

Integration of Task Instruction Sheets in Training the Trainers for Effective Delivery of Practical Contents in Technical Education Courses in Colleges of Education in South West, Nigeria

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Abstract

The study is on train-the-trainers on how to integrate task instruction sheets (TIS) technique in delivery of practical contents of technical education courses in colleges of education. The study employed descriptive survey research design. The population of the study comprised all the 179 technical education lecturers in four colleges of Education. Two colleges of education out of the four colleges were purposively selected with 58 Lecturers who possess technical education competence. The instruments used for data collection were structured questionnaires. The questionnaires were validated and results yielded 0.89, 0.81, 0.85, 0.81, 0.85, and 0.87 respectively using cronbach alpha. The four level Kirkpatrick's model was applied for the training evaluation. Descriptive statistic was used to answer the research questions. The study revealed that TIS was appropriate for delivery practical contents of technical education courses to students. It was discovered from the research findings that, the Kirkpatrick four levels evaluation model used for the training programme was effectively, satisfactory and trainees were able to transfer what was learned to their workplace. In view of these findings, technical education teachers should adopt the use of TIS for delivery of practical contents of technical education courses in colleges of education. The Supervisory Agency (NCCE) should organize curriculum review for the purpose of integrating TIS into the instructional methodologies for teaching technical courses.

Keywords: Instruction, Kirkpatrick's evaluation model, Task instruction sheets, Technical education, Training evaluation, Training.

Introduction

Technical Education is very important in today's quest for skill acquisition by individuals and technological advancement of any nation. The National Policy on Education (2013) defined Technical Education as 'that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge'. This definition implies that any education that is designed towards teaching technical skills and attitudes suitable for practical skills acquisition can be regarded as technical education. Technical Education courses according to Ojimba, (2013) are widespread and visible ranging from metalwork

technology, mechanical/automobile technology, electrical and electronics technology, building and woodwork technology etc. the Colleges of Education run the following courses; automobile, metalwork, woodwork, building and electrical electronics technology. These courses are practical skills oriented that needs to be delivered through appropriate instructional strategy for effectiveness.

Instructional strategy are all the things the teachers used to aid the learners in their learning process. The learning process is delivered through instruction. Instruction is an activity engaged in by the teacher with the aim of facilitating change in learner behavior using different kinds of delivery attempt (Wordu & Ojorka, 2018). This term also means education, which refers to teaching and learning of knowledge, skills and attitudes. Instruction is vital in teaching and learning technical education courses. Instruction in technical education could be given in two ways that is either through oral or written form. Menchinshai, et al cited in Miller (2014) described instruction as a dual process of transmitting or acquiring knowledge, skills and attitudes between the teacher and the students in a classroom or laboratory setting, Mechaninshai et al reiterated. The imperativeness of adopting the appropriate practical instructional delivery is to achieve the goal of the instruction, upbringing student development, the content of instruction, and the knowledge, skills and attitudes the students must master. To achieve this, delivery of practical contents of technical courses, which could also be referred to as practical skill activities are developed into tasks for training the students.

Task has a clear purpose which is expressed in a discrete learning items that has definite starting and stopping points. In other words, task can be learned and/or perform within a relative short period of time. A task provides complete step-by-step explanations of doing all the work required to achieve a goal. Tasks can be developed into task instruction sheets (TIS). Task instruction sheets according to Osinem in Miller (2014) is described as a teaching technique that is peculiar for delivery vocational skill courses where step-by-step instruction printed on paper are given to the students for accomplishing a given task. Task instruction sheets usually contained tasks to be performed which are typically broken into series of related tasks which is known as sub-tasks arranged from simple to complex. Task instruction sheets provides learners the opportunity to learn at their own pace, making it an individual instructional technique. Buttressing this assertion, Dawal (2021) stated that, task instruction sheets strategy is a series of curriculum materials carefully organized towards individualized competency-based instruction. In the view of Dorier and Garcia (2018), task instruction sheets are materials containing a step-by-step procedure for accomplishing a task individual. Relating the views of these authors to delivery to

practical contents of technical education courses, task instruction sheets is expected to provide the students opportunity to progress through series of practical tasks given by the teachers who have undergone training in pedagogy and technical areas of a particular subject and charged with the responsibilities of imparting knowledge, skills and attitudes to students in that subject. This assertion reinforced the need for teachers to undergo training.

