

Students' Perception of Chemistry Teachers' Characteristics of Interest, Attitude and Subject Mastery in the Teaching of Chemistry in Senior Secondary Schools

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Abstract

This research determined students' perception of teachers' characteristics of interest, attitude and subject mastery as required in the teaching of chemistry in senior secondary schools in Abakaliki Education Zone of Ebonyi State. The study made use of a descriptive survey design. The population of the study comprised all the chemistry students in all public secondary schools in Abakaliki Education Zone. From a total population of six hundred and thirty (630) senior secondary II students, a sample of three hundred (300) students was used for the study selected by stratified random sampling technique. This was based on the four local government areas in the Education zone. A structured questionnaire in a four point Likert type format was used for data collection. The instrument had a reliability coefficient of 0.88, which showed a high internal consistency. Three research questions and one hypothesis guided the study. Mean and standard deviation were used to answer the research questions while t-test statistic was used to test the lone null hypothesis. Results of the study indicated that students perceived to a high extent; teachers' interest, attitude towards chemistry and mastery of the subject as necessary characteristics in the teaching of chemistry. The hypothesis tested at 0.05 level of significance was not significant. Based on the results of the study and the educational implications of the results, recommendations were made.

Keywords: Perception, Chemistry, Interest, Attitude, Mastery, Subject

Background to the Study

The world has been grouped into developed, developing and underdeveloped nations and this classification is directly measured somehow by the number of professional such as chemists, physicists, engineers, pharmacists, doctors, agriculturists and science educators that each nation can boast of producing [1]. Maduabum citing Martin Luther had captured this leverage of humanity through education when he stated thus: the prosperity of a country depends not on the abundance of its revenue nor on the strength of its fortifications, it consists of the number of its cultivated citizens, in its men of education, enlightenment and characters. Here, are to be found its true interest, its chief strength [2].

The reason behind the above comments is not different from why the Federal Republic of Nigeria views education as "an instrument par excellence" for attaining national development, which includes socio-economic emancipation and political stabilization [3]. It is in this wise that science, of which chemistry is a part is playing a major role.

Chemistry is necessary for successful actualization of scientific and technological growth of any nation. In-deed, the indices of chemistry

as a branch of natural science are evident in all economic sectors of the nation; as such areas as transportation, communication, industries, agriculture and education [4,5]. Chemistry is commonly regarded as the central science owing to its involvement and influence on different careers [6]. Omiko defines chemistry as the branch of science that deals with composition and change of matter [7]. But, Igwe sees chemistry as dealing in its entirety on non-living matter. In this wise, he sees chemistry as that science that deals with the structure and composition of non living matters and changes that they undergo when they are subjected to conditions that are otherwise not their original or natural conditions [8,9]. Sequel to the importance of chemistry, a high expectation in the level of enrolment of secondary school students especially the science students, but the reverse has been the case as students in secondary school are running away from this branch of science and if possible other science students will like to avoid it as revealed by Bajah in Odoh [10]. Again, it has been commonly observed that students' achievement in chemistry especially at the senior secondary level worsens as years go by and many students seem to have negative attitude towards the subject. These instances of poor attitude and low achievement of students in chemistry could only emanate from perceived chemistry teachers' characteristics of interest, attitude and subject mastery.

The FRN (2013) has recognized the importance of teachers in the educational system as those who transmit knowledge, ideas and

interpret the content of the curriculum materials to students. Akumah also acknowledges this [11]. They guide the learner through the teaching- learning process and also assess the level of students' achievement in their evaluation. The whole school system revolves around the teachers because they are the pivots of any educational setting [12]. The teacher leads the students from the darkness of ignorance to the light of knowledge and understanding and helps them to keep the wave of civilization moving. Teachers therefore, have influence on the physical, intellectual, emotional, social, moral, cultural and spiritual development of the learners [13]. Teachers equally serve as the main implementers of educational theories; indicating that what they do during the transfer this knowledge is of great relevance to all involved in education. The chemistry teachers' behaviours to the learners therefore can affect learning either positively or negatively as their behaviours can either promote or hinder learning. This realization is what prompted this study.

