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Chemistry Teachers' Characteristics of Cordiality and Punctuality as Perceived by Students in the Teaching of Chemistry in Senior Secondary Schools

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Abstract: ***The study investigated students' perception of teachers' characteristics of cordiality and punctuality in the teaching of chemistry in senior secondary schools in Afikpo Education Zone of Ebonyi State. The study adopted a descriptive survey design. The population of the study consisted of all the chemistry students in fifteen government's owned secondary schools in Afikpo Education Zone. From a population of three hundred and ninety nine (399) senior secondary II students, a sample of one hundred (100) students was used for the study selected by stratified random sampling technique based on the five local government areas that make up the zone. Two research questions and two hypotheses guided the study. The instrument for data collection was a structured questionnaire in a four point Likert type scale; that had 0.78 as its established reliability coefficient. Mean and standard deviation were used to answer the research questions while t-test statistic was used to test the null hypotheses. Findings for the study showed that students perceived to a high extent; the cordiality of the teachers with the students and their punctuality to classes as necessary characteristics in the teaching of chemistry. The hypotheses which were tested at 0.05 alpha level, were not significant. Based on the findings and the educational implications, recommendations were made.***

Keywords: Perception, Chemistry, Cordiality, Punctuality

1. Background to the Study

The importance of chemistry as a requirement for successful practice of science and technology and effective growth of any nation cannot be underrated. The impact of chemistry as a branch of science can be seen in all sector of the nation, in such areas as, transportation, communication, industries, agriculture and education [Igwe, 1994 and 2002]. The classification of any nation into developed, developing and underdeveloped is directly measured and accurately too by the number of chemists, physicists, engineers, pharmacists, doctors, agriculturists and science educators that the nation could produce. Over the years, it could be 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. Chemistry is not commonly regarded as the central science or the mother of all sciences, owing to its confluence and influence [Ahiakwo, 2002]. Igwe [2012] defines chemistry as the branch of science that deals with composition, structure and changes in the properties of non-living matter. Therefore chemistry can be said to be the science that deals with structure and composition of non living matter and changes that they undergo when they are subjected to condition that are otherwise not their original or natural conditions [Igwe, 2003]. With regard to importance of chemistry, there will be a high expectation in the level of enrollment 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 [Bajah, 1999].

Teachers are paramount importance in any educational setting (FRN, 2013). Teachers are those who impact knowledge, ideas and interpret the content of the curriculum materials to the learner and also help others learn [Akumah, 2008]. They guide the learner through the process and content of learning and also access the level of students' achievement in what is taught. The whole school system moves around the teachers, they are the pivot of any educational setting [Alumode, 2002]. A school with a teacher is like a soulless body, they lead the students from the darkness of ignorance to the light of knowledge and understanding and help to keep the lamp of civilization burning. They have influence on the physical, intellectual, emotional, social, moral cultural and spiritual development of the learners [Abimbade, 1999]. Since the teachers serve as the main implementer of education how they transfer this knowledge is of great concern to all involved in education. Teachers' behaviours to the learners can effects learning either positively or negatively their behaviours on either promote or hinder learning.

Learning cannot effectively take place where the environments for learning in terms of social, physical and psychological environment are not conducive. Teachers therefore are charged to provide such conducive environment for learning to take place effectively. The way teachers approach the learners and classroom activities can affect learning outcome and productivity as a result, Soohoo [1993:38] said that:

> somehow educators have forgotten the important connection between teachers and students….students perception is valuable to our practice because they are autoerotic source, the personally experience our classroom first hand. As teachers we have to find ways to continually seek out this silent voice because they can teacher us about learning and learners'.

Classroom environment is majorly influenced by teachers for the benefit of the students in terms of motivation and positive attitude towards learning. Therefore, the teacher

having a proper knowledge of the contents or materials for learning is not all that the teacher needs to be successful in classroom, maintain and enhance a healthy classroom. He/she needs positive, learnable and teachable characteristics such as cordiality with students and punctuality to lessons. Chukwu [2006] observed that the factors 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; which is what cordiality stands for in the theory and practice of education. Punctuality on the other hand tends to promote respect and confidence in the teacher.

