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SOCIAL LEARNING ENVIRONMENT AS CORRELATES OF SECONDARY SCHOOL STUDENTS' ATTITUDES IN CHEMISTRY

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Keywords: *Chemistry, Social Learning Environment and Attitude.*

Abstract: *This study investigated social learning environment as correlates of secondary school students' attitudes in Chemistry in Ogidi education zone. One research question and a sole hypothesis tested at .05alpha level guided the conduct of the study. Correlation survey design was adopted for the research. Population of the study was 2840 SS 2 Chemistry students in Ogidi education zone. Fifty percent of (50%) the total populations (2840) were selected using simple random sampling technique. Multistage sampling technique involving different procedure at each stage was used to select 26 co-educational schools from the 40 schools in Ogidi education zone which amounted to 1,420 senior secondary two (SS2) Chemistry students which were used. The instruments used for data collection were Social Learning Environment Questionnaire (SLEQ) and Student's Attitude Scale (SAS) validated by two lecturers from Departments of Science Education and one lecturer from Education Foundations all in faculty of Education Nnamdi Azikiwe University, Awka. The reliability of the two instruments was established using Cronbach alpha. Coefficient of .71 and .73 were yielded showing that the instruments were reliable. The students were giving the instruments to respond to the questions which were used to collect the data. Pearson product moment correlation was used to answer research question while ANOVA was used to test the sole hypothesis at .05 level of significant. Findings of the study revealed that social learning environment has a moderate positive relation with students' attitudes in Chemistry and there was a significant relationship between students' perception of social learning environment scores and attitudes towards Chemistry. From the findings of the study, recommendations and conclusions were made.*

Introduction

Chemistry is a branch of science that deals with the study of nature, composition and properties of matter, as well as the changes matters undergone under different conditions. Chemistry deals with the study of our environment and things that are happening around it. According to Chukwu (2015), Chemistry not only explains the environment but also offers a lot of useful and important knowledge to humanity. Examples are in the area of industrial production of fertilizer, insecticides, food and drinks, clothing and textile materials and many other useful ideas and application.

Chemistry also contributes to the theoretical base for the production of ammunitions for defence, security, building, medicine and many more (Ezeriola andObikezie, 2017). In addition, Chemistry provides a natural link between home and school and the means through which students understand the world around them. Chemistry education therefore, enables the child to understand the world around him and should be taught as such to portray its relevance to science education and training.

In spite of the importance of Chemistry to man, students' performance in Chemistry in secondary schools is still a thing to worry about. Over the years, research studies (for example, Copriady, 2015) have indicated that academic achievement of students who enrol in Chemistry has not been encouraging. The poor performance of students in science subjects, particularly Chemistry, has assumed a serious dimension as reported by the West African Examinations Council 2020 -2022. The chief individual examiners' report from year 2020 -2022 has it among the suggestions for Chemistry students to improve in the subject as having a stable and well organised social learning environment. According to chief examiners' in each of the year has it that for the weaknesses recorded in Chemistry in the above years that students can improve in academic achievement if the social learning environment is well organised and put in such a way that it can suit the students and teachers for great impartation of Chemistry knowledge.

Social learning environment is an online destination where people come together to co-create content, share knowledge and learn from one another. According to Nubunga (2020), social learning environment combined social learning elements like networking, tagging, files sharing microblogging to create a safe space in which to work and learn collaboratively as in a learning environment setting or physical environment where people gather to share knowledge. As opined by Usman and Mandulili (2019), social learning environment encompasses learning resources and technology, means of teaching, mode of learning and connections to societal, global contexts including classrooms and classrooms facilities. According to Balog (2018), social learning environment acts as a composite of human practices and material systems, much as in ecology is the combination of living thing and physical environment. Physical learning environment therefore enables a learner to concretize ideas and knowledge when learning is taking place.

Wordu (2014), indicated that well-equipped and conducive social learning environment with qualified teachers influence mechanical student's academic performance especially female students at high extent with no significant difference in male gender group's opinion. Iweka (2017) revealed that there was low mean perception and low negative perception of the male students of integrated science on the social learning classroom environment. Akpan (2020) opined that there was no significant influence in class size, school location which makes up social learning environment of students on academic attitude of SS 2 students in biology. The author also noted that attitude of students towards Chemistry subject determine how the learning environment will be.

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Attitude is a manner of acting, feeling or thinking that shows one's disposition, opinion and mental set among others. In another definition, attitude is a psychological construct that is a mental and emotional entity that characterizes a person, their attitude to approach to something or their personal view. Attitude involves mindset, outlook and feelings. Students' learning attitude therefore, involves their mindset, outlook and feelings and can be productive if learners are able to understand and use the learnt knowledge outside the classroom. According to Najdi (2018), students' learning attitude is the development of interest and positive character towards learning particular things or subjects. The author further stated that provided the social learning environment is profitable the importance of developing a positive attitude towards Chemistry learning will actually lead to high performance in the subject.

