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UTILIZATION OF INSTRUCTIONAL MATERIALS FOR TEACHING ELECTRICAL INSTALLATION AND MAINTENANCE WORK (EIMW) IN TECHNICAL COLLEGES IN NIGER STATE

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ABSTRACT

This study examined the utilization of Instructional Materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical Colleges in Niger state. The study answered five research questions and five hypotheses were tested at 0.05 level of significance. This study used a descriptive survey and was carried out in all technical colleges in Niger state with a population of 28 respondents. The data was collected with the help of three research assistants. The data collected was analysed using mean and standard deviation. The study revealed, among other things, that the instructional materials save time, enhance teaching and learning of Electrical Installation and maintenance work. The study also found that teaching without instructional materials is ineffective. Based on these, therefore, it was recommended that the government should put efforts in providing the colleges with the necessary instructional materials, especially those that are up to date and efficient. In-service trainings and workshops should be organized by the Ministry of Education for inexperienced teachers to understand what the utilization of instructional materials are all about, their importance in teaching/learning and how to use them, curriculum planners and implementation and educational policy makers should sensitize the school and teachers on the need to put more emphasis on the utilization and imprecision of resources materials in teaching of Electrical Installation and Maintenance Work (EIMW)

Keywords: Instructional materials, Utilization, Maintenance, Teaching and Electrical Installation

Introduction

Technical Colleges are designed to prepare individuals to acquire practical skills, basic scientific knowledge, and attitudes required as craftsmen and technicians at subprofessional levels. They are charged with the production of craftsmen, Bakare (2016). Abdullahi(2015) pointed out that they are regarded as the principal Vocational Institutions in Nigeria that give full vocational and technical training intended to prepare students for entry into various occupations such as operatives or artisans and craftsmen. Graduates who undergo training in Electrical Installation and Maintenance Work Practice are expected to possess work skills for success in installation of electrical machines and equipment, maintenance of Electrical machines and equipment, winding of electrical machines, testing and inspection of electrical installations, and repair of electrical machines

Electrical Installation and Maintenance Work (EIMW) is one of the trades in technical colleges. It is made up of the following components, domestic and industrial installation; cable joining; battery charging and repairs and winding of electrical machines (NBTE, 2014). In view of Abassa (2014), electrical installation trade is a vocational course offered by students in technical colleges in order to produce electrical craftsmen and technicians. Electrical installation student is a person who is taking a vocational course offered in technical colleges in order to become an electrical craftsman. Eniayewu (2016) opined that electrical installation students learn the basic skills required to operate, maintain, install, and repair electrical installation equipment and appliances in technical colleges.

Teachers of Electrical Installation and Maintenance Work (EIMW) are the ones who give instruction and impart knowledge, skills, and attitudes to EIMW students. Teachers are the conduit through which the knowledge and practical skills of EIMW could be transmitted, as such he should use appropriate teaching and supervisory strategies together with learning resources, and teacher must use relevant pedagogy that will enhance students' acquisition of practical skills through activity-based instruction where students are given opportunities to be more active in the class. The teacher is expected to plan his lesson properly by carefully choosing the objectives of the lesson, devising on making the learners participate in the learning process in a more responsible way, selecting the appropriate strategies of teaching, appropriate strategies for supervision as well as determining the appropriate strategies for assessment.

Instructional materials are fundamental resources for schools for enhancing instruction, furthering the pursuit of knowledge, and providing experiences of educational significance for class groups or for individual students (Adewoyin, 2014). Similarly, Fakomogbon (2019)

defined instructional materials as any human and material resources used by the teacher to promote a greater understanding of learning experience. They include resource persons and various materials like whiteboards, pictorials, flashcards, projectors, slides, film stripe, and language laboratories. This informs that for a given instructional procedure to achieve the desired objectives, it must be properly harnessed through adequate and proper use of instructional facilities.

Instructional materials play a vital and important role in the teaching and learning process of Electrical Installation and Maintenance Work (EIMW). It enhances the memory level of the students. At this time that education has spread wide and entirely, oral teaching cannot be the key to successful pedagogy; therefore, the teacher has to use instructional materials to make teaching and learning very interesting in Basic Science Ajayi (2018). Abdullahi (2015), instructional materials are tools locally made or imported that help to facilitate the teaching and learning process. Eva (2015) viewed them as material things which are used to be composed ported that could make tremendous enhancement of intellectual use impact the instructional materials Competency is the ability to do what is needed Bello and Shuaibu (2018). Balogun(2016), defined competency as the ability needed to administer technical skills and knowledge. Accountability and mastery learning are the basic principles of competency based education both in teaching and learning. The innovation is characterized by clearly stated, attainable and measurable objectives followed by identified specific knowledge and skills that learners have to master within a given time frame. Learner's progress is systematic and performance level is criterion referenced, that is, competencies are measured against previously set standards.