Characteristics have to do with behaviours which are frequently exhibited by a person through which he can be identified or predicted [Bandura, 1971]. The very behaviours teachers show in teaching and learning, especially in this aspect of science; chemistry can affect learnability. This is as a result of the fact that they either promote the desires students have in the subject or delimit them to hating and running away from the subject. In teaching, interpersonal relationship matters, 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 and personal, emotional issues. It has been observed that certain personality characteristics influence students' evaluation of their teachers. From the students' point of view, according to Basow [2000]; Radimacher and Martin [2001], teacher's expressive characteristics such as warmth, enthusiasm, extroversion, apparently separate effective teachers from ineffective teachers. Therefore, since the characteristics of teachers are important in learning generally and especially in chemistry, the level of students' interest in science and chemistry in particular must have an attribute derived from the teachers' behaviour. Esu, Enukoha and Umoren [2004] concluded this when they stated that it is highly probable that teachers who approach classroom management as a process of establishing and maintaining effective learning environment as a multilateral ambience, tend to be more successful than others, who place more emphasis on their roles as authority figures or disciplinarians, since classrooms are composed of numerously different personal views, characteristics, ethics and values.

2. Statement of the Problem

Teachers as the central point in the implementation of curriculum and facilitators of how students learn in the formal classroom setting to a great extent have some characteristic defect contrary to what is expected of them in terms of cordiality with the students and punctuality to classroom duties. This may be as a result of their constant neglect to teaching as an area of interest. Over the years there has been a low enrolment of students and attendant poor performance in chemistry in selected public examinations [Igwe, 2006]. Despite the fact that chemistry is among the major subjects in which any science student should have average knowledge of, the low enrolment and consequent low achievement may be as a result of lack of concern to students by chemistry teachers coupled with serious laxity in attending to duties promptly and on time too.

There are three generally accepted classes of characteristics of teachers which include: professional, pedagogy and personality characteristics. However, this study centred on the personality characteristics of cordiality and punctuality to classes by chemistry teachers. A teacher without these three characteristics cannot be effective in classroom situation. This is as a result of the fact that these two variables lead to students as end products which are shapeable and self assured. The neglect of some and sometimes all of these characteristic traits by most contemporary teachers, has greatly affected learning and educational outcome in science and chemistry in particular.

Therefore the study tended to find out how the students perceive their chemistry teachers' characteristics towards the teaching of chemistry in terms of cordiality and punctuality. Are these characteristics influential over students' attitude towards the teachers or learning in particular?

3. Purpose of the Study

The major purpose of the study was to examine students' perception of teachers' characteristic of cordiality and punctuality in the teaching of chemistry in senior secondary schools. In specific terms, this study tended to x-ray:

i. How students perceive cordiality of teachers in the teaching of chemistry.
ii. How students perceive punctuality of teachers in the teaching of chemistry.

4. Significance of the Study

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 have tremendous influence in the classroom and the effect and influence of their characteristics can give room to positive or negative learning. 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.

Sequel to the above, the findings will enable teachers with inappropriate behaviours to adjust to the appropriate behaviours towards the students and teachers in general. Moreover teachers will understand through the findings what behaviours are of positive interest to the students and as much as possible acquire these behaviours for the teaching 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. It will also give the students a better understanding of what their teachers are and how that can affect their learning and interest in chemistry.

The curriculum planners are not left out in the benefit of 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 through infusing socialistic aspects in the course contents of chemistry.

The findings will also be useful to future researchers who will find them authentic in their individual studies and as good library of knowledge. The school authority will benefit from the findings of the study because they will enable the authority to not only know and appreciate these characteristics, but will help the authority to check and evaluate a good teacher in the teaching of chemistry.

Scope of the Study

This study centred on chemistry students in the senior secondary schools in Afikpo South Local Government Area of Ebonyi State. It focused on students' perception of teachers' characteristic of cordiality and punctuality in teaching of chemistry in senior secondary schools in the local government area. The study made use secondary students II as subjects of the study.

Research Questions

1) How do students perceive the cordiality of teachers in the teaching of chemistry?
2) How do students perceive the punctuality of teachers in the teaching of chemistry?

