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**Utilization of Instructional Media and Teaching of Chemistry in Secondary School in  
Akwa Ibom State**

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**ABSTRACT**

*This study was carried out to assess students' opinion on teachers' utilization of instructional media for the teaching of Chemistry of Senior Secondary Schools in Itu Local Government Area. Three null hypotheses were formulated and tested at 0.05 level of significance. Related t-test was also reviewed. A survey design was adopted for the study. The population consisted of all SS2 Chemistry students from ten public Secondary Schools. A random sampling technique was used to select 200 SS2 students from the population. The instrument used for data collection was Instructional Media Utilization for Effective Teaching of Chemistry Questionnaire (IMUETCHQ). T-test was used for testing the null hypothesis. The result showed that there is a significant difference in male and female students' opinion of teachers' utilization of instructional media for the teaching of chemistry. It was therefore recommended that based on the findings that school inspectors must ensure that they encourage teacher to use instructional media during their inspection.*

**KEYWORDS: Instructional Media, Audio-Visual, Teaching of Chemistry, Secondary School, Akwa Ibom State**

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**Introduction**

Education generally agreed that there exist a practical and theoretical shift of emphasis towards acknowledging the fact that instructional media remains the key in effective teaching/learning of chemistry concepts perceived to be abstract and symbolic as its utilization is teaching and learning processes enhances students' achievement. Instructional media are tools in the hands of the teachers to supplement the teaching programme for introduction, presentation, supervision and evaluation. Instructional media refers to wide range of audio, visual and audio-visual devices which explains itself clearly in that in the absence of the teacher, the student can learn if they have access to the media that will present the information required. Utilization of instructional media requires the teacher to prepare adequately well ahead of time. The teacher as they communicate must change ideas into messages that can be seen or heard or sensed by each learner or student in his characteristics.

Alebam (2004) showed in a separate study that when instructional media are utilized, there is a tendency that students participate more in the class activities and in the way, participating learning is enhanced. He further found out that utilization of instructional media will stimulate students through both visual and auditory control especially when the classes are extremely large. For instance, Udofia (2008) observed that when audio instructional

media is utilized, a large audience of the class can be reached at the same time especially when amplified. Uduak (2008) stated that audio recordings and playback used wisely can create and assist teachers to communicate information tirelessly function.

Ajelahi (2005) pointed out that visual media are by far the most common aid to instruction available to teachers and surprisingly, they can be one of the most powerful. Students acquire information for textbooks for instance quickly and efficiently irrespective of their gender. However, Wills (2000) opined that effective utilization of audio-visual media stimulates interest among students. He further asserted that utilization of audio-visual media in the teaching and learning process gives new concepts of things outside the range of ordinary experience. Also, Inyangabia (2004) opined that the use of audio-visual media can make the shovert person irrespective of gender in the class to give a running account of important events in a motion picture film.

With the growing rise of phenomenon of poor academic in Chemistry which is considered as prerequisite for entry to study courses like Medicine, Chemistry Education, Micro-Biology, Pharmacy, this is a source of worry to parents and major stakeholders in education sector. However, utilization of instructional media does not only facilitate teaching and learning in school but it helps the student to achieve high and retain chemistry concepts, learn in a meaningful and delightful way. It has also been observed that teachers rarely use instructional media primarily because either the materials are not available or they are reluctant to improvise.

Poor utilization of instructional media has affected students' academic performance in public examinations negatively in chemistry. It is on this premise that the researcher is motivated to carry out the study to ascertain students' chemistry in Secondary Schools in Itu Local Government Area.

### **Purpose of the Study**

The purpose of this study was to assess students' opinion on teacher's utilization of instructional media for teaching of chemistry.

### **Research hypotheses**

The following null hypotheses as hereby formulated to guide the researchers.

1. There is no significant difference in male and female students' opinion on the teacher's utilization of audio instructional media for teaching of chemistry.
2. There is no significant difference in male and female students' opinion on teacher's utilization of visual instructional media for teaching of chemistry.
3. There is no significant difference in male and female students' opinion on teacher's utilization of audio-visual instructional media for teaching of chemistry.

### **Research methodology**

#### **Area of the Study**

The area of the study was Itu Local Government Area. The Local Government shares boundaries with Uruan in the East, Ibiono Ibom in the West, Cross River in the North and

Uyo in the South. The people in the area are predominantly farmers and fishermen and they speak language.

### **Research Design**

The study was a survey research. This design was used because the researcher intends to use the questionnaire to elicit response from the students on the perception of teachers' utilization of instructional media for effective teaching of Chemistry.

### **Population and Sampling Technique**

The target population of the study was 2830 SS2 students from 13 public secondary schools in Itu Local Government Area. A total of 200 SS2 students were selected randomly from the target population as respondents. Ten (10) public secondary schools were randomly selected from the study.

### **Instrumentation**

The researcher constructed an Instructional Media Utilization for Effective of Chemistry Questionnaire (IMUETCHEQ) for the study. This was a 15-items instrument constructed with the items set to reflect the main purpose of the study. On the instrument, which was set on a 4-point likert scale of Very Great Extent (VGE) – 4 points; Great Extent (GE) – 3 points; Some Extent (SE) – 2 points; Lest Extent (LE) – 1 point.

