ANALYSIS OF TOPICS STUDENTS AND TEACHERS PERCEIVE DIFFICULT SENIOR SECONDARY SCHOOL CHEMISTRY CURRICULUM IN RIVERS STATE

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Abstract

The study was carried out to identify and analysis chemistry topic students and teachers perceive as difficult in senior secondary School chemistry curriculum in Rivers State. Four research questions and four hypotheses guided the study. The study employed a described survey. Population of the study was 5748 students and teacher: comprising 5305 chemistry students and 443 chemistry teachers. The sample for the study was 1044 students and teachers: comprising 910 student and 134 teachers from the senior secondary selected using multistage sampling technique. Data was collected using an instrument titled Chemistry topic difficulty level questionnaire which was face validated by three experts. The reliability of the instrument was achieved by administering it to a sample of 20 respondents including students and teachers. After which, it was subjected to cronbach Alpha obtain reliability coefficients of 0.90, 0.81, 0.64, 0.82 and 0.90 respectively for sections B, C, D, E and overall. The research questions were answered using mean and standard deviation while the hypotheses were tested at 0.05 level of significance using z- test. The results of the study revealed that, both students and teachers generally perceive topics in inorganic chemistry difficult. It found also students generally perceive topics in organic chemistry difficult while teachers generally perceive topics in organic chemistry easy; students generally perceive topics in practical chemistry difficult while teachers generally perceive topics in practical chemistry easy. Furthermore, it was generally found that there was similarity between students and teachers on the reasons why some chemistry topics were perceived difficult in secondary schools in Rivers State. Based on the findings, it was recommended that Training programme on instructional delivery should be organized for teacher especially on the topics found difficult in chemistry. This will enhance their capacity in the instructional delivery of these topics. It was further recommended that teachers should be encouraged to utilize available instructional materials and where not available, improvise.

Keywords: Chemistry, Difficulties in Chemistry, Secondary School Students

Background to the study

Our world is rapidly developing, innovation in technology are on the rise. This is attributed to increase knowledge in science. The advancement in technological development on the global world cannot be overemphasized. Knowledge of science has set the bedrock of creativity in technology. Through science, learners have gained insight of the environment we live in. it therefore becomes easier to meet man's insatiable needs in our world of technology. With the growing need for scientific development, science education in schools has been a prominent concern in Nigeria. The federal Government of Nigeria have also realized it is necessary to equip student in science and technology by stating in National policy on Education that one of the aims of education should be to train students to live effectively on our modern age of science and technology (Jegde 2010).

One of the science subjects that can be used to achieve this aim is chemistry. Chemistry has been described as the mother of all sciences. In other words the study of sciences will be incomplete and nonfunctional without the study of composition structure, properties and interaction of matters. The Merriam-Webster online dictionary (2017) defines chemistry as a branch of science that deals with the composition, structure, and properties of substances and with the transformations that they undergo. Chemistry as a science subject plays a very significant role in transforming the environment and improving the general quality of life. It is necessary for a nation's technological development (Nwora, 2015) According to Uchegbu, Oguoma, Elewoke and Obiaku (2016). Chemistry is a science subject taught in secondary schools, that prepares students for advance science based coursed at the tertiary levels. It is mandatory for sciences students in Nigeria to offer chemistry as part of their subjects.

Chemistry as a subject in the field of sciences has helped its learners to understand their physical environment. Knowledge of chemistry is indispensable for the pursuit of understanding the environment in which we live. Pawan (2013) has it that the world of chemistry has engaged the artificial manipulation of nature to meet the needs of man. In our world today, natural products are substituted with their synthetic form; this is achieved through understanding the nature of the substance and restructuring its form. Understanding the composition of matter, helps in its effective utilization Chemistry according to Uchegbu, Oguoma, Elewoke and Obiaku (2016) is the study of composition structure, properties and interaction of matters. Chemistry is a core subject for students who intends to take science courses as a career. Disciplines such as pharmacology, technology, engineering, medical sciences etc. requires a compulsory credit in chemistry. In our modern day society this importance is even more widely felt. It is needed in workshops, in laboratories, in medical clinics, on farm lands, as well as in various manufacturing processes (Pawan 2013). Since chemistry is a core science subject, it is expedient that the proper teaching and learning of chemistry in secondary schools be encouraged, this will facilitate student's enrollment in many professional disciplines like Nursing, Medicine, Pharmacy, Agriculture, Engineering and Geology etc. (Nwora, 2015)