Training according to Okeke cited in Okoli et al (2015) connotes learning organized to achieve certain productive skills, development of technical ability, productivity or output, initiative and innovation in the business of teaching. The training of the technical teachers who are skills based is the important guarantee for development of vocational technical education (Cong & Wang, 2012). Training and retraining of technical based teachers should be a continuous exercise. Buttressing this view of Nakpodia and Urien cited in Okoli et al (2015) reiterated that, training as a process, will nurture prospective teachers and update qualified teachers' knowledge and skills in form of continuous professional development. Continuous professional development could come in form of re-training workshop, seminar and conferences (Okoli et al, 2015). Studies have showed that re-training workshop for teachers have helped in the upgrading of their existing teaching skills or acquiring a new one (Mohamad et al, 2016). Banka and Okwori (2019) in their views remarked that re-training will help teachers who are already on the job to learn or acquire new knowledge and method of teaching skills. Re-training in this paper means train-the-trainers workshop organized for lecturers in colleges of education, South West to equip them with a new knowledge and method of delivery practical contents of technical education courses. Retraining programme organized for technical teachers for the purpose of acquiring new teaching strategy is said to be effective and satisfactory when a feedback on how well the re-retraining exercise met the participants or organization expectations is satisfactory. In order to assess how well a re-retraining exercise had met the participants or organization expectations, a training evaluation could be conducted using appropriate method of obtaining responses from the trainees during and after the training.

Training evaluation according to Merwin et al cited in Mohamed et al (2012), is the means used to determining the worth, or value of the training. It is a process of assessing the results or outcomes of training. Training evaluation is very crucial to determine the extent of the worth of the training vis a vis the worth of investment put into the training by the sponsors of the training. Supporting the submission, Mohamed et al (2012), Mohamoodi et al (2019) stated that every training programme must be evaluated since there is no alternative way of measuring the degree of efficiency of training and ensuring that

investments on training are worthwhile. The implications from the above reviews are that, training evaluation provides feedback on the effect of a training programme and also assesses the value of the training in the light of the information received.

Furthermore, literature have proposed various training evaluation models. However, the most widely used training evaluation model is the four levels of evaluation model developed by Donald Kirkpatrick in 1959 (Srivastava et al, 2018). Kirkpatrick four-level model selected in the present study has been employed in different fields of study and by different researchers. This model comprises of four levels of evaluation or elements used to measure effectiveness of a training programme namely: Reaction - Level 1, Learning - Level 2, Behaviour - Level 3, and Results - Level 4.



Figure 1 showed the Kirkpatrick's four-levels of evaluation model. The first level (reaction) gives answer to the question; How do participants feel about the training session? It measures how participants feel after attending the training session (Srivastava et al 2018). It also offers information about whether the participant found the training programme valuable and satisfactory. The second level (learning) answers the question; What have participants learned? At this level, the learning of the participant is measured immediately and a month after the training programme. It assesses the extent to which participants change attitudes, improve knowledge and skill as a result of the training programme. The third level (behavior) answers the question; What change in the behaviour of the trainees noticed? Is learning being applied by the trainees after the training programme? This stage gives a feedback on changes observed in job behaviour or performance that took place as a result of the training. It measures has participants transfer knowledge and skills to workplace. Level four (result) attempts to answer the question; What are the final results or outcomes of the training efforts? The result of level 4 gives effect on the positive delivery of the new instructional strategy resulting from the improved performance of the participants. In other words, it measures the effect of the training on the institution or organization in terms of quality delivery of practical contents

in subject matter (technical courses) to the students.

