

EFFECTIVE MANAGEMENT FOR MAXIMUM UTILIZATION OF TECHNOLOGICAL EQUIPMENT IN SECONDARY SCHOOLS

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ABSTRACT

The study investigated effective management for maximum utilization of technological equipment in secondary school. Three research questions were raised and three hypotheses formulated. One hundred and twenty teachers comprised of 60 males and 60 females were randomly selected from four secondary schools in Minna for the study. A test re-test method was used to determine the reliability of the instrument. The research instrument used for the study was author constructed questionnaire with 0.71reliability coefficient. The data collected for the study was based on the administration of the study questionnaire to respondents and the result was scored appropriately. The data were analyzed using mean, standard deviation and percentage of analyzed questionnaire. t-test was used to analyze the hypotheses. The study showed that female teachers have less competence in using technological equipment for teaching and learning where as male and female attainment in teaching and learning are not significantly different. The research therefore recommended that female teachers should be exposed to proper utilization of technological equipment in secondary schools and this can be achieved by organizing conferences, workshops also the use of technological equipment showed by employing teachers to teach in secondary schools so as to promote effective learning.

INTRODUCTION

Educational technology equipment encompasses technological devices, hard ware and software that convert information into image, sound and motion for effective management and maximum utilization in secondary school levels of education in order to achieve a desirable set goals of education. The development and management of technological equipment in secondary schools has brought innovations into educational system. The development of technological devices such as video soft and hardware, graphic materials, projections etc. implies that educational technology is concerned with enhancing the effectiveness and efficiency of learning in all educational contexts despite the nature of the learning process. Abdullahi (1998) Educational technology equipment serves a variety of purposes at different stages in any prepared lesson. According to Ambibacle (1999) introduction of technological equipment during teaching and learning process can be best used in three different stages such as introductory stage, middle and the concluding stage of a lesson which if the teacher effectively and maximly utilize such equipment may arouse the curiosity of the learner who may wish to learn more about the topic discussed. It could also help in maintaining the learner's attention throughout the lesson when introduced early. In most cases technological equipment are introduced in the body of a lesson to illustrate or elucidate a point; although most teachers tend to keep whatever illustration they have until the lesson is fully introduced. At the concluding part of a lesson technological equipment enables the teacher "recapitulate on important or major points of the topic". The choice of presenting illustrative equipment towards the end of the lesson consumes more time, although the introduction of equipment at the appropriate stage in any lesson may depend on the following factors:

- The type of technological equipment to be used
- The interest of the learners towards that particular equipment.

Effective management and utilization of technological equipment depends so much on the selection of appropriate equipment for the teaching of a specific course contents. (Benedict,1995). Appropriate selection of media saves the teacher's time and promotes learners understanding. For maximum utilization of technological equipment in secondary schools, the following guidelines should be considered Kemp (1975)

- Lesson objectives- It is important for a teacher to consider the objectives to be achieved when selecting and using any media in order to meet desirable goals of education.
- Cost is another important guideline for proper utilization of technological equipment. The relative costs of a selected media should be considered in relation to other factors. Appropriate equipment should be within the financial reach of both the teachers and students so that the teachers can conveniently make reference to such media to students.

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- The suitability of equipment to the students level is considered i.e. how does the teacher intend to teach the students, how would the selected media be used along side with the teacher's intended mode of instruction.
- The technical of the equipment to be selected for instruction should be noted in case of replacement.
- Availability of technological equipment should also guide a teacher when selecting instructional equipment that is not accessible to teachers and students can not be used for this may frustrate the learner and the teacher as well.
- Usability in terms of teacher's ability to make use of a chosen equipment is important, where a teacher thinks the equipment to be used required some technical skills which he/she do not have or possess, there is no point employing such to avoid wrong utilization and for this reason the management and the utilization should not be based on personal interest but on the need and practical usefulness of the equipment Lancasta (1998).

PURPOSE OF THE STUDY

The study investigated effective management for maximum utilization of technological equipment in secondary school. it was set to find out how effective teachers can managed and utilize technological equipment in secondary schools.