The relevance of chemistry as a requirement for technological advancement of a nation cannot be underrated. The number of chemist, physicist, science educators, agriculturist, engineers, pharmacist, doctors, a nation produces could be used as a measure to classify the nation into developed, developing and underdeveloped. (Anderson, since the school grows the posterity of the society, teaching chemistry in the school science and technology, the teaching and learning of chemistry needs to be improved. It is therefore relevant that student's performances in chemistry and in science generally should be above average. Balogun (2009), and Akinyele (2013) noted poor academic achievement in science and chemistry in particular. Also Ugwe (2004) noted that in 2000 and in 2001 of all candidates who sat for senior secondary school examination more than half of the students performed very poor in chemistry and it was difficult using the result for further studies. Also WAEC annual report (2006, 2007, and 2008), noted poor academic achievement in chemistry which manifested in constant poor grades and repetition of classes. Thus, one tends to question why the general unsatisfactory academic performance in chemistry among the secondary school students.

The students' negative attitudes to chemistry subject, and a negative attitude towards the chemistry teachers are accorded as the causes of poor performance in chemistry discovered by Musyoki (2015) that those who attain highest scores in chemistry test had high scores in other sciences related courses. Ogembo (2012) agreed that background of the students, negative attitude to particularly chemistry teachers, negative perception on students' abilities, poor teaching techniques and unsuitable environment for learning were the major causes of the students" persistent poor performance in Chemistry. Perkins (2007) noted

that literature on learning and development offers a numerous ways of understanding conceptual difficulties as well as recognizing knowledge . Over the years, several empirical works have been carried out on students' perception of difficult chemistry topics. Emendu and Okoyee (2015) carried out a research on Identifying Problems Associated with Studying of Chemistry in Anambra State, Nigeria and revealed that most of the challenges are from th infrastructure, curriculum, funding, textbooks, teachers, and students. More so. Childs and Sheeshan (2016) examined the identification of difficult topics in the teaching and learning Chemistry in Irish schools. They also tried to point out possible intervention programmes to ensure these problems are tackled. In their study , pupils have difficulties in majority of topics and these difficulties are in all levels of study. Therefore, this present research identifies and analyse chemistry topics teachers and students perceive difficult in senior secondary schools in Rivers State.

Statement of the Problem

The tremendous increase in students' failure in chemistry is seen in examination conducted by senior secondary certificate examination (SSCE) and National Examination Council (NECO) across the country (Agogo and Onda 2014).

Table 1: Chemistry Result Senior School Certificate Examination 2006-2012

Year	Total sat	Credit passes	Percentage (%)
2006	308104	170670	55.34
2007	422681	1894284	45.92
2008	418423	185949	44.97
2009	422681	190435	45.97
2010	365643	236059	50.70
2011	565692	280250	49.54
2012	627302	270570	43.13

Source: WAEC (May/June) National Office, Yaba, Lagos, Nigeria

The report from the WAEC Chief examiner (May/June 2006-2012) shows a trend of poor student's performance in chemistry. Alse WAEC chief examiners report (May/June 2015) revealed students weaknesses in the conducted examination. It was report that students have difficulties in S.I units of mass concentration and molar concentration, test of gases, laboratory set up and identifying apparatus, solubility of gases and so on. This report implies that students have difficulties in the learning of chemistry which resulted into poor performance. It is based on this problem that the study tends to Identify and analyze chemistry topics students and teachers perceive as difficult in senior secondary schools in Rivers state.

Purpose of the Study

The purpose of the study is to identify and analyze chemistry topics students and teachers perceive as difficult in senior secondary school chemistry curriculum in Rivers State. More specifically, the study was sought to:

1. Identify topics students and teachers perceive difficult in organic chemistry in senior secondary schools in Rivers State
2. Identify topics students and teachers perceive difficult in inorganic chemistry in senior secondary schools in Rivers State
3. Identify topics students and teachers perceive difficult in practical chemistry in senior secondary schools in Rivers State
4. Determine the reasons why some chemistry topics are considered difficult for students and teachers

Research Questions

1. What are the topics students and teachers perceive difficult in inorganic chemistry in senior secondary school in Rivers State?
2. What are the topics students and teachers perceive difficult in organic chemistry in senior secondary school in Rivers State?
3. What are the topics students and teachers perceive difficult in practical chemistry in senior secondary school in Rivers State?
4. What are the reasons why some chemistry topics are considered difficult for students and teachers?