Assessment can be defined as the process of gathering on-going and comprehensive information about specific aspects of a child's knowledge, behaviour, skill level, or personality for making evaluative decisions (Blankenship 2017). Assessments can be conducted for different purposes. Screening and diagnostic tools were developed to make identification and placement decisions for individual children.

Assessments can also be used to identify appropriate curricula and teaching strategies for individual children and to document children's progress over time. For example, teachers can develop a systematic plan to document progress in attending to a task and to identify which teaching strategies help her. This type of assessment is referred to as program assessment. Program assessment tools can also be used for program evaluation purposes when comparing the performance of groups of children before and after instruction. For example, teachers can gather data on children's language and literacy behaviours at the start of the school year, before

they begin daily picture book reading, and then again at the end of the year. This study will be on Strategies for Enhancing Teacher use of Instructional Materials for Teaching Electrical Installation and Maintenance work (EIMW)

Statement of the Research Problem

The use of instructional materials in Technical Colleges is not encouraging. As a result, it makes the morale and interest of the students in Electrical Installation and Maintenance Work trade (EIMW) low. This is because teachers adopt the verbalistic and theoretical method as a way of teaching and teach the subject, mainly due to the lack of competency of teachers and non- availability of instructional materials in technical colleges.

Lack of competence teachers in the use of instructional materials in Technical Colleges lead to poor performance of students and teachers are not academically competence to teach the Electrical Installation and Maintenance work trade (EIMW) as a result of inadequate use of instructional materials for teaching Electrical Installation and Maintenance work trade (EIMW). The implementation of the students curriculum effectively depends on the competent of the teachers. The Results of Technical Colleges in Niger State reveal that students' performance in Electrical Installation and Maintenance work trade (EIMW) is not encouraging. Due to lack of qualified teachers, lack of practical the use instructional material of Electrical Installation and Maintenance work trade (EIMW), and poor method of teaching, non/poor use of instructional materials etc. Mathew (2014) stated that the use of instructional materials makes teaching and learning effective as it enables learners to participate actively in classroom instruction. So the lack of competence of teachers in the use of instructional materials is a great problem in teaching and learning, the poor academic performance of students in Electrical Installation and Maintenance work trade (EIMW) has been of much concern to all and sundry. It has been said that instructional materials are objects or devices which help the teacher to make learning meaningful to the learners.

Therefore, teaching and learning in Electrical Installation and Maintenance work trade (EIMW) could be enhanced to a great extent by using instructional materials based on context, because such resources would be more authentic and more relevant to students' needs.

Research Questions

The following research questions guided the study:

1. What are the Importance of Instructional Materials used for teaching electrical Installation and Maintenance work (EIMW) in Technical Colleges in Niger State?
2. What are the types of Instructional Materials used for teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?
3. What are the Strategies for Enhancing Teacher use of Instructional Materials for teaching, Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?
4. What are the Factors Affecting Teacher use of Instructional materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?
5. What are the solutions for Guiding the Selection of Instructional Materials for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?

Hypotheses

The following hypotheses were tested at 0.05 level of significance.

- H₀₁: There is no significant difference between the responses of teachers and students with regards to the Importance of Instructional Material used for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state.
- H₀₂: There is no significant difference between the responses of trade teachers and students with regards to the types of Instructional Materials used for teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state.
- H₀₃: There is no significant difference between the responses of trade teachers and students with regards to the Strategies for Enhancing Teacher use of Instructional Materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical Colleges in Niger state
- H₀₄: There is no significant difference between the responses of trade teachers and students with regards to the Factors Affecting Teachers use of instructional materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state.
- H₀₅: There is no significant difference between the responses of trade teachers and students with regards to the Guide lines for the selection of Instructional Materials for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state

METHODOLOGY

The study adopted a simple survey research design. Best (2017) defines the survey design as a design used in a situation where the study employs a questionnaire to determine the opinions, preferences, attitude, and perceptions of people about an issue. The design was considered appropriate for this study since it may seek the opinions of Electrical Installation and Maintenance Work Trade (EIMW) teachers in technical colleges in Niger state.