Learning cannot effectively take place where the environments for learning in terms of social, physical and psychological factors are not conducive [14]. Chemistry teachers therefore are expected to provide such conducive environments for learning to effectively take place. The way the chemistry teachers approach the learners and classroom activities can affect learning outcomes and productivity in especial way. Sequel to this, Soohoo in Igwe (2017) states that: somehow educators have forgotten the important connection between teachers and students...students perception is valuable to our practice because they are autoerotic source, they personally experience our classroom first hand. As teachers we have to find ways to continually seek out this silent voice because they can teach us about learning and learners'.

It has to be noted that classroom climate is greatly influenced by teachers' interest, attitude and subject mastery towards teaching and learning on the students for the development of their own interest and attitude. Interest according to Collins English dictionary is a sense of concern with and curiosity about someone or something [15]. Oladele sees interest as a persistent tendency to pay attention and enjoy some activities or events. Interest therefore seems a powerful motive to be sustained for a meaningful learning to take place [16]. Igwe and Nkire defines attitude as internal belief that influences personal actions which are learned through one's experience [17]. This has to do with a disposition to act or react in a particular way as the individual responds to a situation [18]. Thus, the students' perceptions of the teachers' disposition could influence their attitude and thinking toward chemistry. Subject mastery deals with how much of the content of the teaching materials the teacher knows. Students more often than not judge their teachers in such areas as the teachers' knowledge of the subject matter, communication ability, the choice of appropriate teaching method and the general classroom management skills.

It follows that a teacher who is rated high on the above indices in the perception of the students is likely to enjoy the confidence, respect and admiration of students. That the teacher has proper knowledge of the content or materials for learning is not all that the teacher needs to be successful in the classroom; they need to maintain and enhance a healthy classroom, with positive, learnable and teachable atmosphere. It has been observed that the teacher characteristics that best enhance students' learning are considered to be the ones that are described as being warm, supportive and have the sense of order and humor in an integrated sense, mutual respect and rapport

[19,20]. These must be born in mind by the would-be teacher so that he/she could imbibe the right characteristics for the success of the classroom.

Characteristics here refers to behaviours that are frequently exhibited by a person through which he/she can be identified or predicted. The very behaviour that teachers exhibit in the course of teaching and learning, especially Chemistry can affect learnability. This is because they either promote the desires students have in the subject or delimit them to hating and running away from the subject. In teaching generally, interpersonal relationship is essential, in the sense that it tells the students that their teachers understand, share and value them, their feelings and needs as individuals on a whole range of matters and experiences that cut-across academic, social, personal and emotional issues. It has been observed that certain personality characteristics influence students' evaluation of their teachers. From the students' point of view and according to Basow; Radmacher and Martin, teachers' expressive characteristics of warmth, enthusiasm, extroversion, apparently separate effective teachers from those who are ineffective [21,22]. Therefore, as the characteristics of chemistry teachers are important in learning chemistry, the students' enrolment pattern and their interest in chemistry in particular must have an attribute of teachers' behaviour. Esu, Erukoha and Umoren (2004) captured that it is highly probable that teachers who approach classroom management as a process of establishing and maintaining effective learning environment tend to be more successful than those, who place more emphasis on their roles as authority figures or disciplinarians [23]. This is because classrooms are composed of numerous and different personal views, characteristics, ethics and values. This study therefore tended to find out students' perception of chemistry teachers' characteristics of interest, attitude and subject mastery in the teaching of chemistry in senior secondary schools.

Statement of the Problem

Teachers are central in the implementation of curriculum and also facilitators of instruction in the formal classroom setting. To a great extent have some characteristic defects in the interest, attitude and subject mastery of the teachers do occur. This could be as a result of their not accepting teaching as an area of interest for a profession. Over the years there has been a low interest of students in chemistry [24,25]. As observed from above studies, low enrolment is being recorded which may be as a result of lack of interest and positive attitude being exhibited by the Chemistry teachers. This situation has inadvertently led to production of half backed graduate Chemistry educators.