Hypothesis

1. There is no significant difference in the mean response of students and teachers on the topics students and teachers perceive difficult in inorganic chemistry in senior secondary schools.
2. There is no significant difference in the mean response of students and teachers on the topics students and teachers perceive difficult in organic chemistry in senior secondary schools
3. There is no significant difference in the mean response of students and teachers on the topics students and teachers perceive difficult in practical chemistry in senior secondary schools
4. There is no significant difference between the mean response of students and teachers regarding the reasons they perceive some topics difficult in chemistry.

Research Methodology

The research adopted the descriptive survey design. The research population was made up of 5748 students and teachers during the 2017 and 2018 academic session while sample size was made up of 1044 chemistry students (910) and teachers (134) respectively.

The instrument of the study was chemistry topic difficulty Level Questionnaire (CTDLQ). The questionnaires had five sections A, B, C, D and E. section A is the Respondent Bio-data while section B, C, D and E were the instrument design to solicit information on topics students perceive difficult in the various component of the senior secondary school chemistry curriculum. Section B elicited 16 items on inorganic chemistry topics. Section C elicited 16 items on organic chemistry topics. Section D elicited 11 items on practical chemistry topics. Section E elicited 16 items on reasons why these topics were perceive difficult. The instrument for B, C and D was structured on four point rating scale ranging from very Difficult (VD-4). Difficult (D-3), Disagree (D-2), and strongly Disagree (SD-1). Subjects were instructed to respond to their degree of agreement with the statement continued in the instrument.

The instrument were validated by experts and was subjected to reliability testing using Cronbach Alpha technique to obtain reliability coefficients of 0.90 for Difficulty level in inorganic chemistry; 0.81 for difficulty level in organic chemistry; 0.64 for difficult level in practical chemistry; 0.82 for reasons chemistry is considered difficult and an overall reliability coefficient of 0.90. Based on these values, the instrument was considered reliable.

The instrument was administered to the subjects by the Researchers. The retrieved instrument was analyzed using mean and standard deviation to answer the research questions while z-test was used to test the hypothesis at 0.05 level of significance. Nwankwo (2011) noted that z-test is applied when a researcher intends to compare two groups of sample size equal to or greater than 30. In this case, mean responses of teachers and students were compared (with their sample sizes more than 30) to see if any differences exist between their responses. Based on this, z-test is considered appropriate.

Results

Research Question 1: what are the topics students and teachers perceive difficult in inorganic chemistry in senior secondary school in Rivers State?

Table 2: Mean Response on Difficult Topics in Inorganic Chemistry

S/N	Items	Students (N=910)			Teachers (N=134)		
		M	S.D.	RMK	M	S.D.	RMK
1	Introduction to chemistry and its branches	2.22	1.00	E	2.33	0.99	E
2	Scientific measurements and its importance to chemistry	3.02	1.01	D	3.07	0.91	D
3	State of matter	2.29	1.04	E	2.44	1.04	E
4	Structure of atom and atomic model	3.04	0.99	D	2.37	1.07	E
5	Standard separation techniques for mixture	2.28	1.04	E	2.29	1.05	E
6	Chemical bonding	3.01	1.00	D	2.25	1.02	E
7	Stoichiometry and chemical reaction	3.00	1.01	D	3.10	0.94	D
8	Periodic chemistry	2.99	1.04	D	3.06	0.96	D
9	Energy and Energy changes	2.96	1.03	D	3.01	1.03	D
10	Acids, Bases and salts	2.46	1.07	E	2.36	0.96	E
11	Solubility of substances	2.50	1.05	E	2.32	0.99	E
12	Chemical kinetics and equilibrium system	2.96	1.01	D	3.06	0.97	D
13	Redox reaction	2.99	1.02	D	2.87	1.07	D
14	Metals and non-metals	3.04	1.00	D	3.04	0.97	D
15	Pollution: Air, Water, Solid	2.45	1.06	E	2.28	1.02	E
16	Nuclear chemistry	3.02	1.00	D	3.02	0.97	D
	Grand mean	2.76	1.07	D	2.68	1.06	D

Field data (E=Easy, D=Difficult)

Table 2 above, shows the mean responses of students and teachers on the areas they perceive difficult in inorganic chemistry. Grand mean value of 2.76 for students shows that they generally viewed inorganic chemistry as difficult. Similarly a grand mean value of 2.68 for teachers shows that they generally viewed inorganic chemistry as difficult.

Research Question 2: What are the topics students and teachers perceive difficult in senior secondary school in Rivers State?