Statement of the Problem

The practical nature of technical education taught to students in colleges of education is unique in contents and approach, thereby requires appropriate instructional delivery of its practical contents. The objectives technical education programme in colleges of education as enshrined in the Minimum Standard document of National Commission for Colleges of Education (NCCE) include among others: to produce technical NCE teachers and practitioners of technology capable of teaching basic technology in junior secondary schools. Studies and experiences of the researchers have shown that many NCE technical teachers produced from colleges of education (Technical) are not sufficiently equipped with practical contents delivery skills required for teaching basic technology, which is traceable to method of delivery of practical contents by their teachers in the colleges of education. Therefore, technical teachers (lecturers) in colleges of education system need train-the-trainers workshop on how to develop and use a new innovative instructional strategy, task instructional sheets (TIS) to deliver practical contents of technical education courses in colleges of education. Hence the need to conduct this study with a view that, the integration of the new instructional strategy to delivery practical contents of technical education courses to NCE students while they are still in the college could bridge the practical contents delivery skills and knowledge gaps being experienced by NCE technical teachers who are graduates of colleges of education, South West, Nigeria.

Purpose of the Study

The purpose of this study therefore is to train - the - trainers (lecturers) on how to develop and integrate task instruction sheets technique into delivery of practical contents of technical education courses effectively in colleges of education in South West Zone of Nigeria. Specifically, the study sought to:

1. Train-the-trainers on how to develop, rate, and use appropriate task instruction sheets for practical contents delivery of technical education courses in Colleges of Education.
2. Train-the-trainers on how to develop and use of Psychomotor Achievement Test (PAT) drawn from six out of seven levels of Simpon's Taxonomy of Psychomotor Domain to assess the students' level of skill acquisition at every stage of the practical lesson.
3. Apply Kirkpatrick's four-level training evaluation model to measure the impact of the train - the - trainers workshop on the trainees, who are expected to have been sufficiently equipped with the development and usage of TIS.

Research Questions

The following research questions guided the study.

1. How appropriate are the developed task instruction sheets (TIS) rated in terms of format, contents, and utility by the trainees in colleges of education?
2. How appropriate is the developed Psychomotor Achievement Test (PTA) drawn from six out of seven levels of Simpson's Taxonomy of Psychomotor to assess the students' level of skills acquisition at every stage of the practical lesson?
3. To what extent has the training impacted the trainees using the Kirkpatrick's four-levels of training evaluation models (reaction, learning, behavior and result).

Methodology

The method employed in this study was descriptive survey research design. The design was considered appropriate because it enables the researchers to acquire first hand data from the respondents so as to formulate rational, sound conclusion, and recommendations for the study (Manjunatha, 2019). The study was carried out in South West, Nigeria; comprising of Lagos, Ogun, Osun, Ekiti and Ondo states. The population for the study was 179 lecturers teaching technical courses in four colleges of education in South West. Two colleges of education out of the four colleges were purposively selected and all the 58 lecturers were involved in the study.

The data used in the study were collected through questionnaires. The questionnaires were designed on the bases of Likert (5) item scales. The instrument was face-validated by three experts, two from Department of Science and Technology Education, University of Lagos and one from Metalwork Department, Federal College of Education (Technical), Akoka. Cronbach Alpha reliability method was adopted to determine the internal consistency of the questionnaire items. The reliability coefficient obtained from questionnaires (A, B, C (i, ii, iii and iv) were 0.89, 0.81, 0.85, 0.81, 0.85, and 0.87 respectively.

Fifty eight (58) copies of the 80 cluster items questionnaire were administered by the researchers on the trainees and their institutional representatives (the Head of Departments) in the two colleges during and after the training for their responses. The entire copies of the administered questionnaires were retrieved and analyzed. Mean and standard deviation was used to answer research questions 1, 2, and 3.