The study was carried out in all technical colleges in Niger state. The targeted population for this study comprised of 85 respondents from the Electrical Installation and Maintenance Work teachers and students in some selected Technical Colleges in Niger state. A study sample of twenty-eight (28) Trade-Teachers and fifteen (15) students selected by stratified random sampling techniques from the selected three areas of study that consisted of three technical colleges in Niger state.

| S/N | Schools | Number of Teachers | No of Students |
|--------------|-----------------|--------------------|----------------|
| 1. | GTC Minna | 10 | 7 |
| 2. | GTC Eyagi, Bida | 8 | 3 |
| 3. | FSTC Kuta | 10 | 5 |
| Total | | 28 | 15 |

Table1: Distribution of the population

Data collected for this study was a structure questionnaire that were designed by the researchers and administered to the respondent from technical colleges. The questionnaire contained 21 items in which items 1-8 were associated with what are the competency needs for the use of Instructional Materials for teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state, items 9- 16 is on what are the impact of Instructional Materials on teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state, and items 17- 21 is on What are the use of Instructional materials for assessing students of Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state, the respondent are require to indicate their opinion in a four-point scale.

Strongly agree (SA) = 4 points

Agree (A) = 3 points

Disagree (D) = 2 points

Strongly disagree (SD) = 1 point

These are prepared in such a way to enable the respondents tick (✓) on the response options relevant to the research questions.

A draft of the instrument for data collection of this study was validated by three lecturers from Industrial and Technology Education Department, Federal University of Technology Minna (FUT Minna), and the experts scrutinized each item of the questionnaire for clarity of statement. They also examined the appropriateness and suitability of all items on the instrument. The suggestions and corrections of the experts were used in modifying the instrument.

The questionnaire was administered to the respondents with the help of three research assistants, one from each of the Technical Colleges. The research assistants were given instructions on how to administer the questionnaire. The copies of the questionnaire were collected by the research assistants and researchers as soon as the respondents finished responding to the questionnaire.

The data collected was analysed based on the questionnaire as the research question was analysed using the frequencies of the answered question from the respondents, which after words was translated into a simple mean in a tabular form for easy interpretation.

Thus, the mean was obtained using the following formula:

A cut-off point of 2.50 was used to determine the mean which was obtained thus: any score equal to or greater than 2.50 was considered as agreed response while any score less than (<) 2.49 was considered as an disagreed response.

RESULTS

Research Question 1: What are the Importance of Instructional Material use for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?

Table 1: Mean Score on the Importance of Instructional Material uses for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state

| S/N | Items | \bar{X} | SD | Remark |
|-----|---|-----------|------|--------|
| 1 | Instructional materials save time, what you will explain in ten minutes, will be possible in less time with the use of instructional materials. | 3.46 | 0.99 | Agreed |
| 2 | Instructional materials Enhance teaching and learning Electrical Installation and Maintenance work | 3.82 | 0.61 | Agreed |
| 3 | Make learning more meaningful for students | 3.71 | 0.71 | Agreed |

| | | | | |
|---|--|------|------|--------|
| 4 | Instructional materials Help students to learn more | 3.57 | 0.79 | Agreed |
| 5 | Vitalize instruction and provide variety in teaching | 3.46 | 0.96 | Agreed |

Table 1 shows the result of the analysis to answer the research question 1 presented in the table. The result of the data presented above show's that all this items have a grand mean values ranging from 3.46 - 3.82, this indicates that the grand mean of each items was above 2.50 which was the mean cut off point on the four-point rating scale for the importance of instructional materials in teaching. Therefore, this shows that using instructional materials is important in teaching Electrical Installation and Maintenance Work (EIMW)

Research Question 2: What are the types of Instructional Materials used for teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state?