Hypotheses

HO_1 There is no significant difference in the mean responses of male and female students' perception on teachers' punctuality in the teaching of chemistry.
HO_2 There is no significant difference in the mean responses of male and female students' perception on teachers' cordiality in the teaching of chemistry.

Research Method

The research design adopted for the study was a descriptive survey design. Abonyi, Okereke, Omebe and Anugwo [2006] stated that a survey involved 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. The study was carried out in Afikpo Education Zone of Ebonyi State. The area occupies a land mass of 11678 km^2 and a population of 157,072 at the 2006 census. The people are of the Igbo ethnic group who predominates much of the southern part of Nigeria and whose traditional language is Igbo. English is also widely spoken and serves as the official language in governance and in business. People in this zone are dominantly Christians.

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] 2016. The chemistry students' population in the zone was three hundred and ninety nine [399]. The sample for the study was 100 chemistry students' selected from ten [10] public secondary schools. The sample of the schools was done by stratified sampling technique based on the five Local Government areas in the zone while the students' sample of 100 was done using simple random sampling technique. Ten [10] students were by the simple random sampling technique selected from each school, making a total of 100 students and through balloting with replacement.

The instrument used for data collection was a structured questionnaire entitled: Students'
Perception of Chemistry Teachers' Characteristics of Cordiality and Punctuality in Teaching Chemistry Questionnaire [SPCTCCPTCQ]. The questionnaire initially had thirteen [13] statement items. The questionnaire also had two sections, A and B. Section A dealt with the personal data of the students such as age, class, sex and location of the school while section B was made-up of the thirteen statement items on Chemistry teachers' characteristics in two clusters of cordiality and punctuality in the teaching of chemistry. The instrument was a four-point scale of Very Great Extent [VGE], Great Extent [HE], Small Extent [SE] and Very Small Extent [VSE] and was weighted 4, 3, 2 and 1 respectively for positive items and 1,2,3 and 4 for negative items.

The questionnaire was face validated by three experts: two in chemistry education who made necessary corrections on the instrument, and one expert in measurement and evaluation who assessed the items of the **Results**

Research Question 1: How do students perceive cordiality of the teachers in the teaching of chemistry? questionnaire in terms of design and analysis. At the end of the validation, three items were dropped. This brought the number of items used for the study to ten [10]. The instrument was tested for reliability of internal consistency through the Cronbach Alpha statistic, which reliability index was obtained as 0.78 that was adjudged as high making the instrument reliable and usable for the study.

The copies of the instrument were distributed to the Chemistry students as respondents who completed them for retrieval on the spot to avoid loss and element of bias from the respondents. The administration and collection were done by the researcher and five trained research assistants. By these approaches, 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 hypotheses. To interpret the mean results of the research questions, the following ranged scale was used to interpret the results of data analysis, thus:
Very Great Extent [VGE], 3.1 - 4.0
Great Extent [GE], 2.1 - 3.0
Small Extent [SE] 1.1 - 2.0
Very Small Extent [VSE] 0.1-1.1 [adopted from Igwe, 2012]

To interpret the results of the hypotheses, the following decision pattern 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

Table 1: Mean and Standard Deviation Results of Students' Perception on Teachers Cordiality in the Teaching of Chemistry

S/N	ITEMS	VGE	GE	LE	VLE	X	S.D	Interpretation
1.	Teachers sense of humour to have better relationship with student when teaching.	14	50	24	12	2.66	0.86	HE
2.	Students showing respect to their teachers when they are fair and firm to them.	4	7	23	66	1.49	0.79	LE
3.	Teachers are close and patient with their students to carry them alone while teaching.	21	41	24	14	2.69	0.96	HE
4.	Friendliness of teachers in setting a more relaxed environment for learning.	31	49	13	7	3.04	0.85	VHE
5.	Students expressing their difficulties in chemistry to teachers that are approachable.	24	36	33	7	2.77	0.89	HE
	Grand mean					2.53		HE

The results in Table 1 showed that students perceived item 4 to be of a very high extent on this teachers' characteristic. Items 1, 3 and 5 were perceived to be at a high extent while item 2 was perceived to a low extent. However, the overall mean of means (grand mean) is 2.53 which is in the region of high extent. Therefore, the students perceived chemistry teachers' cordiality to be at a high extent.