There are three generally accepted characteristics of teachers for the classroom setting. These are pedagogy (methods), personality (interest and attitude) and professional (subject mastery). However, this study centred on personality (interest and attitude) and professional (subject mastery) characteristics. It could be true that a teacher without these two characteristics cannot be effective in classroom situation. This is because these characteristics have a way of shaping and also moulding the students into good scholars who are confident and self assuring. The neglect of these characteristics by some teachers, has greatly affected learning and educational outcomes in science and chemistry in particular since there can be no theory without knowledge and no practical without interest and attitude.

Therefore the study sought to investigate how students perceive their teachers' characteristics of interest, attitude and subject mastery in

the teaching of chemistry. It is possible that these characteristics are influential over students' interest and attitude towards the chemistry teacher himself/herself or the learning of chemistry in particular.

Purpose of the Study

The major purpose of the study was to investigate perception of teachers' characteristics of interest, attitude and subject mastery in the teaching of chemistry in senior secondary schools. Specifically, the study aimed at ascertaining:

1. How students perceive teachers' interest in the teaching of chemistry.
2. How students perceive teachers' attitude in the teaching of chemistry?
3. How students perceive teachers' mastery of the subject in the teaching of chemistry?

Significance of the Study

The results of this study will be significant in a number of ways to the following stakeholders: the teachers, the students, the curricular planners, future researchers and the school authorities. Teachers usually have great influence in the classroom and this can influence what they give to the students positively or negatively. Since the teachers are at the centre of what is learnt, how they express themselves and exercise authority in the classroom influences the learner's perception of good and bad teaching.

Following the above assertion, the findings will enable teachers with inappropriate behaviours to adjust to the appropriate behaviours towards the students and fellow teachers in general. Moreover teachers will understand through the findings what behaviours that are of positive interest to the students and as much as possible acquire these behaviours for the teaching-learning process.

The findings will be beneficial to students in ensuring positive relationship between the students and their teachers which is necessary for learning to take place. They will also give the students a better understanding of what their teachers are and how that can affect their learning through their interest and attitude towards them. The curriculum planners will benefit from the findings of this study, in the sense that it will enable them adopt the best strategy to review and improve the existing curriculum for better relationship between teachers and students by introducing social aspects of what is taught in schools.

The findings will also be useful to future researchers who will find this particular material useful and authentic in their individual researchers and as good library of knowledge. The school authority will benefit from the findings of the study. The findings will enable the authority to not only know and appreciate these characteristics as they are being exhibited by the teachers, but will help the authority to check and evaluate a good teacher in the teaching of chemistry and other subjects..

Scope of the Study

This study was delimited to chemistry students in the senior secondary schools in Abakaliki Education Zone of Ebonyi State. It focused on students' perception of teachers' characteristics of interest, attitude and subject mastery in the teaching of chemistry. The study made use of senior secondary schools II chemistry students as subjects of the study.

Research Questions

The following research questions guided the study, thus:

1. How do students perceive teachers' interest in the teaching of chemistry?
2. How do students perceive teachers' attitude towards the teaching of chemistry?
3. How do students perceive teachers' mastery of the subjects in the teaching of chemistry?

Hypotheses

The following null hypothesis was tested at 0.05 alpha levels, thus: HO1 There is no significant difference in the mean ratings of male and female students on their perception of chemistry teachers' characteristics in the teaching of chemistry.

Methodology

The descriptive survey research design was adopted for the study. According to Abonyi, Okereke, Omebe and Anugwo, a survey is the act of obtaining facts and figures from systematically selected segments of a population with the purpose of ascertaining the general characteristics of the items of the population [26]. The study was carried out in Abakaliki Education Zone of Ebonyi State. Ebonyi State occupies a land mass of 11678 km² and a population of 157,072 courtesy of the 2006 census. The area of the study is occupied by the Igbo ethnic group who predominates much of the southern part of Nigeria and who speak the Igbo language. English is also widely spoken and serves as the official language in government and in business circles. People in this zone are dominantly Christians and their occupation includes farming and fishing.

