

**STUDENTS' ATTITUDE TOWARDS CHEMISTRY AND FACTORS
INFLUENCING THE CHOICE OF CHEMISTRY AS A COURSE OF STUDY IN
INSTITUTIONS OF HIGHER LEARNING IN NIGERIA.**

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Abstract

This study was carried out to investigate the Students' attitudes towards chemistry and factors influencing their choice of chemistry as a course of study in institution of higher learning in Nigeria using Federal College of Education Abeokuta as a case study. The design of the study is descriptive while the population comprised of all chemistry students in Federal College of Education Abeokuta. The sample for the study was made up of one hundred (100) chemistry students' respondents and a researcher design questionnaire formed the instrument for data collection. The data collected was analyzed using mean and standard deviation. The findings that manifest from the research work shows that a lot of factors including peer group pressure, government policies, environment, and school facilities. Affect both the attitudes, behavior and notion of students towards chemistry, and their choice of chemistry as a course of study in higher institution of learning in Nigeria.

Keywords: Student, Attitude, Chemistry

Introduction

Science has had a tremendous impact on the life of people in this world; it has successfully influenced every aspect of human life. Many nations have become grown economically through the effective harnessing of science and technology to produce goods and services that could meet human wants. Like a nation such as ours that is still on the threshold of scientific and technological development, it is thereby pertinent to take the study of chemistry as serious for our national development.

Chemistry education is a process of acquiring fundamental knowledge about the universe. With the knowledge acquired, man can shape and reshape the world for its benefits. Chemistry education is the path through which chemical knowledge and skill reach the people who have the potential for developing them. It addresses the social aim of sustainable development as education is now one of the primary means of empowerment, cultural participation and social mobility.

Chemistry can be defined as a branch of science that is concerned with the properties, composition and structure of substances (Olorundare, 2014). It also deals with the use of reactions of such substances to form new ones. Chemistry is mostly referred to as central science because it connects physical sciences like chemistry to Life and Applied sciences such as Medicine and Engineering (Wikipedia.org, 2019). Chemistry is one of the essential subjects of science. As a basis of development for a range of science courses, chemistry has the ability to link other sciences together, it is the key to modern technology, medicine, engineering, and other sciences.

Attitudes, like academic achievement, are important outcomes of science education in schools. The development of students' positive attitudes towards the study of science as a school subject is one of the major responsibilities of every science teacher. Unfortunately, research has revealed that much of what goes on in science classrooms is not particularly attractive to students across all ages (Cheung, 2009).

Attitudes towards Chemistry or science indicate interests or feelings towards studying Chemistry or science. It is the students' inclination towards liking or 'disliking' science while attitudes in science mean the scientific approach assumed by an individual for solving problems, assessing ideas and making decisions. Student belief and attitudes have the potential to either facilitate or inhibit learning (Yara, 2009). Many factors could contribute to a student's attitude toward studying Chemistry. These include but not limited to teachers' instructional method, students' grade level, teachers' behaviour, teaching aids/availability of infrastructure and social environment among others (Cheung, 2009; Khan and Ali, 2012; Oh and Yager, 2004; Chepkorir et al., 2014; Kubiak et al., 2017; Montes et al., 2018). Popoola (2008) testified that students' attitudes and interests to sciences, particularly agricultural science, compare highly with their science achievement. Adesoji and Olatunbosun (2008) also concluded that a number of factors have been identified as related to students' attitude to science such factors include: teaching approaches, teachers' attitude, influence of parents, gender, age and cognitive styles of learners. Chemistry is a helpful subject for numerous disciplines, including pharmacology, physiology, clinical, chemical industry and environment. It appears that people perceived chemical education as being challenging and demanding to understand. This may be related to the fact that Chemistry involves different terminologies, structures and calculations (Yunus, 2019). These challenges and difficulties have been addressed in the literature by various authors.

Students on the other hand are shying away from studying chemistry which is a giant step in finding solutions to the problems we are facing. This can be seen from the ratio of science students to non-science students in secondary schools, and this attitude is carried over to our tertiary institutions. The few students studying chemistry as a course are either being forced to do so due to the need to have students in that department. The schools thereby fill up the chemistry department with students that cannot be accommodated in other departments who end up not taking the course seriously.

Research Questions

- What are the attitudes of students towards learning chemistry?
- What are the factors influencing the choice of chemistry as a course in institutions of higher learning?
- Does gender have influence on attitude of students towards choice of chemistry as a course at higher institution?