To answer research questions 1 and 2, questionnaire items within mean scores of 0.50 - 1.49 was regarded as Very Strongly Inappropriate, 1.50 - 2.49 Strongly Inappropriate, 2.50-3.49 fairly appropriate, 3.50 - 4.49 Strongly Appropriate, and 4.50 - 5.00 Very Strongly Appropriate. A five-point rating scale of 5 - Very Strongly Appropriate, 4 -

Strongly Appropriate, 3 - Fairly Appropriate, 2 - Strongly Inappropriate and 1 - Very Strongly Inappropriate was used. For research question 3 (Reactions, Learning, Behaviour and Result), questionnaire items within mean scores of 0.50 - 1.49 was regarded as Very Strongly Disagree, 1.50 - 2.49 Strongly Disagree, 2.50 - 3.49 Fairly Agree, 3.50 - 4.49 Strongly Agree and 4.50 - 5.00 Very Strongly Agree. A five-point rating scale of 5 - Very Strongly Agree, 4 - Strongly Agree, 3 - Fairly Agree, 2 - Strongly Disagree, and 1- Very Strongly Disagree.

Research Question 1

How appropriate are the developed task instruction sheet rated in terms of format, contents, and utility by the trainees in colleges of education?

The data for answering research question 1 was presented in Tables 1.

Table 1

Mean Ratings and Standard Deviation of Respondents' Opinion on the Appropriateness of the Developed Task Instruction Sheet in Terms of Format, Contents, and Utility.

S/N	Criteria for Evaluation	Mean \bar{X}	SD	Remarks
Format and Contents				
1	Comprehensiveness of contents	4.55	.54	Very Strongly Appropriate
2	Specificity of instructions in the task instruction sheet.	4.48	.54	Strongly Appropriate
3	Accuracy of instructions in the task instruction sheet.	4.47	.63	Strongly Appropriate
4	Readability of the task instruction sheet.	4.48	.57	Strongly Appropriate
5	Accessibility of the resources listed in the task instruction sheet.	4.29	.56	Strongly Appropriate
6	Appearance of the task instruction sheet.	4.38	.56	Strongly Appropriate
7	The design of the task instruction sheet.	4.55	.54	Very strongly Appropriate
8	The length of the task instruction sheet.	4.38	.56	Strongly Appropriate
9	The language used in the task instruction sheet for NCE metalwork students.	4.50	.54	Very Strongly Appropriate
10	The scope of tasks covered in the topics.	4.50	.50	Very Strongly Appropriate
11	The tasks for NCE metalwork students in terms of the case of execution.	4.47	.54	Strongly Appropriate
12	The appeal of the format to wide audience.	4.53	.54	Very Strongly Appropriate
Would – be – Users (Utility)				
13	Technical education teachers.	4.64	.61	Very Strongly Appropriate
14	Metalwork technology teachers.	4.59	.68	Very Strongly Appropriate
15	Technical College mechanical engineering craft students.	4.48	.68	Strongly Appropriate
16	Craft students and apprentices in the production industries.	4.53	.60	Very Strongly Appropriate
17	Individuals with knowledge of metalwork technology.	4.45	.60	Strongly Appropriate
18	Students of mechanical engineering in Polytechnics.	4.40	.62	Strongly Appropriate
19	Students of metalwork technology in Colleges of Education.	4.48	.60	Strongly Appropriate
20	Teachers who need improvement in technical education.	4.51	.50	Very Strongly Appropriate

The data showed in Table 1 indicated that the comprehensive of contents, design of the TIS, language used in TIS, the appeal of the format to wide audience, and the scope of tasks covered in the topics had mean rating of 4.50 - 4.55, while specificity of instruments in the TIS, accuracy of instruction in TIS, readability of TIS, accessibility of the resources listed in the TIS, appearance of the TIS, length of the TIS, and tasks for NCE technical education students in terms of the ease to execution had mean rating of 4.29 - 4.48 respectively. This result implies that the respondents strongly agreed that the format and contents of the developed TIS were appropriate. Results in Table 1 also showed that technical education teachers, metalwork technology teachers, craft students and apprentices in production industries and teacher who needs improvement in technical education had mean rating of 4.51 - 4.64, while technical colleges mechanical engineering craft teacher, students of mechanical engineering in Polytechnics and metalwork technology students in Colleges of Education had mean rating of 4.40 - 4.48 respectively. This result shows that the weighted average scores for the responses of participants was 4.48, which suggests that the respondents strongly agreed that the formal, content, and utility of the developed TIS were appropriate. Therefore, TIS could be adjudged appropriate for use to many and not limited to few users.