Table 2, Mean Score on types of Instructional Materials used for teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state

| S/N | Items | \bar{X} | SD | Remark |
|-----|---|-----------|------|--------|
| | Audio and other visual materials: Radio, models computer, tape recording, etc. | 3.03 | 1.23 | Agreed |
| 1 | Display materials: Chalkboard, bulletin boards, flat pictures, magnet boards, and flannel board. | 3.5 | 0.92 | Agreed |
| 2 | Projected materials: Television, video tape, overhead projector, slide and slide projector and transparencies | 3.60 | 0.95 | Agreed |
| 3 | Graphic materials: Graphs, charts, diagram, maps, globes. | 3.5 | 0.74 | Agreed |
| 4 | Printed and reference materials: Textbooks, newspapers, magazines, government documents, teachers' guide, duplicated materials, journals, hand book, bulletins, pictures, work books, pamphlets, and leaflets | 3.53 | 0.92 | Agreed |

Table 2 shows the result of the analysis to answer the research questions 2 presented in the table. The result of the data presented above show's that all this items have a grand mean values ranging from 3.03 - 3.60, this indicates that the grand mean of each item was above 2.50 which was the mean cut-off point on the four-point rating scale for the types of instructional materials used for teaching Electrical Installation and Maintenance Work (EIMW).

Research Question 3:

What are the Strategies for Enhancing Teacher use of Instructional Materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?

Table 3, Mean Score on the Strategies for Enhancing Teacher use of Instructional Materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical Colleges in Niger state

| S/N | Items | \bar{X} | SD | Remark |
|-----|--|-----------|------|--------|
| 1 | Before selecting or developing any instructional materials, Electrical Installation and maintenance work teachers consideration number of teaching/learning situations to which the instructional materials will be applied | 3.25 | 1.10 | Agreed |
| 2 | The Electrical Installation and maintenance work content for which the instructional materials are being selected, where in doubt, the teacher should consult | 3.25 | 0.96 | Agreed |
| 3 | The Electrical Installation and Maintenance work instructional objectives, content learning activities, and evaluation instruments should be taken into consideration by the teacher in the utilization of instructional materials | 3.03 | 1.13 | Agreed |
| 4 | The Electrical Installation and Maintenance work teachers should realize the need for improvisation when the cost of purchasing the instructional materials is high. | 3.42 | 0.99 | Agreed |
| 5 | The teacher should preview the instructional material before they are brought to the class to determine the operational state of the intended instructional material, | 3.0 | 1.18 | Agreed |

Table 3 shows the result of the analysis to answer the research questions 3 presented in the table. The result of the data presented above show's that all this items have a grand mean values ranging from 3.0 - 3.42, this indicates that the grand mean of each item was above 2.50 which was the mean cut-off point on the four-point rating scale for the strategies for enhancing Teacher use of instructional materials in teaching Electrical Installation and Maintenance work (EIMW).

ResearchQuestion4:

What are the Factors Affecting Teacher use of Instructional materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?

Table 4, Mean Scores on the Factors Affecting Teacher use of Instructional materials for teaching Electrical Installation and Maintenance Work (EIMW) in Government Science and Technical colleges in Niger state

| S/N | Items | \bar{X} | SD | Remark |
|-----|-------|-----------|----|--------|
|-----|-------|-----------|----|--------|

| | | | | |
|---|---|------|------|--------|
| 1 | Finance is one of the major factors affecting teacher use of instructional materials | 3.92 | 0.26 | Agreed |
| 2 | Over population of student in the classroom. (Number of learners/students involved) | 3.75 | 0.58 | Agreed |
| 3 | Community resources, affect the choice of instructional material that can be used. (Facilities and Resources available) | 3.10 | 1.19 | Agreed |
| 4 | If the school environment is not conducive, it's affecting teachers use of instructional materials | 3.28 | 1.08 | Agreed |
| 5 | Poor maintenance culture of existing instructional materials especially projected and manipulative types. | 3.17 | 1.02 | Agreed |

Table 4 shows the result of the analysis to answer the research question 4 presented in the table. The result of the data presented above show's that all this items have a grand mean values ranging from 3.10 - 3.92, this indicates that the grand mean of each item was above 2.50 which was the mean cut-off point on the four-point rating scale for the factors affecting teachers use of instructional materials for teaching Electrical Installation and Maintenance work (EIMW). Therefore, this shows that finance is the major factors affecting teacher use of instructional materials for teaching Electrical Installation and Maintenance Work (EIMW)

Research Question 5:

What are the Guide lines for the Selection of Instructional Materials for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state?