Methodology

The design for this study was a survey design. The population for this study comprises of all chemistry students' in Federal College of Education, Abeokuta while the sample for the study consisted of one hundred (100) chemistry students from the same College. The main instrument for the study was a self-designed questionnaire which comprised of three sections A, B and C. Section A addresses the demographic information of the respondents while section B and C consist of items that elicit information on students' attitude and factors affecting students' choice of chemistry as a course of study in higher institutions. A 4-point Likert rating scale of Strongly Agree (SA), Agree (A), Strongly Disagree (SD), Disagree (DA) was used. The instrument was

validated by an expert to ensure content validity and reliability of the instrument. The reliability co-efficient of 0.85 was obtained. Data collected were analyzed using descriptive statistics of frequencies, percentages, means and standard deviations.

Result and Discussion

Research question 1: What are the attitudes students exhibit towards learning chemistry?

Table 1. Analysis on Attitudes of Students towards Learning Chemistry

SN	ITEMS	SA	A	D	SD	Std	Mean	Decision
1.	The attitudes, characteristics and behavior of the teacher has a great effect on learner's attitudes and ability to learn	49	26	13	12	1.09	3.12	Accepted
2.	Government policies on education and the structure of a curriculum for a particular learner can be one of the factors hindering the student's interest and motivation to learn.	33	37	17	13	1.01	2.90	Accepted
3.	The environmental characteristics and structure of a particular institution can be of positive influence on learner's attitudes towards learning.	48	35	9	8	0.83	3.23	Accepted
4.	The level of exposure of a particular student is not one of the factors affecting the learner's view and interest on learning.	10	12	42	36	0.88	1.96	Rejected
5.	The peer group can also contributes to the learner's interest and attitudes towards learning both positively and negatively.	46	23	14	17	1.27	2.98	Accepted
6.	A good and well-structured learning environment provide the love, support and security enhanced learning	45	25	22	11	1.04	2.98	Accepted
7.	The instructional strategies adopted by a particular institution can also be part of those things improving the learner's attitude towards learning.	41	36	10	12	1.00	3.08	Accepted
8.	The policies and ways of a particular institution could also hinder the student view and interest on learning.	32	39	15	14	1.01	2.89	Accepted
9.	The home and the society is also part of the factors affecting the learner's belief and notion towards learning.	51	32	9	8	0.92	3.26	Accepted
10.	The learner's living situation has no effect on the student's way and ability to learn.	27	22	21	30	1.18	2.46	Rejected

11.	The kind of relationship parents share with their wards could also have a tremendous impact on learner attitudes towards learning.	48	24	17	11	1.04	3.09	Accepted
12.	Technological advancement and improvement also has a lot to contribute to education and hereby affecting the learner's motivation and ability to learn.	24	14	24	38	1.42	2.24	Rejected
13.	The socio-economic factors of a parent either poor or influential can also affect the student attitudes towards learning	43	29	18	10	1.01	3.05	Accepted
14.	Inadequate teaching and learning facilities can be of negative effect on student's attitudes and behavior on learning.	48	24	9	19	1.33	3.01	Accepted
15.	Extra curricular activities like sports and games contribute new skills to students and therefore greatly improve the learner's motivation to learn.	29	29	23	19	0.70	2.68	Accepted
16.	The society has a lot of things to contribute to learner's ability and ways of learning.	45	26	18	11	1.07	3.05	Accepted
17.	Countries and communities with good and effective educational system produce learners who are educationally sound and good.	36	33	20	11	0.20	2.94	Accepted
18.	The teacher's method of teaching can affect the student's motivation and interest on learning.	52	24	16	8	0.79	3.36	Accepted
19.	The school settings can influence the learner's psychological, emotional, social and economical state of the learner and hereby improving his ability and motivation to learn.	55	27	11	7	0.85	3.30	Accepted
20.	Adequate availability of needed educational facilities greatly improve the learner motivation, interest and ability to learn.	47	34	10	9	0.89	3.19	Accepted

Findings

It could be observed from the above table that the mean values for all the items except item 4 were well above the criterion mean of 2.50. They were considered significant and therefore upheld. This implies that:

- the attitudes, characteristics and behavior of the teacher has a great effect on learner's attitudes and ability to learn.

- environmental characteristics and structure of a particular institution can be of positive influence on learner's attitudes towards learning.
- peer group can also contribute to the learner's interest and attitudes towards learning both positively and negatively.
- the good and well-structured learning environment provide the love, support, security, simulation and opportunities needed by the learner
- policies and ways of a particular institution could also hinder the student view and interest on learning
- home and the society are also part of the factors affecting the learner's belief and notion towards learning among others.