Research Question 2

How appropriate is the developed Psychomotor Achievement Test (PTA) drawn from six out of seven levels of Simpson's Taxonomy of Psychomotor to assess the students' level of skill acquisition at every stage of the practical lesson?

The data for answering research question 2 was presented in Tables 2

Table 2

Mean Ratings and Standard Deviation of Respondents' Opinion on the Appropriateness of the developed Psychomotor Achievement Test (PTA) drawn from six out of seven levels of Simpson's Taxonomy of Psychomotor to assess the students' level of skill acquisition at every stage of the practical lesson.

S/N	Statements	Mean	SD	Remarks
		\bar{X}		
1	The psychomotor achievement test items drawn from Perception (use of sensory cue) level assesses the students' level of skill acquisition at every stage of the practical lesson.	4.48	.54	Strongly Appropriate
2	The psychomotor achievement test items drawn from Set (mental disposition) level assesses the students' level of skill acquisition at every stage of the practical lesson.	4.36	.55	Strongly Appropriate
3	The psychomotor achievement test items developed from Guided Response level revealed the students' level of skill acquisition at every stage of the practical lesson.	4.36	.58	Strongly Appropriate
4	The psychomotor achievement test items drawn from the Mechanism level assesses the students' level of skill acquisition at every stage of the practical lesson.	4.24	.51	Strongly Appropriate
5	The psychomotor achievement test items drawn from the Complex Overt Response level assesses the students' level of skill acquisition at every stage of the practical lesson.	4.38	.67	Strongly Appropriate
6	The psychomotor achievement test items drawn from the Adaptation level assesses the students' level of skill acquisition at every stage of the practical lesson.	4.31	.60	Strongly Appropriate

The results showed in Table 2 provides data indicating that the developed psychomotor achievement text items drawn from six out of seven levels of Simpson's Taxonomy of Psychomotor domain (Perception, Set, Guided response, Complex Overt Response, and Adaptation) had mean rating of 4.24 - 4.48, with a weighted mean score of 4.36. The information from this report implies that the respondents agreed strongly on the appropriateness of the psychomotor achievement test items to assess the students' level of skill acquisition at every stage of the practical lesson.

Research Question 3

To what extent has the training impacted the trainee using the Kirkpatrick's four level training evaluation models (reaction, learning, behavior and result).

The data for answering research question 3 was presented in Tables 3.

Table 3

Mean Ratings and Standard Deviation of Respondents' Opinion on what extent the training had impacted the trainees, using the Kirkpatrick's four levels training evaluation models (reaction, learning, behavior and result).

