JTH

https://jthkkss.com/
ISSN 2710-6357
DOI: https://doi.org/10.53797/jthkks.v1i1.1.2020

Technical Education Lecturers' Knowledge of Students' Engagement in the Application of Interactive Instructional Strategies Technology

Oviawe, Jane Itohan

Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma, Edo State, NIGERIA

*Corresponding author email: janeoviawe@aauekpoma.edu.ng

Available online 24 June 2020

Abstract: This study investigated technical education lecturers' knowledge of students' engagement in the application of interactive instructional strategies technology using a descriptive survey research design. Four research questions and four null hypotheses guided the study. The study aimed to determine technical education lecturers' knowledge of the meaning and levels of students' engagement in instruction, indicators of students' engagement in instruction, factors that influence students' engagement in instruction, and active learning strategies that promote students' engagement in instruction. The population for the study consisted of all 92 technical education lecturers in both universities and colleges of education (technical) in South Nigeria. Since the population was small, there was no sampling. The instrument used for data collection was a 20-item questionnaire derived from the literature reviewed. Five experts validated the instrument. Cronbach alpha method was used to determine the instrument's reliability, and a reliability coefficient of .83 was obtained. The research questions were answered using mean statistics, while the null hypotheses were tested using a t-test at a .05 level of significance. The findings revealed that technical education lecturers needed to be more adequately knowledgeable of the interactive instructional strategies and technology that foster students' engagement in instructions. Based on the findings of this study, it was recommended among others, that students' engagement in instruction should be emphasized in capacity building through mentoring and peer collaboration that offer technical teacher education programmes organized within tertiary institutions by government and other stakeholders.

Keywords: Technical education, students' engagement, interactive instructional strategies technology, lectures

1. Introduction

Tertiary education is the educational level following the completion of secondary school. Tertiary education includes colleges, universities, and institutions that teach specific capacities of higher learning, such as community colleges, nursing schools, research laboratories, centres of excellence, distance learning centres and technical and vocational training institutes (World Bank, 2003). The Federal Republic of Nigeria (FRN) (2014) stated that tertiary education is the education given after secondary education in Universities, Colleges of Education, Polytechnics, and Monotechnics (educational institutions where a single specific technical subject is taught), including those institutions offering correspondence courses. Tertiary institutions are established to strengthen the production of middle-level human resources in areas of national priority through the implementation of educational curricula (Chan et al., 2017). In the context of this study, the tertiary institutions covered are universities offering technical teacher education programmes and colleges of technical education in South Nigeria.

A technical education lecturer is an individual or lecturer who is professionally trained to impart knowledge, skills and attitudes to learners in technical education. According to Olaitan et al. (2011), a technical education lecturer has undergone a teacher preparatory programme and is responsible for managing students' learning behaviour. The FRN (2014) posited that a lecturer in education is a person who has undergone approved professional training in education at appropriate levels and can impart knowledge, attitudes and skills to the learners. Oviawe (2019) defined a technical education lecturer as a person who has undergone professional pedagogical training in the different areas of industrial technical education, such as building construction, electrical/electronic technology, metalwork/automobile technology,

*Corresponding author: janeoviawe@aauekpoma.edu.ng

woodwork technology, technical drawing, among others and is equipped with skills and competencies which can be used to teach effectively the content of technical teacher education curriculum. Such a person can teach the industrial technical education programmes at any level appropriate to their qualification (NCE, B.Sc., M.Ed, or PhD). They perform the following professional responsibilities: planning, organizing, implementing, evaluating, and student-teacher relationships guiding the students in career and occupational choice, among others (Seghedin, 2014). For the lecturers to be effective in implementing technical education curriculum towards realizing its stated objectives, there is a need for effective instructional strategies to be adopted by students as guided by their teachers.

Instructional strategies are ways both teachers and students adopt towards presenting/delivering and understanding classroom instructions. No instructional strategy is all-encompassing; an effective learning strategy combines elements of other approaches (Ogbuanya & Onatunde, 2015). An effective learning approach should arouse students' curiosity and interest to learn, develop students' critical thinking ability and enhance learning. With the advent of globalization, emphasis has shifted from teacher-fronted to learner-centred learning. The learners' ability and right to take charge of their learning have been underscored. To this end, the FRN (2014) emphasized learner-centred instructional strategies that enhance students' interaction and engagement.

Creating an interactive class is a small task. Rather, it needs a little time to plan the teaching process, which becomes more enjoyable when together with students. Teachers can collaboratively plan their lessons with peers to ensure students are properly engaged (Vujovic, 2016). Removing inactivity from instruction should be topmost in the teachers' minds, considering that interactive classrooms arouse learning and, most times, make students autonomous, owning their learning. Often, teachers think that unless technologies are integrated into instruction, students will not gain the required workplace skills. This assumption is wrong because almost all interactive strategies can be adapted to instructions, except those using technology (Schweitzer & Brown, 2007). The reason is entrenched in the unavailability of the electricity supply required to power the devices for teachers and students. There is also the issue of poor and non-availability of reliable sources of the Internet for collaboration between teachers and students and between students and students, as well as a need for more knowledgeable technicians to operate, maintain and repair this equipment (Dyson et al., 2009). It is not to belittle the importance of employing technology in the acquisition of skills and competencies relevant in a technology-driven and ever-dynamic world of work but rather to stress that student engagement is possible using local resources.

The mode of instruction in public schools in Nigeria is usually the teacher-centred method that encourages the production of passive students, discourages productivity, and fails to teach self-discipline in learning. This culture works against what research shows to be in the best interest of the next generation of students. The maxim that students remember 70% of what they say and write and 90% of what they do is especially true of active learning (Nussbasum-Beach, 2020). The students are then able to analyze, define, create and evaluate. The only way of achieving these outcomes for students will be by using interactive strategies designed to enhance the acquisition of workplace skills and competencies. The shift from teacher-centred to student-centred instruction must happen for meaningful learning. This shift emphasizes learning rather than teaching.

Oranu (2011) posited that teachers and teacher educators need to be more knowledgeable about student engagement. Despite Government efforts in funding education especially in Technical Vocational Education and Training (TVET), it is unfortunate that the vision of student engagement is too rare among teachers and students, and in many educational institutions in Nigeria, insufficient thought is given to the notion of student engagement. Many see student engagement as a worthless inanity. To this end, Bimbola and Daniel (2010) asserted that in the classrooms of Nigerian educational institutions, there is little room for student-initiated questions, independent thought or interaction between students. The hub of the students is to learn by rote and rehearse the accepted account admonished by the teachers. The consequences of this ineffective instructional method adopted by teachers and teacher educators have led to high drop-out rates, low skill and knowledge levels among many students, and low student engagement in school work. