

Towards Effective Teaching of Physics Through the Use of Relevant Instructional Materials

¹AMODU F.R. and ²ADEWOLE O.O.

¹Department of Physics with Electronics, Federal Polytechnic, Ede, Osun State, Nigeria

²Department of Physics & Electronics, Ajayi Crowther University, Oyo, Nigeria

Abstract– The study encompassed the response of professional and non-professional teachers to the use of instructional materials towards effective teaching of Physics to facilitate effective learning among students. A survey was conducted across secondary schools comprising private and public randomly selected in Ile-Ife, Nigeria. Among the instructional materials in use comprises real objects (72%) and charts (61%) as most available tools viz the study. Other materials are mainly objects like flash card, CD or record player, flannel board, television/video etc. It is found also that other modern facilities like computer, radio and multi-media modern based instructional materials are rarely used though have high capacity of enhancing the experience of students. Undoubtedly the use of instructional materials would make the teaching and learning of Physics exhilarating. It could be deduced that Physics classes where instructional materials are rarely or not used at all is bound to produce, ill-equipped and faulty Physics students.

Keywords– Instructional Materials, Non-Professional and Professional Teachers, Physics Teaching, Real Objects, Charts and Multimedia Tools

I. INTRODUCTION

The utmost aim of every teacher is to impart knowledge where the aspiration of every student is to learn as much as possible from the learning-teaching process. The best way by which pupils could be assisted is to make the learning-teaching process a pleasurable activity through the use of appropriate instructional materials (Adeboyeje and Afolabi; 1991:38).

In the teaching-learning process, three basic elements-the teacher, learner and subject matter- must be involved and for the subject matter taught by the teacher to be easily understood by the students, the creative use of instructional materials enhance learning and makes what has been taught easy to assimilate and recall. Instructional material is expected to be able to stimulate students interest, make learning real, help secure easier, faster and better if properly and appropriately used (Akinmoyewa, 1971: 15).

The current study entails the use of relevant instructional materials towards effective teaching of Physics to facilitate understanding. Instructional material has been defined as persons, materials or events that establish conditions, which enable the learner to acquire knowledge, skills, and attitude (Gerlach and Ely, 1971:98). It ranges from the teacher also is a loving object to smaller inanimate objects such as

chalkboards, wall charts, slip charts, film strips, slides, television, motion picture, models, maps, globes, text books and the lots.

Physics, as a subject taught in secondary schools holds a strategic important position in the educational lives of secondary school students in Nigeria. Passing it at credit level is a requisite for admission to science and technology course or related in the tertiary institution in the country. Consequently, because of its important position in the list of subjects taught in secondary schools, it is backed up with practical in the laboratory to allow students to acquire skills. Obviously, Physics is a medium of technical learning.

II. RESULTS AND DISCUSSION

The Table 1 indicates that all teachers regard instructional materials as an essential tool. While eight teachers (44.4%) regard it as merely “essential”. This implies that some teachers may not be worried; neither would they see it as faux pas, if they are teaching the subject without the use of appropriate instructional materials. The implication and likelihood of this trend for teaching of Physics is that the Physics class taught without the use of instructional materials—thus orally –based will end up boring boredom and the student may end up finding the subject un-comprehensible. Since majority of the teachers consider the use of instructional materials as essential to the teaching of the subject, one would expect that a lot of teachers would use different types of instructional materials to teach so as to enhance effective dissemination of the subjects and to ensure students find these subjects exhilarating. However, the low level of performance of students in Physics widely observed in secondary schools, especially public high schools indicate the dearth and low use of instructional materials. Despite teachers are aware of the essence of various and appropriate instructional materials to the teaching of Physics, they have not sufficiently reflected it in practical terms in the class which would then show in students performance.

Table 2 revealed that majority of the students regard the use of instructional materials as an aid to better understanding. Fifty three (88.3%) responded that Physics cannot be well understood better without the use of instructional materials. Only seven students (11.7%) responded that physics can be understood better without the use of instructional materials. By implication, it means that students are also aware of the tremendous importance of the use of instructional materials

for teaching them Physics more effectively. In fact, they show their appreciation through their response in class when varied, interesting materials are used when teaching those subjects.

Table 1: Teachers' Response in the Importance of the use of Instructional Materials

Response	Frequency	Percentage (%)
Very essential	10	55.6
Essential	8	44.4
Not Essential	-	-
Total	18	100.0

Table 2: Students' response in the use of instructional material for better understanding of Physics

Response	Frequency	Percentage (%)
Yes	7	11.7
No	53	88.3
Total	60	100.0

Table 3: Teachers response in the use of instructional materials used in secondary schools

	Available	% Freq	Often used	% Freq
Real object	13	72	10	56
Chart	11	61	8	44
Tape recorder	3	17	1	06
Flash card	2	11	-	-
Computer	4	22	1	06
Radio	4	22	1	11
CD / Record player	2	11	2	-
Flannel boards	1	06	-	06
Television/video	1	06	1	06
Motion Picture	2	11	1	06

Table 4: Students response on the frequency of use of instructional materials

	Often (%) Frequency		Not often Frequency %		Never Freq %	
Textbooks	50	83	10	17	-	-
Chalkboard	58	97	2	03	-	-
Chart	23	38	18	30	19	32
Photography/Picture	12	20	14	23	34	57
Video tapes	1	1.7	4	6.7	55	91.6
Audio tapes	2	3.3	4	6.7	54	90
Projector	-	-	5	8.4	55	91.6

From the Table 3, it can be gleaned that real objects (72%) and charts (61%) are the most available and often used instructional materials in the school from the teachers' response while flash card, CD or record player, flannel board, television/video and motion picture are rarely used. The use of real objects and charts are though encouraging but not adequate. Other modern multi-media based instructional materials that have the capacity to highly enhance the experience of students such as computer, and radio have a very low usage level. From the Table 3 it could therefore be inferred that our secondary schools are not well equipped with the varied and requisite instructional materials for the

teaching of physics and as such, the current low level of performance in the subjects should continue to be expected.

Students' view on the frequency of the use of some specified instructional material in brought out in the Table 4. From the Table 4, students consider textbooks (83%) and chalk board (97%) as the most often used instructional materials in schools while 91.6% of students say projector is never used.

The students' response further corroborates what the teachers' response has shown which is that secondary schools are inadequately furnished with instructional materials. Videotapes, audio tapes, projector, that can present audio and

visual stimuli to students are rarely used. Thus, Table 3 asserted the fact that aspects of Physics practical would rarely well taught. Computers, charts, television, etc are needed for effective teaching of physics.

III. CONCLUSION

It is quite evident from the findings that majority of our schools are quite inadequately furnished with instructional materials for teaching of physics. Even though teachers and (students alike) are aware of the value of instructional materials to the teaching of the subjects. The experiment carried is to confirm the efficacy of instructional materials to enhance the performance and improvement of students comprehension in the subject.

REFERENCES

- [1]. Adeboyeje R.A and Afolabi F.O. Classroom Management Ondo: J.A Ife Ohewa Ent. Nig. Ltd, 1991.
- [2]. Akinmoyewa J.O. Educational Teaching Onitsha: Lincel Publishers, 1997.
- [3]. Gelachi V.S, Ely D.P. Teaching and Media: A Systematic Approach. New Jersey: Prentice Hall Inc., 1971.