Table 5, Mean Score on the Guide lines for the Selection of Instructional Materials for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state

| S/N | Items | \bar{X} | SD | Remark |
|-----|---|-----------|------|-----------|
| 1 | The teacher should ensure that the instructional materials to be used are easily available | 3.60 | 0.87 | Agreed |
| 2 | Teacher to ensure that the materials to be used as instructional materials are accessible to him. | 3.0 | 1.08 | Agreed |
| 3 | The teacher using the instructional materials should ensure the appropriateness of the instructional materials for his intended learners. | 3.28 | 1.01 | Agreed |
| 4 | The teacher should test the materials and ensure their workability before the actual date of use | 3.32 | 1.05 | Agreed |
| 5 | The instructional materials selected for teaching by the teacher should be of good quality | 2.89 | 1.13 | Disagreed |
| 6 | The Electrical Installation teachers should select the instructional materials to the age of the learners | 3.46 | 0.92 | Agreed |

Table 5 shows the result of the analysis to answer the research questions 5 presented in the table. The result of the data presented above show's that all this items have a grand mean value ranging from 3.0 - 3.89, this indicates that the grand mean of each item was above 2.50 which was the mean cut-off point on the four-point rating scale for the guide line for the selection of instructional materials in teaching Electrical Installation and Maintenance work (EIMW).

Hypotheses 1

There is no significant difference between the responses of teachers and students with regard to the importance of Instructional Material uses for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state.

Table1: T-test analyses regarding the Importance of Instructional Material uses for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state

| S/N | Items | \overline{SD} | t-test | Remark |
|-----|---|-----------------|--------|----------|
| 1 | Instructional materials save time, what you will explain in ten minutes, will be possible in less time with the use of instructional materials. | 0.53 | 0.93 | Accepted |
| 2 | Instructional materials Enhance teaching and learning Electrical Installation and Maintenance work | 0.56 | 1.43 | Accepted |
| 3 | Make learning more meaningful for students | 0.85 | 0.93 | Accepted |
| 4 | Instructional materials Help students to learn more | 0.70 | 0.97 | Accepted |
| 5 | Vitalize instruction and provide variety in teaching | 0.65 | 0.76 | Accepted |

The analysis in the table revealed that items 1,2,3,4 and 5 had their calculated t-values ranging from 0.76 to 1.43. Since the calculated t-ratio is below the t-value of 1.69 at 0.05 level of significance. This indicates that there was no significance difference between the mean responses of trade teachers and students with regard to the Importance of Instructional Material uses for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state Therefore, this indicates that the null hypothesis is accepted at 0.05 level of significance.

Hypotheses 2

There is no significant difference between the responses of trade teachers and students with regard to the types of Instructional Materials used for teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state.

Table 2: T-test analyses regarding the types of Instructional Materials used for teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state

| S/N | Items | SD | t-test | Remark |
|-----|---|------|--------|----------|
| 1 | Audio and other visual materials: Radio, models, computer, tape recording, etc. | 1.23 | 0.28 | Accepted |
| 2 | Display materials: Chalkboard, bulletin boards, flat pictures, magnet boards, and flannel board. | 0.92 | 0.92 | Accepted |
| 3 | Projected materials: Television, video tape, overhead projector, slides and slide projector and transparencies | 0.95 | -1.36 | Accepted |
| 4 | Graphic materials: Graphs, charts, diagram, maps, globes. | 0.74 | -0.48 | Accepted |
| 5 | Printed and reference materials: Textbooks, newspapers, magazines, government documents, teachers' guide, duplicated materials, journals, hand book, bulletins, pictures, work books, pamphlets, and leaflets | 0.92 | -1.34 | Accepted |

The analysis in the table revealed that items 1, 2, 3, 4 and 5 had their calculated t-value ranging from -0.48 to 0.92 since the calculated t-ratio is below the t-value of 1.69 at 0.05 level of significance. This indicates that there was no significant difference between the mean responses of the trade teachers and students with regard to the types of Instructional Materials used for teaching Electrical Installation and Maintenance Work trade (EIMW) in Technical colleges in Niger state. Therefore, the null hypothesis is accepted at 0.05 level of significance.

