materials for optimum learning.

**Limitation of the study and Implication for further studies**

The major challenge experience by the researcher is mainly on the commitment of various subject teachers in helping the researcher during the administration of the learning styles tests. And failure of some teachers of compiling with the stated time scheduled as at responding to the research instruments. Some insisted on over guiding the students while filling the Learning styles tests, more especially in the academic performance tests. More also, factors like low level of understanding of English language and level of understanding of the instrument also become a problem to most students which brought about explanation more than Expectation. Further researchers need to conduct study using different learning style, wide geographical area, and different research sample, to ascertain the strength of the result finding about the students learning styles. About the ability of styles to explain academic achievement, only the Diverging and reflective styles functioned as predictors in a significant way, but still maintaining the four styles in the model. In view of this, repeating analyses with a wider and more heterogeneous sample in terms of degree course distribution arises as the next step, in order to verify if the other two styles—Accommodating and Assimilating increase their significance levels under different conditions. Investigations also need to be extended to freshmen, given that this study was conducted with Secondary School Students.

**References**

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