Semukono, Orobia and Arinaitota (2013) revealed that learning environment increases students' attitude in Chemistry at high extent. Some authors believed that social learning environment increases science students' attitudes at a moderate extent (Samuel & Mangoting 2021; Karpudewan & Chong Keat 2017). Sundawa, Ratimaning and Anggraini (2020) indicated that, enterpreurship sustainability 4.0 mode on social learning environment influences female students' entrepreneurial attitude than their male counterpart in practical works. Samuel and Mangoting (2021) indicated that attitude have a very high extent, positive and significant influence on the intention of the accounting students in terms of increasing current knowledge and increasing accounting career provided the social learning environment is good and adaptable to students.

Karpudewan and Chong Keat (2017) asserted that attitude towards learning science is positively correlated with both classroom learning environment and science laboratory learning environment are significantly predictor of attitude.

Osaduwa (2018) revealed that there was a positive significant relationship between students' social classroom learning environment and students' attitude in mathematics.

Statement of the Problem

There is a consensus among science educators that Chemistry is an important and useful subject for meaningful development in every Nation. It is the key to technology advancement along with other sciences. Despite the importance of Chemistry among Nigerian students, it is very disappointing to note that students' performance in the subject at external examinations still fluctuate as a result of poor social learning environment as reported by the WAEC chief examiner from 2020 – 2022.

A great majority of students believes that Chemistry is reserved for a selected few, probably males or intelligent once. The major factors adduced for such poor academic performance of students in Chemistry according to researchers and educationists are; students 'attitude, belief, and learning environment. Many efforts have been made in the past to improve the effects of these factors, yet available data and research indicates that there is need to empirically investigate the learning environment that can help students to learn better, change

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their negative attitude towards Chemistry subject and consequently improve their academic performance in the subject. Thus, this study is to investigate social learning environment as correlates of secondary school students' attitudes in Chemistry in Ogidi Education Zone of Anambra state.

Purpose of the Study

The purpose of this study is to investigate the social learning environment as correlates of secondary school students' attitudes in Chemistry. Specifically, the study investigated.

1. Relationship between secondary school students' perception of social learning environment scores and attitude towards Chemistry scores.

Research Question.

The following research questions guided to the study:

1. What is the relationship between secondary school students' perception of social learning environment scores and attitude towards Chemistry scores?

Hypothesis

The study tested null hypotheses at 0.05 level of significance:

H_{O1}There is no significant relationship between secondary school students' perception of social learning environment scores and attitudes towards Chemistry scores.

Methodology

The design of the study was correlation survey. It is a correlation design because it investigated relationship between two variables without the researchers' controlling or manipulating any of them (social learning environment and attitude). Fifty percent of (50%) of the 2,840 total populations were selected using simple random sampling technique. Multistage sampling technique involving different procedure at each stage was used to select 26 co-educational schools from the 40 schools in Ogidi education zone which amounted to 1,420 senior secondary two (SS2) Chemistry students.

Instrument

Two (2) instruments were used for data collection. They are Social Learning Environment Questionnaire (SLEQ) and Student's Attitude Scale (SAS).

The SLEQ was adapted by the researcher from "What is happening in the classroom questionnaire" (WIHICQ), by (MyintSweKhine (2001). It consists of seven (7) clusters and 59 items. The clusters are: students' cohesiveness, teachers' support, students' involvement, investigation, task orientation, cooperation and equity. It also has reliability coefficient of 0.9. The following adaptations were made in SLQE. Section A elicits information from the respondents. Section B elicit responses from the respondents on perception of students' social learning environment. One cluster "investigation" was removed based on the recommendation of the supervisor. Thus, the total number of clusters was reduced from seven (7) to six (6) clusters and other clusters modified to contain 45 items with five point scale response format ranging from almost never (1 point), seldom (2 points), sometimes (3points), often (4 points) and always (5 Points).

The SAS was adapted by the researcher from Attitude measurement instrument by Salta, and Tzougraki, (2004). It consists of thirty (30) items and four (4) point scale response format ranging

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from strongly agree (4points), agree (3 points), disagree (2 points), and strongly disagree (1 point). It has a reliability coefficient of .73, seven (7) items were removed and six (6) items modified to suit the purpose of the instrument, thus reducing the items from 30 to 29.

SLQE and SAS were submitted to three experts, two from Science Education Department and one from measurements and evaluation department, all from Faculty of Education, Nnamdi Azikiwe University Awka for validation. These experts were requested to examine the items in terms of content, relevance and clarity as well as to ascertain if the items are related to the purpose of the study. They were also asked to check the clarity of the language and find out if all relevant areas were covered. To ensure that the instruments were reliable, the instruments were administered to a school in Awka education zone which is outside the place of the present study among sixty students. Coefficients of .71 for SLEQ and .73 for SAS were obtained respectively using cronbach alpha. Pearson product moment correlation was used to answer research question as thus;

Ranges of scores	**Decision**
±0.80 – ± 1.00	High positive or negative relationships
±0.31 – ± 0.79	Moderate positive or negative relationship
±0.00 – ± 0.30	Low positive or negative relationship .