Reaction Level – 1

S/N	Category	Statement	Mean \bar{X}	SD SA	Remarks FA
1	Training objectives	I was satisfied with the training overall	4.55	.50	Very Strongly Agree
2		The training objectives were clearly defined	4.53	.50	Very Strongly Agree
3		The training objectives were covered by the facilitators	4.45	.50	Strongly Agree
4		I was able to relate each objective to the learning I achieved.	4.24	.54	Strongly Agree
		Weighted Mean:	4.44		
5	Training materials and facilities	I was appropriately challenged by the materials	4.26	.55	Strongly Agree
6		The training materials were the right level of complexity for my background	4.19	.61	Strongly Agree
7		The training materials were well organized	4.33	.47	Strongly Agree
8		I found the training materials easy to navigate	4.33	.54	Strongly Agree
9		The training materials complemented the training contents.	4.41	.50	Strongly Agree
10		The services provided (snack and drinks) were suitable.	4.34	.51	Strongly Agree
11		The training took place at a suitable venue	4.50	.50	Very Strongly Agree
			Weighted Mean:	4.34	
12	Training relevance	The training was relevant to my current job task.	4.43	.53	Very Strongly Agree
13		I will be able to immediately apply what I learned.	4.34	.61	Very Strongly Agree
14		The training worth my time spent.	4.48	.50	Very Strongly Agree
15		I will recommend the training to other departments/institutions	4.53	.50	Very Strongly Agree
16		The length of the training programme was suitable and adequate.	4.40	.65	Strongly Agree
17		The subject content in the training was relevant to my job.	4.40	.56	Strongly Agree
18		I feel that the training will help me do my job better in future	4.47	.50	Strongly Agree
		Weighted Mean:	4.44		
19	Facilitator knowledge	The facilitator was an effective communicator with the trainers	4.55	.50	Very Strongly Agree
20		The facilitator prepares training activities appropriately and in accordance with the training objectives.	4.57	.50	Very Strongly Agree
21		The facilitator demonstrated a good understanding of the training using appropriate materials.	4.59	.50	Very Strongly Agree
22		Facilitator is friendly, entertains questions and give acceptable answers.	4.59	.50	Very Strongly Agree
23		Facilitator's mode of delivery captures my interest and engages my attention throughout.	4.59	.50	Very Strongly Agree
24		The facilitator achieved the goal of the training.	4.45	.50	Strongly Agree
		Weighted Mean:	4.57		

Table 3 provides descriptive statistics for the trainees' Reaction level, which include the following four clusters; training objectives, training materials, training relevance, and facilitators' knowledge. The results showed that, facilitators' knowledge had the highest level of satisfaction with the trainees with a mean rating of 4.45 - 4.59 and weighted mean score of 4.59. while the three other clusters namely; training objectives, training materials, and training relevance had mean rating of 4.24 - 4.55, 4.19 - 4.41, and 4.34 - 4.53 and weighted mean scores of 4.44, 4.34, and 4.44 respectively. This implies that the respondents agreed strongly with all the statements of the aspects evaluated in Reaction Level – 1.

Table 4

Descriptive statistics for the trainees' Learning Level.

Learning Level - 2

<i>n</i> /N	Statement	Mean	SD	Remarks
		\bar{X}		
1	As a result of the training, my knowledge, skill and attitude formation in my area of specialization have developed.	4.52	.50	Very Strongly Agree
2	My attitude towards practical content delivery have changed positively through the training.	4.36	.48	Strongly Agree
3	The training programme motivated me to want to learn more.	4.50	.57	Very Strongly Agree
4	The training provided me with a new method of delivery practical content in any field using task instruction sheets.	4.33	.69	Strongly Agree
5	The training provided me with skills in development and usage of task instruction sheets.	4.24	.63	Strongly Agree
6	As a result of the training, I can generate multiple choice test items from practical contents.	4.16	.74	Strongly Agree
7	My exposure at the training have equip me with knowledge of setting multiple test items using table of specification.	4.25	.78	Strongly Agree
8	The training helps me to succeed in my practical content delivery in a way that I would not have been able before.	4.19	.69	Strongly Agree

The results on Table 4 provides data indicating the descriptive statistics for the trainees' learning level. The data indicated that, trainees' development of knowledge, skills and attitudes, motivation to learn more had mean rating of 4.50 - 4.52, while the trainees' positive change in attitude towards practical contents delivery, skills development and usage of task instruction sheets, generation of multiple-choice test items from practical contents, and knowledge of setting multiple-choice test items, using table of specification had mean rating of 4.14 - 4.36, with weighted mean score of 4.56. This result implies that the trainees agreed strongly that learning had taken place after the training exercise.

Table 5

Descriptive statistics for the trainees' Behaviour level.