RESEARCH QUESTIONS

- (i) Is there any gender difference in the management and utilization of technological equipment between male and female teachers in secondary schools?
- (ii) Is there any gender difference in the performance of male and female teachers towards selection of technological equipment in teaching and learning at the secondary school level of education?
- (iii) Is there any gender difference in the technical know-how possessed by male and female teachers?

RESEARCH HYPOTHESES

The hypotheses formulated to guide the study were tested at 0.05 level of significance:

- (i) There is no significant and utilization of technological equipment between male and female in secondary school.
- (ii) There is no significant difference in the performance of male and female teachers towards selection of technological equipment in teaching and learning at secondary school level of education.
- (iii) There is no significant difference in technical know-how possessed by male and female teachers.

POPULATION, SAMPLE AND SAMPLING TECHNIQUES

Four secondary schools were selected as the population of the study in Minna Niger state. The schools were Government Technical College Minna, Government Vocational College Minna, Government Technical College Shiroro Minna and Government Technical College Chanchaga Minna. One hundred and twenty (120) teachers were the samples selected through simple random sampling technique, fifteen (15) item questionnaire was administered to the participants and responded accordingly. The participants were 60 males and 60 females from the four secondary schools, giving a total of 120 teacher's respondents.

INSTRUMENT

Fifteen (15) item questionnaire was the instrument used for the study which was designed by the researcher. The instrument was divided into three sections. Section a required general information on management and utilization of technological equipment in secondary schools, Section B assessed the selection of technological equipment for effective teaching and learning in secondary schools, and then Section C was information on technical knowledge of technological equipment by male and female teachers in secondary school. 15 questions of four-point likert rating scale were used. The instrument has the following scale points

- SD - Strongly Disagree
- SA - Strongly Agree
- ES - Expert Skills
- NS - No Skill.

Weights of 1, 4, 4, 1 were assigned to the scale points such as 1 referred to strongly disagree (SD) while 4 referred to strongly agree (SA). Other section of questionnaire were also rated as 4 referred to Expert Skills (ES) while 1 referred to No Skill (NS). This instrument was face-validated by educational technologist

experts. The instrument was scored 0.85 after test-retest showing that the instrument is adequate for the research.

METHOD OF DATA COLLECTION

The method of data collection was based on the administration of questionnaire to some teachers that were chosen as research assistants from the selected secondary schools. During the first visit to the schools, questionnaire was administered to the teachers and at the second visit, it was collected from the research assistants. Out of 240 questionnaires administered, 20 questionnaires were not properly completed. After recording responses, the questionnaires were sorted into different groups following the earlier stated research questions. Descriptive statistics was used to explain pattern of responses where questionnaire is not considered for analysis due to its in completeness omission of items, wrong information or due to lack of understanding of the question. The data collected were analyzed at 0.05 level of significance using inferential statistical analyses.

RESULTS AND DISCUSSION

Hypothesis1: there is no significant difference in the utilization of technological equipment between male and female teachers in secondary schools.

Table 1: t-test comparison of utilization of technological equipment between male and female teachers in secondary schools in Minna, Niger state

| variables | No of paired samples | df | Mean (x) | SD | T value scale | T value crit | P |
|-----------|----------------------|-----|----------|------|---------------|--------------|------|
| male | 60 | | 28.2 | 9.42 | 1.38 | 1.66 | 0.05 |
| female | 60 | 119 | 28.8 | 9.73 | 1.38 | 1.67 | 0.05 |

Ns = Not significant at 0.05 level.

In table 1, the result showed that the mean scores of male and female teacher's utilization of technologic equipment is 28.2 male and female 28.8. The t-value calculated of 1.38 is less than the t-value critical of 1.67 at p-value of 0.59. This shows that there is no significant difference in the utilization of technological equipment between male and female teachers at p<0.05 level of significance. This indicates that male and female teachers are the same in the use of technological equipment.