Hypotheses 3

There is no significant difference between the responses of trade teachers and students with regard to the Strategies for Enhancing Teacher use of Instructional Materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical Colleges in Niger state

Table 3: T-test analyses regarding the Strategies for Enhancing Teacher use of Instructional Materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical Colleges in Niger state

| S/N | Items | SD | t-test | Remark |
|-----|--|------|--------|----------|
| 1 | Before selecting or developing any instructional materials, Electrical Installation and Maintenance work teachers consider the number of teaching/learning situations to which the instructional materials will be applied | 0.78 | 1.19 | Accepted |
| 2 | The Electrical Installation and Maintenance work content for which the instructional materials are being selected, where in doubt, the teacher should consult | 0.48 | 0.87 | Accepted |

| | | | | |
|---|---|------|------|----------|
| 3 | The Electrical Installation and Maintenance work instructional objectives, content learning activities and evaluation instruments should be taken into consideration by the teacher in the utilization of instructional materials | 0.74 | 1.11 | Accepted |
| 4 | The Electrical Installation and Maintenance work teachers should realize the need for improvisation when the cost of purchasing the instructional materials is high. | 0.60 | 0.58 | Accepted |
| 5 | The teacher should preview the instructional material before they are brought to the class to determine the operational state of the intended instructional material, | 0.78 | 0.50 | Accepted |

The analysis in the table revealed that items 1, 2, 3, 4 and 5 had their calculated t-value range from 0.50 to 1.19 since the calculated t-ratio is below the t-value of 1.69 at 0.05 level of significance. This indicates that there was no significance difference between the mean responses of trade teachers and students with regard to the Strategies for Enhancing Teacher use of Instructional Materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical Colleges in Niger state.

Therefore, the null hypothesis is accepted at 0.05 level of significance.

Hypotheses 4

There is no significant difference between the responses of trade teachers and students with regard to the Factors Affecting Teachers use of Instructional materials for teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state.

Table 4: T-test analyses regarding the Factors Affecting Teachers use of Instructional materials for teaching Electrical Installation and Maintenance Work (EIMW) in Government Science and Technical colleges in Niger state.

| S/N | Items | SD | t-test | Remark |
|-----|---|------|--------|----------|
| 1 | Finance is one of the major factors affecting teacher use of instructional materials | 0.92 | 0.46 | Accepted |
| 2 | Over population of student in the classroom. (Number of learners/students involved) | 0.75 | 0.58 | Accepted |
| 3 | Community resources, affect the choice of instructional material that can be used. (Facilities and Resources available) | 0.50 | 1.09 | Accepted |
| 4 | If the school environment is not conducive, it's affecting teachers use of instructional materials | 0.48 | 1.08 | Accepted |
| 5 | Poor maintenance culture of existing instructional materials especially projected and manipulative types. | 0.57 | 1.02 | Accepted |

The analysis in the table reveals that items 1,2,3,4 and 5 had their calculated t-value range from 0.46 to 1.09 since the calculated t-ratio is below the t-value of 1.69 at 0.05 level of significance. This indicates there was no significance difference between the mean responses of trade teachers and students with regard to the Factors Affecting Teachers use of Instructional materials for teaching Electrical Installation and Maintenance Work (EIMW) in technical colleges in Niger state. Therefore, the null hypothesis is accepted at the 0,05 level of significance.

Hypotheses 5

There is no significant difference between the responses of trade teachers and students with regard to the guide lines for the Selection of Instructional Materials for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state

Table 5: T-test analyses regarding the Guide lines for the Selection of Instructional Materials for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical colleges in Niger state

| S/N | Items | SD | t-test | Remark |
|-----|---|------|--------|----------|
| 1 | The teacher should ensure that the instructional materials to be used are easily available | 0.60 | 0.87 | Accepted |
| 2 | Teacher to ensure that the materials to be used as instructional materials are accessible to him. | 0.58 | 1.08 | Accepted |
| 3 | The teacher using the instructional materials should ensure the appropriateness of the instructional materials for his intended learners. | 0.48 | 1.01 | Accepted |

| | | | | |
|---|---|------|------|----------|
| 4 | The teacher should test the materials and ensure their workability before the actual date of use | 0.32 | 1.05 | Accepted |
| 5 | The instructional materials selected for teaching by the teacher should be of good quality | 0.89 | 1.13 | Accepted |
| 6 | The Electrical Installation teachers should select the instructional materials to the age of the learners | 0.46 | 0.92 | Accepted |

The analysis in the table reveals that items 1,2,3,4,5,6 had their calculated t-value range from 0.87 to 1.13 since the calculated t-ratio is below the t-value of 1.69 at 0.05 level of significance. This indicates that there was no significance difference between the mean responses of trade teachers and students with regard to the guide line for the selection of instructional materials in teaching Electrical Installation and Maintenance work (EIMW). Therefore, the null hypothesis is accepted at 0.05 level of significance.