### **Validation and reliability of the instrument**

IMUETCHEQ was validated by a five (5) mean team of experts from Michael Ukpapa University of Agriculture, Umudike to examine the items reflected on the purpose of the study. The instrument was subjected to split half reliability test. In this approach, the 15 item instrument was split into two parts based on odd and even number items. PPMC was used to obtain a correlation coefficient of 0.66. The value of 0.66 was applied to the Spearman-Brown formula to calculate the reliability index of the instrument. With this computation, a reliability of 0.08 was obtained.

### **Method of Data Analysis**

The questionnaires were administered and collected by the researcher with the assistance of some students in each school after enough time was given to them under an examination atmosphere to complete the instrument. The data obtained from the information given by the respondents were analysed using descriptive statistics of mean and standard deviation and independent t-test. Each hypothesis was tested at 0.05 level of significance.

## Results and Discussions

### Results

#### Hypothesis 1

There is no significant difference in male and female students' opinion on teachers' utilization of audio instructional media for the teaching of chemistry.

**Table 1: t-test analysis of the difference in male and female students' opinion on teachers' utilization of audio instructional media (N = 200)**

Gender	N	Mean	SD	t-cal	t-critical
Male	100	16.73	4.42	4.84*	1.97
Female	100	14.04	3.36		

**\*Significant at 0.05, N= 200, df = 198**

The remit of the analysis of hypothesis 1 revealed that the calculated t-value of 4.34 is greater than the critical value of 1.97 at 0.05 level of significance. The null hypothesis is rejected. This implies that there is a significant difference in male and female students' opinion on teachers' utilization of audio instructional media for the teaching of chemistry.

#### Hypothesis II

There is no significant difference in male and female students' opinion on teacher utilization of visual instructional media for the teaching of chemistry.

**Table II: t-test analysis of difference in male and female students' opinion on teachers' utilization of visual instructional media (N = 200)**

Gender	N	Mean	SD	t-cal	t-critical
Male	100	17.08	4.47	5.82*	1.97
Female	100	13.85	3.25		

**\*Significant at 0.05, N= 200, df = 198**

The result of the analysis of hypothesis II revealed that the calculated t-value of 5.82 is greater than the critical t-value of 1.97 at 0.05 level of significance. The null hypothesis was rejected. This implies that there is significance in male and female students' opinion on teachers' utilization of visual media for the teaching of chemistry.

#### Hypothesis III

There is no significant difference in male and female students' opinion on teachers' utilization of audio-visual instructional media for the teaching of chemistry.

**Table III: t-test analysis of the difference in male and female students' opinion on teachers' utilization of audio-visual instructional media (wave)**

Gender	N	Mean	SD	t-cal	t-critical
Male	100	13.18	35	7.39*	1.97
Female	100	17.19			

**\*Significant at 0.05, N= 200, df = 198**

The result of the analysis of hypothesis II revealed that the calculated t-value of 7.39 is greater than the critical t-value of 1.97 at 0.05 levels of significance. The hypothesis is rejected. This implies that there is a significant difference in male and female students' opinion of teachers' utilization of audio-visual instruction media for the teaching of chemistry.

## Discussions

### Audio Instructional Media

The result of the analysis of hypothesis revealed that there is a significant difference in male and female students' opinion on teachers' utilization of audio instructional media for the teaching of chemistry. Hence, there is need for teachers to structure learning experience and use appropriate audio instructional media that can motivate both male and female students equally. The findings of this study support the assertion of Udofia (2000) who observed that when audio instructional media are utilized, large audience of the class can be reached at the same time. Also, Uduak (2008) maintained that audio-recordings and play back if used wisely can create and assist teachers to communicate information tirelessly and in dependable manner while teacher attend to other functions.

### Visual Instructional Media

The result of the analysis of hypothesis II revealed that there is a significant difference in male and female students' opinion on teachers' utilization of visual media for the teaching of chemistry. The findings is collaborated by study done by Ajelahi (2005), who said that textbooks are by far the most common aid to instruction available to teachers and surprisingly, they can be one of the most powerful, irrespective of gender, students acquire information from the visual materials quickly and efficiently.

### Audio-visual Instructional Material

The result of the findings revealed that there is a significant difference in male and female students' opinion of teachers' utilization of audio-visual instruction media for the teaching of chemistry. The finding incline with the study conducted by Inyanabia (2004) who opined that the use of audio-visual media can make the slowest person in the class to give a mining account of important events in a motion picture film.

## **Conclusion**

Based on the finding of the study, it was concluded that instructional media are not adequately utilized for teaching of chemistry. This is why students' opinion differs significantly as regards their teachers' utilization of the audio, visual and audio-visual instructional media. It is also imperative that teachers' utilization their instructional media.

## **Recommendations**

Based on the conclusion drawn, it was recommended that:

1. Government, NGO must have come together toward procuring and distribution of adequate instructional media to secondary schools.
2. Regular and meaningful workshops on improvisation techniques, should be recognized for teachers so as to improve their level of creativity, resourcefulness, mechanical skills and nitration.

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