The population of the study was all the public secondary schools II chemistry students. According to information gathered from Ebonyi State Secondary Education Board (EBSEB), 2015, the chemistry students' population in the zone was four hundred and ten (431). The sample for the study was 300 chemistry students' from ten (10) public secondary schools. The sample was selected using simple random sampling technique after stratified sampling had been applied based on the four Local Government Areas that make up the Zone. Thirty (30) students were by simple random sampling technique selected from each school, making a total of 300 students and through balloting with replacement as a process of selection.

The instrument used for data collection was a structured questionnaire entitled: Students' Perception of Chemistry Teachers' Characteristics of Interest, Attitude and Subject Mastery in Teaching Chemistry Questionnaire (SPCTCIASMTCCQ). The questionnaire was divided into two sections, A and B. Section A dealt with the personal data of the students while section B was made-up of eighteen (18) items on Chemistry teachers' characteristics of interest, attitude and subject mastery. This was also in three clusters of interest, attitude and subject mastery towards the teaching of chemistry. The instrument was a four-point scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE) and was weighted 4, 3, 2 and 1 respectively for positive items and in the reverse order for negative items.

The questionnaire was face validated by three experts: two in chemistry who made necessary corrections on the instrument, and one expert in measurement and evaluation who assessed the items of the questionnaire in terms of design and analysis. The aspects of the instrument on interest and attitude were subjected to

construct validation using factor analysis. Three items were dropped for poor loading on Principal Component Matrix (PCM), leaving behind fifteen items for use as final instrument. Thereafter, the final instrument was tested for reliability for internal consistency through the Cronbach Alpha statistic. The reliability index for the questionnaire was obtained as 0.88 which showed that the instrument was of high internal consistency and therefore reliable and could be used for the study.

The 300 copies of the instrument were distributed to the respondents who completed them for retrieval on the spot to avoid loss and may be some element of bias from the respondents. The administration and collection were done by the researcher and five trained research assistants. Maximum return was made of the instrument. Mean and standard deviation were used to answer the research questions while t-test statistic was used to test the null hypothesis. To interpret the mean results of the research questions, the following ranged scale was used to interpret the results of data analysis, thus:

Very High Extent	(VHE),	3.1 - 4.0	
High Extent	(HE),	2.1 - 3.0	
Low Extent	(LE)	1.1 - 2.0	
Very Low Extent	(VLE)	0.1 - 1.1 (Adapted from Igwe, 2012) [27].	

To interpret the results of the hypotheses, the following decision format was used:

Reject HO if the t.calculated is greater than the t. critical, and Accept HO if the t.calculated is lesser than the t.critical.

Results

Research Question 1

How do students perceive teachers' interest in the teaching of chemistry?

Table 1: Mean and Standard Deviation Results of Students' perception of Teachers' Interest in the Teaching of Chemistry

S/N	ITEMS	VHE	HE	LE	VLE	X	S.D	Interpretation
1.	Teachers enthusiasm in teaching chemistry	102	100	88	10	2.98	0.64	HE
2.	Teachers interest in chemistry for attainable classroom goals.	120	78	60	42	2.92	0.65	HEz`z`
3.	The interest of teachers to the subject in making students bring out their positive commitment towards chemistry.	88	101	100	10	2.88	0.94	HE
4.	Teachers encouragement to their students in chemistry is strongly agree.	25	25	242	8	2.22	0.97	HE
5.	Teachers' lack of interest in chemistry brings difficulty to the classroom activities.	10	15	212	3	1.70	0.73	LE
Grand mean						2.54		HE

Table 1 shows the mean results of the ratings of students in their perception of teachers' interest in the teaching of chemistry. Students' perception in items 1, 2, 3 and 4 were to a high extent while their perception in item 5 was to a low extent. However, the grand mean is 2.54, which is to a high extent. Therefore, students perceived that the interest of teachers in teaching chemistry is to a high extent.