Behaviour Level - 3

S/N	Statements	Mean \bar{X}	SD	Remarks
1	The training helped to develop skills needed to identify relevant practical activities in my subject area.	4.45	.60	Strongly Agree
2	The training helped me to organize and package the identified relevant practical activities into task.	4.40	.59	Strongly Agree
3	The training helped me to develop task instruction sheets from the practical task generated from the identified relevant practical activities in my course/subject area.	4.40	.67	Strongly Agree
4	My practical content delivery using TIS has improved.	4.26	.81	Strongly Agree
5	The training increased my ability to perform well in the laboratory.	4.38	.64	Strongly Agree
6	I feel the training has impacted my behavior on my job positively.	4.36	.52	Strongly Agree
7	The training has helped me to be more creative	4.45	.50	Strongly Agree

Table 5 present data on Behaviour level- 3 which indicated that, development of skills needed to identify relevant practical activities, organization and packaging of identified relevant practical activities into TIS, practical contents delivery using TIS, and positive behavioral impact on the trainees' job had mean rating of 4.32. This result shows that the respondents agreed strongly that the changes experienced in practical contents delivery using TIS after the training were positive.

Table 6*Descriptive statistics for the trainees' Result Level.***Result Level - 4**

S/N	Statements	Mean \bar{X}	SD	Remarks
1	The training has increased the trainees (lecturer's) and instructor's productivity.	4.63	.50	Very Strongly Agree
2	Lecturer's delivery of practical contents after training have increased student's satisfaction	4.63	.50	Very Strongly Agree
3	The Lecturer's engagement level has increased.	4.56	.51	Very Strongly Agree
4	The morale of the Lecturer's has increased.	4.63	.50	Very Strongly Agree
5	Job satisfaction is noticed among the trainees after the training.	4.50	.51	Very Strongly Agree
6	The quality of student's improved tremendously.	4.44	.51	Strongly Agree

The data in Table 6 presents the descriptive statistics on the Result level based on the opinions of the Heads of Department on the trainees for one months after the training programme was held. The data indicated that, increase in trainees' productivity, effectiveness in practical contents delivery to students, increase in trainees' morale, job satisfaction, and improvement in the quality of students' performance had mean rating of 4.44 - 4.63, with weighted mean score of 4.46. This implies that the Heads of Department who are representing the colleges agreed that the training has increased the trainees' productivity, morale, job satisfaction, and students' satisfaction.

Discussion

The findings of research question one revealed that the developed task instruction sheet (TIS) is rated by the trainees as being strongly appropriate in terms of format, contents and utility. The findings further showed that five of the listed criteria for evaluating the level of appropriateness of the contents, format, and utility had very strong mean rating of 4.50-4.55, while seven of the listed criteria for evaluating the level of appropriateness of the contents and format had strong mean rating of 4.29 - 4.48 respectively. The reason for this strong mean rating obtained in all these evaluation criteria could be ascribed to the fact that, almost all the trainees are experts in technical education, and were able to confirm that the level of appropriateness of the developed task instruction sheets for delivery of practical contents in colleges of education.

As revealed in the study, there is need to first subject a develop TIS to contents, formal, and utility evaluation to ascertain its appropriateness for instructional delivery. The findings of this study agreed with Igbo (1990) cited in Miller (2014) where the author stated that task instruction sheets should be evaluated to establish it appropriateness in terms of contents, format, and utility for teaching and learning in the laboratory.

The findings in research question two showed that the developed psychomotor Achievement Test drawn from six out of seven levels of Simpson's Psychomotor Taxonomy domain had mean rating of 4.24 - 4.48. This implies that the trainees strongly agreed with the level of appropriateness of the achievement test items. The implication of this is that, any test items developed for the purposes of assessing students' skill acquisition must address the issue of use of sensory cue, mental depository, skillful performance of complex acts etc. This finding accords well with the finding of Shariffudin et al (2011) where the authors discovered that Simpson's Taxonomy is adequate and appropriate for developing test for young children or adults learning entirely new and challenging physical skills as it addresses issues such as awareness, perception, emotion sensory and mental preparation.