Regression of ANOVA was used to test the sole hypothesis at .05 level of significant.

Result

The results of this study were presented in line with the research question and the hypothesis as follows.

Research Question.

What is the relationship between secondary school students' perception of social learning environment scores and attitude towards Chemistry scores?

Table 1: Pearson's Product Moment Correlation Analysis of Students' Perception of Social Learning and Attitude in Chemistry

Variables	Mean	SD	N	r	R^2	Remark
Students' perception Of social learning Environment (SLEQ)	150.8	28.9	1420	.32	.10	moderate positive relationship
Attitude (SAS)	78.1	9.7				

R^2 = coefficient of determination

Table 1 reveals correlation coefficients of the relationship between students' perception of social learning and attitude in Chemistry as .32. This means there was a moderate positive relationship between students' perception of social learning and their attitude in chemistry. The coefficient of determination (.10) also known as the predictive value means that 10% of students' perception of social learning accounted

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for the variation in attitude of students in Chemistry. This is an indication that 90% of variation in students' attitude in Chemistry is attributed to other factors other than social learning environment of the students.

Hypothesis

H_{O1}There is no significant relationship between secondary school students' perception of social learning environment scores and attitudes towards Chemistry scores.

Table 2: Regression Analysis of the Relationship between Students' Perception of Social Learning Environment Score and Attitude Score in Chemistry

Model	Sum of Squares	Df	Mean Square	F	Sig	Decision
Regression	13522.253	1	13522.253	160.75.00		Significant
Residual	119279.107	1418	84.118			
Total	132801.360	1419				

a. Dependent Variable: SAS
b. Predictors: (Constant), SLEQ

In order to test hypothesis 1 (H_{O1}), regression analysis was used. The result in Table 2 shows that an F-ratio of 160.75 with associated exact probability value of 0.00 was obtained. This exact probability value of .00 was less than .05 level of significance set as bench mark and it was found to be significant. The null hypothesis which stated that there is no significant relationship between secondary school students' perception of social learning environment scores and attitudes towards Chemistry scores was therefore rejected and inference drawn was that, there was a significant relationship between students' perception of social learning environment scores and attitudes towards Chemistry.

Discussion

Relationship between secondary school students' perception of social learning environment scores and attitude towards Chemistry scores.

The result on Table 1 is correlation coefficients of the relationship between students' perception of social learning and attitude in Chemistry as .32. This means there was a moderate positive relationship between students' perception of social learning and their attitude in Chemistry. Hence, there was a significant relationship between students' perception of social learning environment scores and attitudes towards Chemistry as shown in table 2. This finding portrays that students' perception of social learning environment do plays an important role in either to predict or to affect students' attitude towards Chemistry as 10% of students' perception of social learning accounted for the variation in attitude of students in Chemistry. The finding of this study support the findings of other previous researchers such as Semukono, Orobia and Arinaitota (2013) who revealed that learning environment increases students' attitude in Chemistry at high extent. The finding in consonance with some authors who believed that social learning environment increases

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science students' attitudes at a moderate extent (Samuel & Mangoting 2021; Karpudewan & Chong Keat 2017). Also the result of the findings in line with Karpudewan and Chong Keat (2017) who asserted that attitude towards learning science is positively correlated with both classroom learning environment and science laboratory learning environment are significantly predictor of attitude. The findings also goes in line with Osaduwa (2018) who observed that there was a positive significant relationship between students' social classroom learning environment and students' attitude in Mathematics. The result is not in line with Samuel and Mangoting (2021) who reported that attitude have a very high extent.

Also not in line with the findings of Akpan (2020) who opined that there was no significant influence in class size, school location which makes up social learning environment of students on academic attitude of SS 2 students in Biology. By virtue of this finding, this research has joined the school of thought that relates student perception of social learning significantly to students' attitude.

Conclusion

Based on the investigation into social learning environment as correlates of secondary school students' attitudes in chemistry in Ogidi Education Zone of Anambra state it can be concluded among others that social learning environment has a moderate positive relation with students attitudes in Chemistry and there was a significant relationship between students' perception of social learning environment scores and attitudes towards Chemistry.

Recommendations

Based on the findings of the study, and the conclusion drawn, the following recommendations are made:

1. Teachers and other stake holders should endeavour to provide adequate and equal opportunities to students in terms of social learning environment. This will help the students to develop positive attitudes towards Chemistry.
2. Teachers should endeavour to create conducive social learning environment and stimulating atmosphere for all the classes, irrespective of school location.

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