Research Question 2

How do students perceive attitude of teachers in the teaching of chemistry?

Table 2: Mean and Standard Deviation Results of Students' Perception of Teachers' Attitude towards the Teaching of Chemistry

S/N	ITEMS	VGE	GE	LE	VLE	X	S.D	Interpretation
1.	Cooperativeness of students by showing approval for appropriate behaviours	144	123	8	25	3.24	0.75	VHE
2.	Teachers' despotic behaviours in classroom work when teaching chemistry	122	76	61	41	2.89	0.81	HE
3.	Being democratic through centering students interest ad learner centered.	122	76	61	41	2.89	0.81	HE
4.	Shows authoritative behaviour in their ways of teaching chemistry.	123	78	59	40	2.94	0.74	HE
5.	Some chemistry teachers being impartial in classroom behaviour to students.	140	70	71	19	3.01	0.87	VHE
	Grand mean					2.96		HE

The results in Table 2 showed that students' perception on items 1 and 5 were to a very high extent whereas their perception on items 2, 3 and 4 were to a high extent. However, the grand mean is 2.96 which is to a high extent. Hence, students' perception on chemistry teachers' attitude towards the teaching of chemistry is to a high extent.

Research Question 3

How do students perceive teachers' mastery of the subject in the teaching of chemistry?

Table 3: Mean and Standard Deviation Results of Students' Perception of Teachers' Mastery of the Subject in the Teaching of Chemistry

S/N	ITEMS	VGE	GE	LE	VLE	X	S.D	Interpretation
1.	Teachers' good knowledge of the subject matter to attracting respect from students and interest	125	70	60	45	2.91	0.74	HE
2.	Unqualified teachers make chemistry difficult and uninteresting for student	121	80	58	41	2.93	0.91	HE
3.	Resourceful in teaching and motivating students in what is taught	124	76	63	37	2.95	0.99	HE
4.	Teachers' ability to enable students participate fully in group work, problem solving and independent learning.	122	73	60	45	2.90	0.93	HE
5.	Teachers' lack of consciousness to give proper guidance to students in problem areas of chemistry.	123	76	59	39	2.95	0.82	HE
Grand mean						2.92		HE

Results on Table 3 reveal that the students' perception on all items on chemistry teachers' characteristic of subject mastery is to a high extent. The grand mean of 2.92 is to a high extent. Hence, students perceived chemistry teachers' characteristic of subject mastery to a high extent.

Test of Hypotheses

H_{01} : There is no significant difference in the mean responses of male and female students' perception on teachers' characteristics in the teaching of chemistry.

Table 4: t-test Analysis of Students' Perception on Teachers' Characteristics based on Gender

S/N	Variable	No	X	S.D	Df	t-cal	t-crit	Decision
1.	Male	178	3.60	0.49	298	0.58	1.960	Accept HO
	female	122	3.53	2.67				
2.	Male	178	3.42	0.55	298	0.62	1.960	Accept HO
	female	122	3.32	0.88				
3.	Male	178	2.94	0.92	298	0.09	1.960	Accept HO
	female	122	3.16	0.96				
4.	Male	178	3.15	0.75	298	0.70	1.960	Accept HO
	female	122	3.22	0.83				
5.	Male	178	2.23	0.59	298	1.06	1.960	Accept HO
	female	122	2.12	0.42				
6.	Male	178	2.89	0.59	298	0.12	1.960	Accept HO
	female	122	2.87	0.42				
7.	Male	178	3.13	0.81	298	0.73	1.960	Accept HO
	female	122	3.25	0.86				
8.	Male	178	2.97	0.88	298	1.11	1.960	Accept HO
	female	122	2.75	0.97				
9.	Male	178	2.76	1.05	298	0.50	1.960	Accept HO
	female	122	2.87	1.03				
10.	Male	178	2.94	0.86	298	1.56	1.960	Accept HO
	female	122	2.62	1.05				
11.	Male	178	2.23	0.54	298	0.23	1.960	Accept HO

	female	122	2.20	0.57				
12.	Male	178	2.52	1.00	298	0.42	1.960	Accept HO
	female	122	2.61	0.99				
13.	Male	178	2.23	0.88	298	0.32	1.960	Accept HO
	female	122	3.17	0.93				
14.	Male	178	1.97	0.63	298	0.39	1.960	Accept HO
	female	122	2.03	0.76				
15.	Male	178	2.55	1.03	298	1.87	1.960	Accept HO
	female	122	2.93	0.97				
Overall t-test value						0.69	1.960	Accept HO1