Table 3: Mean response on difficult topics in organic chemistry

S/N	Items	Students (N=910)			Teachers (N=134)		
		M	S.D.	RMK	M	S.D.	RMK
1	Introduction to chemistry of carbons	2.28	1.03	E	2.25	1.01	E
2	Classification properties of organic compounds	2.27	1.01	E	2.33	1.05	E
3	General properties of organic compounds	2.26	1.02	E	2.26	1.00	E
4	Homologous series/isomerism	2.99	1.00	D	2.19	1.02	E
5	Determination of empirical and molecular formula	3.01	0.98	D	2.18	0.92	E
6	The functional groups	2.19	0.98	E	2.34	0.94	E
7	Alkanes, Alkenes, Alkynes	3.02	1.01	D	2.19	1.02	E
8	Alkanols	2.25	1.03	E	2.43	0.99	E
9	Alkanoic acid	2.31	1.02	E	2.22	0.95	E
10	Alkanoate as derivatives of alkanoic acid	2.98	1.02	D	2.31	1.00	E
11	Carbonyl compounds (Alkanone and Adldehyde)	3.01	1.01	D	2.33	1.02	E
12	Alkyl Halides	2.25	1.00	E	2.40	0.95	E
13	Petroleum and crude oil	2.98	1.02	D	2.95	1.00	D
14	Benzene	3.00	1.01	D	2.99	0.97	D
15	Introduction To basic Biochemistry (protein, carbohydrate, Amino acids, fats and oil).	2.93	1.03	D	2.93	1.08	D
16	Synthetic polymers	3.03	1.00	D	3.09	0.96	D
	Grand mean	2.67	1.07	D	2.46	1.04	E

Field data (E=Easy, D=Difficult)

Table 3 above, shows the mean responses of students and teachers on the areas they perceive difficult in organic chemistry. Grand mean value of 2.67 for students shows that they generally viewed inorganic chemistry as difficult. Similarly a grand mean value of 2.46 for teachers shows that generally they viewed organic chemistry as easy.

Research Question 3: What are the topics students and teachers perceive difficult in practical chemistry in senior secondary school in Rivers State?

Table 4: Mean response on difficult topics in practical chemistry

S/N	Items	Students (N=910)			Teachers (N=134)		
		M	S.D.	RMK	M	S.D.	RMK
1	Measurement of mass and volume	3.05	1.01	D	2.03	1.01	E
2	Preparation and dilution of standard solution	2.99	1.00	D	2.24	1.01	E
3	Filtration, recrystallization and melting point determination.	2.23	0.98	E	2.18	0.95	E
4	Periodicity – reaction of metals with water	2.21	0.97	E	2.08	0.97	E
5	Measurement of heats of Neutralization and solution	3.01	0.99	D	2.72	1.04	D
6	Determination of PH value of various solution by colometry	2.29	1.01	E	2.28	0.98	E
7	Determination of rates of reaction from concentration versus time curves	2.97	0.99	D	2.93	0.98	D
8	Quantitative Analysis (Acid-base Titration).	2.22	1.02	E	2.19	0.95	E
9	Quantitative Analysis (salt analysis).	3.00	0.99	D	2.84	1.03	D
10	Qualitative Analysis (Reactions of the functional groups).	2.97	1.01	D	2.79	1.06	D
11	Solubility of substance	2.28	1.01	E	2.32	1.03	E
	Grand mean	2.66	1.07	D	2.42	1.04	E

Field data (E=Easy, D=Difficult)

Table 4 above, shows the mean responses of students and teachers on the areas they perceive difficult in practical chemistry. Grand mean value of 2.66 for students shows that they generally viewed practical chemistry as difficult. Conversely a grand mean value of 2.42 for teachers shows that generally they viewed organicpractical chemistry as easy.

Research Question 4: What are the reasons why some chemistry topics are considered difficult for students and teachers?