Research Question 2

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

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

S/N	ITEMS	VGE	GE	LE	VLE	X	S.D	Interpretation
1.	Teachers coming very late to class mostly preventing interest of student in chemistry.	37	36	17	10	3.00	0.97	HE
2.	Some chemistry teachers not coming to classes	42	30	21	7	3.17	0.99	VHE
3.	Teachers not punctual by coming to teach as at when due.	32	34	27	7	2.91	0.93	HE
4.	Punctual teachers using their time effectively in producing the desired learning in students.	9	59	21	11	2.66	0.79	HE
5.	Teachers are always in the class to teach during their time.	13	52	30	5	2.73	0.75	HE
	Grand mean					2.87		HE

The result of analysis as shown in Table 2 show that the respondents perceived item 2 of this teachers' characteristic to be at a very high extent whereas items 1, 3, 4 and 5 were perceived to be at a high extent. But the overall mean shown by the grand mean of 2.87 revealed that students' perception of teachers' punctuality to classes was to a high extent.

Hypothesis 1 [HO_1]

There is no significant difference in the mean responses of male and female students' perception on chemistry teachers' cordiality in the teaching of chemistry.

Table 3: t-test Analysis of Students' Perception on Teachers' Characteristic of Cordiality Based on Gender

S/N	Variable	No	X	S.D	Df	t-cal	t-crit	Decision
1.	Male	38	2.47	1.00	98	0.18	1.98	Accept HO
	female	62	2.43	1.01				
2.	Male	38	1.76	0.82	98	0.94	1.98	Accept HO
	female	62	1.91	0.79				
3.	Male	38	2.71	0.86	98	1.50	1.98	Accept HO
	female	62	2.98	0.89				
4.	Male	38	2.55	0.97	98	1.14	1.98	Accept HO
	female	62	2.30	1.09				
5.	Male	38	3.43	0.40	98	0.80	1.98	Accept HO
	female	62	3.11	0.52				
Overall t-test value						0.92	1.98	Accept HO_1

From the result of analysis on Table 3, the t-test value of 0.92 is lesser than the t-critical value of 1.98; hence, the null hypothesis is accepted which implies that there is no significant difference in the mean responses of male and female students in their perception of chemistry teachers' characteristic cordiality in the teaching of chemistry.

Hypothesis 2 [HO_2]

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 Chemistry Teachers' Characteristic of Punctuality based on Gender

S/N	Variable	No	X	S.D	Df	t-cal	t-crit	Decision
1.	Male	38	3.61	0.49	98	0.50	1.98	Accept HO
	Female	62	3.53	0.62				
2.	Male	38	3.32	0.54	98	0.32	1.98	Accept HO
	Female	62	3.37	0.85				
3.	Male	38	3.06	0.89	98	0.11	1.98	Accept HO

	Female	62	3.08	0.98				
4.	Male	38	3.06	0.77	98	1.39	1.98	Accept HO
	Female	62	3.30	0.81				
5.	Male	38	2.22	0.61	98	0.76	1.98	Accept HO
	Female	62	2.14	0.43				
Overall t-test value						0.62	1.98	Accept HO_1

From the result of analysis on Table 6, the t-test value of 0.62 is lesser than the t-critical value of 1.98; hence, the null hypothesis is accepted which implies that there is no significant difference in the mean responses of male and female students in the perception on chemistry teachers' characteristic of punctuality in the teaching of chemistry.

5. Discussion

From the result of analysis in Table 1, it is clear from the grand mean response of 2.53 by the students that they actually perceive teachers cordiality in the teaching of chemistry to a high extent. This result is an indication of teachers' sense of humour, being fair and firm, close and patient with learners, friendly to a set of more relaxed environment for learning. It also showed their ability to attend to the difficulties when chemistry teachers are approachable to a great extent as well as the overall teachers' cordiality in the delivery of their duties to their students. In line with this, Omebe [2005] noted that when teachers' relationship with pupils is not cordial, the pupils will not feel free to learn and the classroom environment will always be tensed. Therefore students' response to cordiality of the teacher determines to a great extent how the students learn.