The only item that was rejected was item 4 which state that students' level of exposure is not one of the factors influencing learner's view and interest on learning. It was rejected because of its mean score of 1.96 which is far lower than the criterion mean, 2.50.

Research question two: What are the factors influencing the choice of chemistry as a course in institutions of higher learning?

Table 2: Table showing the Factors Influencing the Choice of Chemistry as a course in Institutions of Higher Learning?

S/N	ITEMS	SA	A	D	SD	Std	Mean	Decision
21	The level of support a learner receives from a parent could hinder the students' ability and interest on learning.	43	45	9	3	0.56	3.28	Accepted
22	The code of conduct and ways of a particular institution can be of positive impact on learner's interest and notion towards learning.	48	41	8	3	0.49	3.34	Accepted
23	The social view or ways of a particular community is also one of the things affecting the student's attitudes towards learning.	56	25	11	8	0.91	3.29	Accepted
24.	The cognitive style of a learner i.e the way and level of comprehending and understanding things may also hinder the student's attitudes and beliefs on learning.	43	27	16	14	1.15	2.99	Accepted
25.	The gender and personality of a learner are factors to consider to improve student's motivation and urge to learn because the motivation to learn by students with different gender differs.	43	14	25	18	1.37	2.82	Accepted
26.	The age and maturity of a student do not affect the student learning if they are exposed to things that are higher and comprehensive than their cognitive skills.	9	13	46	32	0.81	1.99	Rejected
27.	Some societal and environmental problems including bad economy and infrastructure can make students to lose interest in learning.	39	32	15	14	1.05	2.96	Accepted
28.	Government policies on education should be good, effective and encouraging to improve the quality of learning.	48	41	8	3	0.49	3.34	Accepted

29.	The way a particular curriculum is structured should fit the learner's cognitive skills so as to improve the learner's motivation and ability to learn.	53	43	5	3	0.73	3.47	Accepted
30.	The use of teaching aids and availability of learning infrastructures has a positive effect on the learner's attitudes towards learning.	60	31	8	1	0.68	3.50	Not Accepted

Findings

All items in this table except one are found to have mean score values greater than the criterion mean of 2.50. They are all considered significant and the assertions upheld. By implication, students' attitude towards learning can be influenced by:

- the level of support he/she receives from his/her parents.
- code of conduct of a particular institution can be of influence on learners' interest and notions towards learning.
- Social view or ways of a community could be one of the things affecting students' attitudes towards learning.
- Cognitive style of a learning also has potential to influence learner's attitudes and beliefs on learning among others.
- For item 26, the mean of 1.99 which is below 2.50 so the statement that the age and maturity of a student do not affect the student learning if they are exposed to things that are higher and more comprehensive than their cognitive skills is rejected. Therefore, age and maturity have a lot to contribute on the attitudes of students towards learning.

Summary of Findings

- i. Level of exposure of the students and the peer group have influence on their attitude towards learning.
- ii. The environment and the characteristics of the school can have a positive effect on the attitudes and the view of student's towards learning chemistry.
- iii. The government policies on education can influence the student's attitudes towards learning and the way the curriculum is structured can affect the attitudes of learner's towards learning of chemistry.
- iv. The socio-economic status of the parents and the kind of relationship the parents share with their wards could have a great impact on the learner's attitudes towards learning

Conclusion

Based on the findings of this study, it could be inferred that various factors affecting or influencing students' attitudes, view, notion, beliefs and behavior towards chemistry include inadequate school facilities, characteristics and the behavior of the teachers, government policies on education, environment, the level of exposure of learner's, peer group influence, instructional teaching and learning method, technology, the society, the cognitive style i.e age and maturity of the learner, the curriculum, the policies of the school and finally the home e.g economic status of the parents.

Recommendations

From the findings, the following recommendations were made

1. Schools and governments should provide more support and resources for teachers and students. This should include provision of professional development opportunities for teachers, creating more engaging and hands-on learning experiences for students and making sure that the curriculum is relevant and engaging for students.

2. Governments should make sure that schools have adequate funding and resources to provide high-quality education. The schools should focus on creating a positive school climate, where students feel safe and supported.
3. Parents should play a big role in encouraging their children to learn by setting a good example and providing support and encouragement for them at home.
4. The Society can also play an important role by valuing education and making it a priority by celebrating and rewarding educational success and hereby motivating and encouraging the citizens to learn.

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