From the result of analysis on Table 4, the t-test value of 0.69 is lesser than the t-critical value of 1.960; hence, the null hypothesis is accepted which means that there is no significant difference in the mean ratings of male and female students in their perception of chemistry teachers' characteristics (interest, attitude and subject mastery) in the teaching of chemistry.

Discussion

From the result of analysis in Table 1, students perceived that their teachers' interest in the teaching of the chemistry was at a high extent. This means that the students agree that for any teacher to be effective in the teaching of chemistry, the teacher cannot carry the students along without showing enthusiasm and passion towards the subject he/she is teaching. He/she must have great love for the subject; chemistry [9]. These are in line with Aguokogbuo who opined that whenever one is in the classroom issuing instructions or writing on the chalkboard or asking questions or doing those things normally done by teachers, one cannot be termed a teacher until one's intention for doing what one is doing is ascertained through learning outcome [14]. Therefore, for any teacher to bring about positive learning and carry the students along, he/she must have a great interest in the subject and in this case chemistry. In essence what makes a good chemistry teacher as perceived by the students is the teacher's interest in the subject that he/she teaches.

Secondly, from the findings of the Table 2, which showed students' perception of teachers' attitude in teaching of chemistry, the result revealed that teachers' attitude was to a high extent. This finding is in line with Esu et al whose view is that learning objectives to very great extent should be consistent so that the students will not form contradictory patterns of human behaviors [23]. Therefore, teachers should have necessary characteristics especially positive attitude in order to carry the students along in developing positive attitude themselves. The respondents agreed that attitude is a necessary characteristic of a teacher which the students look upon for any desired learning to take place. This attitude is reflected in forms of being cooperative, non-despotic, flexible, democratic and impartial. According to Wong (2004), 80 percent of the teachers complain a lot and are unhappy and non performing while 20 percent of them are happy and successful. This is contrary to the finding of this study where the chemistry teachers have high positive attitude [28].

Thirdly, from the finding in Table 3, which shows the mean result of students' perception of teachers' mastery of the chemistry in the teaching of chemistry, the respondents perceived that chemistry teachers have mastery of the subject to a high extent. This is shown by a mean value of 2.87 which is in the region of high extent. This

result agrees with Ogah et.al who noted that teachers should know the subject, be proficient in the delivery of his/her lessons and constantly improve on his/her knowledge of the subject, possibly through workshops, seminars and conferences [19]. This result is so because according to FRN (2013), no nation can live above its teachers. This means that a chemistry teacher can only be effective in teaching chemistry if he/she has good knowledge of the subject matter. It is obvious that students observe the level of teachers' ability to manipulate contents of the subject matter effectively to produce the desired learning. This is seen in form of teachers' ability to guide them in their difficult problems in the subjects; their ability to effectively initiate group work, their resourcefulness and their level of making chemistry interesting. It suffices to state that an important factor of school learning is the ability of the teacher because the more capable the teacher, the more successful the students.

On the test of significance of hypothesis 1, and from the t-test result in Table 4, HO1 is not rejected meaning that there is no significant difference in the mean responses of male and female students in the perception on chemistry teachers' characteristics (interest, attitude and mastery) in the teaching of chemistry. This result signifies that the female and male students have the same perception on the chemistry teachers' characteristics in the teaching of chemistry. The students all agreed that for any teacher to be effective in the teaching of chemistry in the school, the teacher must show enthusiasm and passion towards the subject that he is teaching. Therefore for any teacher to bring about effective teaching and carry the students along for adequate learning, he/she must be interested in the subject, which will in return inspire and spur the students to action in classroom activities that will finally culminate into higher achievement.