Table 5: Mean response on reasons topics are difficult

S/N	Items	Students (N=910)			Teachers (N=134)		
		M	S.D.	RMK	M	S.D.	RMK
1	Chemistry involves mathematical calculations	2.96	1.01	A	2.93	1.02	A
2	Some topics also involves calculation of chemical equations	2.99	0.98	A	2.91	1.04	A
3	Chemistry deals with much abstract thinking	3.00	1.01	A	3.12	0.93	A
4	Teachers lack of professional knowledge in the subject	2.20	0.99	D	2.31	1.01	D
5	Student's lack of foundational basics in chemistry	3.01	1.01	A	3.25	0.90	A
6	Teachers' inability to explain chemistry concept clearly	2.23	1.01	D	2.45	1.00	D
7	Most things taught in chemistry are not related to physical activities	2.96	0.97	A	3.05	0.94	A
8	Lack of direct association of concepts, with familiar environment	3.02	0.96	A	2.37	1.05	D
9	Language and terminologies in explanation are not well-known	2.98	1.00	A	3.05	0.96	A
10	Cognitive demand of the topic content	3.00	0.99	A	3.04	0.97	A
11	Low awareness of career opportunities	2.28	1.00	D	2.19	1.04	D
12	Lack of interest towards chemistry	2.95	1.01	A	3.04	0.98	A
13	Wide coverage of the syllabus	3.00	0.98	A	3.06	1.02	A
14	Lack of practical knowledge due to chemical laboratory not equipped.	2.97	1.00	A	3.01	0.99	A
15	Instructional materials are not used in teaching.	2.95	1.01	A	2.96	0.93	A
16	No field trip and excursion.	2.99	1.01	A	2.91	1.05	A
	Grand mean	2.84	1.04	A	2.85	1.04	A

Field data

Table 5 above, shows the mean responses of students and teachers on the reasons why chemistry topics are considered difficult. As shown in the table, grand mean values of 2.84 for students and 2.84 for students and 2.85 for teachers show that both students and teachers generally agree that most of the statements are reasons for difficulty experienced in chemistry students.

Hypothesis 1: There is no significant difference in the mean response of students and teachers on the topics they perceive difficult in inorganic chemistry in senior secondary schools.

Table 6: Z-test analysis on students and teachers difficulty level in inorganic chemistry.

Groups	N	M	S.D.	Z-cal	Z-crit	Decision
Students	910	2.76	1.07	0.81	1.96	Accepted
Teachers	134	2.68	1.06			

Field data

The result in Table 6 shows that calculated value of z is 0.81 and the critical value if z is 1.96. Since the calculated value is less thanthe critical value, the hypothesis is accepted. This implies that there was no significant difference between students and teacher's perception regarding the topics they perceive difficult in inorganic chemistry.

Hypothesis 2: There is no significant difference in the mean response of students and teachers on the topics students and teachers perceive difficult in organic chemistry in senior secondary schools

Table 7: Z-test analysis on students and teachers difficulty level in organic chemistry.

Groups	N	M	S.D.	Z-cal	Z-crit	Decision
Students	910	2.67	1.07	2.17	1.96	Rejected
Teachers	134	2.46	1.04			

Field data

Table 7 shows that calculated z-value of z 2.17 is greater than critical z-value of 1.96. This implies that there was a significant difference between students and teachers' perception regarding the topics they perceive difficult in organic chemistry.

Hypothesis 3: There is no significant difference in the mean response of students and teachers on the topics students and teachers perceive difficult in practical chemistry in senior secondary schools

Table 8: Z-test analysis on students and teachers difficult level in practical chemistry.

Groups	N	M	S.D.	Z-cal	Z-crit	Decision
Students	910	2.66	1.07	2.48	1.96	Rejected
Teachers	134	2.42	1.04			

Field data

The result in table 8 shows calculated value of z is 2.48 and the critical value of z is 1.96. Since the calculated value is greater than the critical value, the hypothesis is rejected. This implies that there was a Significant difference between students and teachers' perception regarding the topics they perceive difficult in practical chemistry.

Hypothesis 4: there is no significant difference between the mean responses of students and teachers regarding the reasons they perceive some topics difficult in chemistry.

Table 9:Z-test on why some topics are perceived difficult by teachers and students in chemistry

Groups	N	M	S.D.	Z-cal	Z-crit	Decision
Students	910	2.84	1.04	-0.10	1.96	Accepted
Teachers	134	2.85	1.04			

Table 9 shows that calculated value of z (0.10) is greater than critical value of z (1.96). this implies that there was no significant differences between students and teachers' perception on the reasons they perceive some chemistry topics difficult.