Furthermore, the results presented in tables 3,4,5, and 6 provides answers to research question three. The findings from table 3 presents the Reaction Level - 1. It showed that, among the four clusters in level 1, facilitator's knowledge had the highest level of satisfaction with the trainees with weighted mean score of 4.57. This implies that more than 90 percent of the trainees strongly agreed with all the evaluated statements related to the facilitators' knowledge. The implication of this findings is that, the success of any training programme is anchored on the knowledge, and efficient delivery of the facilitators. In study therefore, the positive and satisfactory reaction of the trainees to the facilitators' knowledge, and efficient delivery indicated that they were satisfied. These findings are in conformity with the findings of Alsalamah and Callinan (2021) where the authors found out that the trainees were satisfied with the trainers in their positive assessment of the training programme. In the same vein, this study also showed that the trainees strongly agreed that the training programme was relevant to their job and objectives clearly stated. This finding is consistent with Mohamed et al (2012) where the authors stated that training programme must be relevant to the job and the objectives for training should be clearly communicated and covered.

The findings on table 4 which is the learning level - 2 showed that the trainees' development of knowledge, skill, and attitudes, motivation to want to learn more, and

other related statements to learning were positive. This means the trainees agreed very strongly that learning have taken place after the training. This finding is in agreement with the findings of Alsalamah and Callinan (2021) were the authors found out that participants believed that their knowledge, information and practical skills had improved as a result of undertaking training programme.

The findings in table 5 revealed the Behaviour level of the trainees. It showed that the trainees strongly agreed to all the statements related to the expected change in behaviour after the training. This implies that the trainees can apply the skills acquired to the delivery of practical contents in the college workshops. This finding is consistent with Mohamed et al (2012) where the authors found out that participants perceived they can apply the knowledge, skills and attitude learned from the training to their workplace.

The findings in table 6 revealed the reaction level where the Heads of department agreed strongly that through observation, the trainees' productivity, effective delivery of practical contents to the satisfaction of the students, increase in morale and job satisfaction has increased. This implies that the trainees have been able to transfer their knowledge, skills and attitude from the training programme to the workplace. This finding accords well with the findings of Alsalamal and Callinan 2021 where the authors found out that supervisors' perception based on their observations believe that the training programmes had satisfactory outcome at the level of the trainees.

Conclusion

The practical nature of technical and vocational education at all levels makes it unique in contents and approach, thereby demands that teachers should use appropriate instructional delivery strategies to delivery practical contents to the students. In the light of the general concern to produce NCE technical teachers who will be able to utilize new innovative instructional strategy to teaching basic technology to students at junior secondary school demands the need to training the lecturers on how to develop and use task instructor sheets through train-the-trainers workshop. The findings from this study showed the positive responses from the lecturers in South West Nigeria who were retrained on how to develop and utilize TIS sheets for deliver practical contents delivery to NCE students. Using the Kirkpatrick's four level of evaluation model to examine; the reactions of the trainees to the training programme, the level of the trainees' learning, the trainees' behavioural changes, and the trainees transfer of knowledge from the training to the workplace. The findings of this study revealed that, the trainees were very satisfied with the objectives, facilitators' knowledge and the relevance of the training to their jobs. The findings also showed that the

trainees had improved their knowledge level and were able to apply the knowledge, skills and attitudes learned during the training to their job.

Recommendations

Based on the findings and conclusions, the following recommendations were made. Technical and Vocational teachers could adopt the use of TIS for delivery of practical contents of technical courses to the students in colleges of education; Provost of College of Education (Technical) could encourage teachers to adopt TIS by providing all that is needed to produce and use TIS in practical contents delivery; the Supervisory Agency (NCCE) of colleges of education could organize curriculum review for the purpose of integrating TIS into instructional delivery methodologies for teaching, technical courses; government could establish Centre of Excellence for developing TIS document for teaching practical contents in other fields; and Ministry of Education (Federal and State) could regularly organize train-the-trainers workshop for technical education teachers with a view to acquire skills on how to develop and utilize TIS for delivery of instruction in the laboratory.

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