On the test of hypothesis and from the t-test result in Table 3, it is reported that there is no significant difference in the mean responses of male and female students in the perception on chemistry teachers' characteristic of cordiality in the teaching of chemistry. This result signifies that the female and male students have the same perception on the chemistry teachers' characteristic of cordiality in the teaching of chemistry in terms of accommodating all students in same manner of treatment and showing no differences whether a male teacher is involved or a female teacher is involved in the teaching.

From the results in Table 2, it is true that chemistry students perceive punctuality as a necessary characteristic of their teachers to a high extent. The result is so because punctuality to a great extent determines the capacity to cover the contents of their subjects and only punctuality brings responsibility to the students. The result attests to the fact that punctuality is generally the discipline which can make an efficient and effective teacher. That is why Nwodo [2003] stated that disciplined person is guided in his behaviour by moral and social principles, as he tries to overcome his selfish emotions and desires and does what is right and good. He further noted that disciplined behaviour involves such characteristics as self sacrifice, diligence, co-operation, integrity, truthfulness, patriotism and sympathy. Therefore, punctuality is an attribute that encompasses all the characteristics of the chemistry teachers, though as at when due especially their ability to cover the content of the subject, which is equally hinged on the attendance to class regularly, using their time effectively and promoting the interest of the students at all time.

On the test of hypothesis and from the t-test result in Table 4, it is clearly observed that there is no significant difference in the mean responses of male and female students in the perception on chemistry teachers' characteristic of punctuality in the teaching of chemistry. This result signifies that the female and male students have the same perception on the chemistry teachers' characteristic of punctuality in the teaching of chemistry as being the determinants of due coverage of their syllabuses.

6. Educational Implications

The findings of this study on students' perception of teachers' characteristics of cordiality and punctuality in the teaching of chemistry in secondary schools have educational implications in the following ways:

1) The finding of this study apparently proves that students perceive the characteristics of cordiality and punctuality of chemistry teachers as being of necessities in the teaching of chemistry. This will make the students to appreciate and admire their teachers and work with them accordingly. Therefore, this study will give the students the opportunity to express themselves which in most educational setting, such voices of students are difficult to be heard.
2) On the part of teachers, the findings of the study will check and balance their characteristics in teaching chemistry. It will also enable them to come to realization of those traits that make a good teacher. Also the observation of students will enable teachers to switch to the right behaviours that will motivate students to learn chemistry and also direct their tough pattern of relationship in the way they relate with the students better.
3) It will enable the teaching-learning environment to be tensed free, in the sense that the teachers now know how to relate with the students as well as the students with the teacher's which will promote performance, enhance interest and enable commitment on the side of both teachers and students.

7. 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 constantly sort out and given due consideration as a check and balance on both of them.
2) School authorities should properly evaluate the teachers they employ in processing characteristics of cordiality and punctuality through the psychology of the teachers as focused on their previous educational programmes.
3) Government and school authorities should also properly remunerate the teachers by paying their salaries, allowances and other entitlement. This will enable them to strive to develop the characteristics needed to do well in their chosen careers.
4) Chemistry teachers lacking in the characteristics studied should not be engage to teach.

8. Conclusion

The study investigated students' perception of chemistry teachers' characteristics in the teaching of chemistry in senior secondary schools. This is important because teachers are 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, cordiality and punctuality of teachers to classes were studied, and which sometimes are negatively exhibited in the course of teaching chemistry.

Indeed, a teacher without the above characteristics cannot be effective in classroom situation. This is because these characteristics model the students to an end product which are shapeable and self assuring. The neglect of the above characteristics by most contemporary teachers, has greatly affected learning and educational outcomes in science and chemistry in particular. Findings in the study revealed that students perceived chemistry teachers' cordiality and punctuality to classes as occurring to a high extent. Recommendations were made. The researcher hopes that when the recommendations are implemented, chemistry teachers' exhibition of the characteristic cordiality and punctuality will be to a very high extent to the betterment of instruction and improved products.

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