Table 2: T-test comparison selection of technological equipment between male and female teachers in teaching and learning at secondary school.

| variables | No of paired samples | df | Mean (x) | SD | T value scale cal | T value crit | P |
|-----------|----------------------|-----|----------|-------|-------------------|--------------|------|
| male | 60 | | 67.8 | 12.17 | 5.68 | 2.45 | 0.05 |
| female | 60 | 119 | 49.8 | 8.42 | 4.57 | 1.67 | 0.02 |

Ns = Not significant at 0.05 level.

From table 2 the mean scores and standard deviation scores of male and female teachers in selection of technological equipment in teaching and learning at secondary school is calculated as follows. T-value calculated 0.03 is less than the t-value critical of 1.70 and p 0.02 level of significance. There is no significant difference in the selection of technological equipment between the male and female teachers at secondary school teaching. HO₃: there is no significant difference in technological know-how possessed by male and female teachers in secondary schools.

Table 3: comparison of the technological know-how possessed by male and female teachers in secondary schools in Minna, Niger state.

| variables | No of paired samples | df | Mean (x) | SD | T value scale cal | T value crit | P |
|-----------|----------------------|-----|----------|------|-------------------|--------------|------|
| male | 60 | | 28.5 | 8.66 | 0.03 | 1.70 | 0.05 |
| female | 60 | 119 | 29.3 | 8.09 | 0.03 | 1.70 | 0.05 |

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Table 3 shows the t-test comparison of technological know-how possessed by male and female in secondary schools. Looking at the table there is statistical significant difference between the male and female teachers. Mean scores of (28.5) and the female teachers (29.3) ($t_{cal} = 0.03 > t_{critical} 1.70$, $DF = 119$, $p < 0, 05$). The result shows that the male teachers with mean score of 28.5 are more knowledgeable than female teachers with the mean score of 29.3.

MAJOR FINDING OF THE STUDY

1. The male and female teachers in secondary schools are the same in the of technological equipment. Improving of teaching and learning.
2. Selection of technology equipment between male and female at secondary school for adequate teaching and learning has no difference.
3. The male teachers possessed more and adequate technical know-how than their counterparts on the utilization of technological equipment for promoting their teaching.

DISCUSSION OF RESULTS

The development and management of technological equipment has brought innovation into educational system. Effective utilization of technological equipment promotes learning with delay as it was supported by Mallum (2000). Results in table 1 revealed that male and female teacher utilization of technological equipment are the same with regard to effective management. The finding confirmed the assertion of Yakubu (2000) that male and female have equal opportunity and abilities to utilize and manage any object may be Gibenga (2000) confirmed thus that knowledge is possessed by every individual irrespective of gender difference to achieve a desirable goal of life. Result in table to revealed that there is no significant difference in the selection of technological equipment between male and female teachers on secondary schools. This is supported by the finding of Harry (2001) which shows that gender and academic qualification of teachers do not affect their management at any level. The result in the table shows that there is significant difference in the technological know how possessed by male and female teacher in secondary schools. This result indicates that the male teachers are knowledgeable than female teachers as regards technological equipment in secondary schools. This finding supported Kanta (1999) who reported that technological equipment when compare to their male counterparts.

CONCLUSION

The availability of technological equipment is very minimal in most of the secondary schools and the effective utilization of these equipment by teachers for effective learning is also inadequate especially among female teachers. Selection was considered because it is the first step towards successful utilization of technological equipment in the secondary schools. There is need to motivate and encourage teacher's especially female teachers towards technical know-how of most of this equipment and when this is done the success in utilization of technological equipment in secondary schools will go along enhancing the quality of learning and promote education in all forms in secondary schools.

RECOMMENDATIONS

- i. For effective management and maximum utilization, the teacher must ensure good acoustics that is the venue must be echo free.
- ii. Audio equipment should be prepared and utilized in such a way that can arrest the attention of the learner to listen for a long time if need arises.
- iii. Government should come to the aid of secondary school learners by providing the technological equipment for effective learning.
- iv. There should be well organised workshops and seminars where teachers will acquire awareness in the use of technological equipment
- v. National board for secondary school education should make provision for invited experts to handle and instruct the teachers on technical know-how of the most of the equipment in secondary school especially female teachers.

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