Discussion of Findings

From research question one it was found that students find scientific measurements and its importance to chemistry; structure of atom and atomic model; chemical bonding; stoichiometry and chemical reaction; periodic chemistry; energy and energy changes; chemical kinetics and equilibrium system; redox reaction and nuclear chemistry as difficult topics in inorganic chemistry. The teachers' responses show that they find: scientific measurements and its importance to chemistry; stoichiometry and chemical reaction; chemical kinetics and equilibrium system; redox reaction; metals and non-metals and nuclear chemistry as difficult topics in inorganic chemistry. Omiko (2017) found that students had difficulties in some topics of chemistry. The influences from hypothesis one shows that there was no significant difference in the mean responses of students and teachers regarding the topics they find difficult in inorganic chemistry. This agrees with finding of Omiko (2017) that chemistry topics perceived to be difficult in secondary school level as Acid-based filtration, qualitative analysis of chemical reactions and energy effects, non-metals and their compounds, applied chemistry, and nuclear chemistry.

From research question two it was observed that students find homologous series/isomerism; determination of empirical and molecular formula; alkanes, alkenes, alkynes; alkanoate as derivatives of Alkanoic acid; carbonyl compounds (alkannone and adldehyde); petroleum and crude oil; benzene and synthetic polymers as difficult topics in organic chemistry. On the other hand, results from teachers response shows that they view petroleum and crude oil; benzene; introduction to basic biochemistry (protein, carbohydrate, amino acids, fats and oil) and synthetic polymers as difficult topics in organic chemistry. This result agrees with the observation of Eticha and Ochonogor (2014) that undergraduate students, perceived organic chemistry to be difficult. This result shows that most of the topics considered difficult by students are perceived easy by teachers. The inference from hypothesis two shows that there was a significant difference in the mean responses of students and teachers regarding the topics they find difficult in organic chemistry. These finding agrees with the finding of Agogo and Onda (2014) that alkonols, alkanols, alkaloids and alkanoates are perceived difficult in chemistry. Also, Gongden; Gongden, and lohdip (2011) in assessing the "difficult areas of the senior secondary school 2 (two) chemistry syllabus of the Nigeria science curriculum" discovered that IUPAC nomenclature of organic compounds, alkynes are aspects of organic chemistry indicated to be difficult for senior secondary school students.

From research question three it was noted that students find measurement of mass and volume; preparation and dilution of standard solution; measurement of heats of Neutralization and solution; determination of rates of reaction from concentration versus time curves; quantitative analysis (salt analysis) and qualitative analysis (reactions of the functional groups) as difficult topics in practical chemistry. On the other hand results from teachers response, show that there was a significant difference in the mean responses of students and teachers regarding the topics they find difficult in practical chemistry. These finding agrees with the finding of Omiko (2017) who in a study found that students had difficulties in acid-based filtration, qualitative analysis of chemistry reactions and energy. Similarly, Childs and Sheeshan (2014), found that students had difficulty with the majority of topics in Chemistry.

From research question it was found that teachers agree that chemical is considered difficult because it involves: mathematical calculations; calculation of chemical equations; abstract thinking; students lack fundamental basics in chemistry; most chemistry topics are not related to physical activities; language and terminologies in explanation are not well-known; cognitive demand of the topic content; lack of interest towards chemistry; wide coverage of the syllabus; lack of practical knowledge due to chemical laboratory not equipped; instructional materials are not used in teaching; no field trip and excursion. The inference from hypothesis four shows that there was no significant difference in the mean responses of students and teachers regarding the reasons they perceive some topics difficult in chemistry. These finding agrees with the findings of Eticha and Ochonogor (2013) that students experienced difficulties were because of inappropriate chemistry teachers, teaching methods, nature of the subject itself, students' attitude and learning experience and learning methods, nature of the subject itself, students attitude, learning experience and learning styles. Similarly, Uchegbu, Oguoma, Elenwoke and ogbuagu (2016) found that students find chemistry topics difficult because they see chemistry syllabus being too wide and involving too many calculations, lack of qualified chemistry teachers and the fact that they perception of chemistry to be too abstract.

Conclusion

Based on the findings of this study, it was therefore concluded that students have some areas of difficulties in inorganic, organic and practical chemistry as well as the teachers although, the topics students find difficult were more than the number of topics teachers find

difficult. Both students and teachers are no the reasons behind the difficulties they face in chemistry.

Recommendations

1. Training programme on instructional delivery should be organized for teacher especially on the topics found difficult in chemistry. This will enhance their capacity in the instructional delivery of these topics.
2. Resources should be provided enable students embark on field trips. This will enable students relate theoretical knowledge to practical experience to enhance their level of understanding of the subject, chemistry.
3. Instructional materials should be provided for instructional delivery in chemistry. This will aid students' understanding of concept taught.
4. Teachers should be encouraged to utilize available instructional materials and where not available, improvise.

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