Educational Implications

The findings of this study on students' perception of teachers' characteristics of interest, attitude and subject mastery in the teaching of chemistry in senior secondary schools have educational implications in the following ways:

1. The finding of the study proves that students perceive the characteristics of interest, attitude and subject mastery as what the teacher should have as necessities in the teaching of chemistry. When this is the case, students will appreciate and admire their teachers and work with them cordially. This will give the students the opportunity to express themselves which in most societal and educational setting, such students' voices are not heard. When teachers show interest in their subject and teaching, the students will follow their footsteps and imbibe such trait and so make better achievement in chemistry. Where teachers lack interest, students definitely suffer setback such

as being demoralized leading to poor performance.

2. On the result that teachers should have a high extent of positive attitude, the implication is that chemistry teachers will be the epitome of emulation, as it will be “do as I do” from the teachers to the students. In this case, no activity in the class will be left undone because both the teacher and the students will be active all the time. The attitude of coming to classes early by the teacher will be something to copy by the students. By so doing, everybody; both teacher and students will be in class for their lessons. Teaching and learning will be adequately carried out leading to better achievement. But where the teacher is dull and most times inactive, it will reflect in the attitude of the students towards their studies, which will likely result to poor achievement in school work. Possession of positive attitude by the teacher will help to build a teaching-learning environment that is not tensed, in the sense that the teacher now knows how to relate with the students as well as the students with the teacher which will promote performance, enhance interest and grow commitment on the side of both the teacher and students.

3. On the result on subject mastery, which is shown to be to a high extent, the the teacher having great knowledge of his/her subject matter will be in a position to facilitate learning by transmitting knowledge adequately to the students. The students will in turn acquire much knowledge and be able to pass their examination with excellence. But where the teacher has little knowledge of the subject, he/she will not deliver much knowledge to the students which will lead to poor performance.

Recommendations

From the findings of this study, the following recommendations were made:

1. Students opinion about their teachers in the teaching of chemistry should be encouraged rather than seeing it as humiliating to teachers.
2. School authorities should use the opinion of the students to properly evaluate the future teachers they employ in terms of possessing necessary characteristics as observed by students themselves who are primary focus of all educational programmes.
3. Teachers should constantly update their knowledge in the teaching of chemistry by attending seminars, conferences, in-service training and refresher courses. This is as a result that science is dynamic and discoveries are made on daily basis, so that their knowledge will not be out- dated. This is to ensure a continuous professional growth and knowledge update and mastery of the contents.
4. Teachers should be properly remunerated by paying their salaries, allowances and other entitlements. This will enable them to work with enthusiasm accompanied with positive attitude in their classroom activities.
5. Teacher educators are convinced that teachers teach the way they have been taught rather than the way they are told to teach. Therefore training the teachers through mastery approach will encourage them to teach the students the same way. Teachers who learn under mastery learning condition will become enthusiastic and want these conditions not only in their own subjects but also in the classrooms for the students.

Conclusion

The study investigated students' perception of teachers' characteristics of interest, attitude towards Chemistry and mastery of the subject in

the teaching of chemistry in senior secondary schools. Teachers are always the central focus in the implementation of curriculum and also the facilitators of how students learn in the formal classroom setting; hence, some teacher characteristic defects do occur contrary to what is expected of them. In this study, interest, attitude and mastery of the subject in the teaching of chemistry were studied [29,30].

Indeed, a teacher without the above characteristics would not be effective in the classroom because these characteristics help to model the students to an end product which can be shaped and self assured. The neglect of these characteristics by some chemistry teachers has greatly affected the learning and educational outcomes in chemistry. Findings in the study revealed that students perceived teachers' interest, attitude and mastery of the subject to high extent in the teaching of chemistry, indicating the level of need. Recommendations were made, which the researcher hoped that when the recommendations are implemented, chemistry teachers' exhibition of the characteristics will be to a very high extent for improved products (students' achievement).

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