Discussion of Findings

The study examines the Strategies for Enhancing Teacher use of Instructional Materials for Teaching Electrical Installation and Maintenance Work (EIMW) in Technical Colleges in Niger state. The study revealed the Importance of Instructional Material uses for Teaching Electrical Installation and Maintenance Work (EIMW) instructional material it is essential for teaching, Bajah (2017) pointed out the important of instructional materials include; Instructional materials save time, what you will explain in ten minutes, will be possible in less time with the use of instructional materials, Instructional materials Enhance teaching and learning Electrical Installation and Maintenance work, and Make learning more meaningful for students,

Table 2 of the study revealed the types of Instructional Materials used for teaching Electrical Installation and Maintenance Work. Bakare (2001) classified the types of instructional material as follows: - Printed and reference materials: Textbooks, newspapers, magazines, government documents, teachers' guide, duplicated materials, journals, hand book, bulletins, pictures, work books, pamphlets, and leaflets, Graphic materials: Graphs, charts, diagram, maps, globes. Display materials: Chalkboard, bulletin boards, flat pictures, magnet boards, and flannel board. Projected materials: Television, video tape, overhead projector, slides and slide projector and transparencies. Audio and other visual materials: Radio, models, computer, tape recording.

The study reveals that the professional electronics teacher needs to note that every instructional material has its definite unique strength in teaching-learning situations. Furthermore, better teaching and faster learning of electronics principles can be facilitated by careful selection,

development, and skilful utilization of appropriate instructional materials by competent teachers. Based on the foregoing, the following strategies are suggested to enhance teachers' competence in the selection, development, and utilization of instructional materials for effective instruction delivery. Develop a positive attitudes towards the development and use of instructional materials in instructional delivery in schools. Ii. The instructional objectives, content learning activities and evaluation instruments should be taken into consideration by the teacher in the selection, development, and utilization of instructional materials. In other words, maintain the appropriateness of the materials to instructional objectives.

The finding of the study shows the factors Affecting Teacher use of instructional materials for teaching Electrical Installation and Maintenance Work (EIMW), Balogun (2016) outlined the following factors:

Nature of the subject matter and the objectives to be attained, number of learners/students involved, the space of time available, facilities and materials available. Teachers have been found to have difficulties in selecting and using instructional materials for teaching. Part of the difficulties has been that teachers tend to teach the way they were taught in their training. Consequently, teachers use the materials they were exposed to during their training. This habit is often difficult for teachers to change. Other reasons advanced for the inability of teachers to use instructional resources effectively include: Inability to identify/ locate resources, inability to develop appropriate materials from local resources; lack of school- based resource centre.

The finding shows that the teacher who wants to use instructional materials should consider the following variables to guide him in the selection of the types to be used in the teaching-learning exercise:

Availability: The teacher should ensure that the instructional materials to be used are easily available for use before the date of use.

Affordability: The instructional materials to be used should not be expensive, and the cost should be such that either the teacher or the school can afford.

Qualitative: The instructional materials selected for teaching by the teacher should be of good quality.

Simplicity: The instructional materials to be used should be simple to operate or manipulate.

Suitability: The teacher using the instructional materials should ensure the appropriateness of the materials for his intended learners

Conclusion

Instructional materials are wide variety of equipment and materials used for teaching to stimulate self-activity on the part of the students. The teaching of Electrical Installation without instructional materials may certainly result in poor academic achievement. The implementation of the strategies identified in the study might contribute to a gateway to reduce the problems and improving the use of instructional materials in the teaching of Electrical Installation and maintenance work in Technical Colleges in Niger State.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Training should be organized for teachers so they could update their skills for effective use of instructional facilities in Electrical Installation and maintenance work in Government Science and Technical College in Niger State
2. Workshops and seminars should be organized on the importance and benefits of using instructional facilities for Teaching Electrical Installation and Maintenance Work.
3. Heads of technical colleges should carry out regular supervision during practical hours to ensure the effective utilization of instructional facilities for Teaching Electrical Installation.
4. Government should provide instructional materials in Technical College's to enhance effective teaching and learning
5. Teachers and students should be encouraged to form the habit of improvising instructional materials to make up the shortfall in the delivery of lectures.

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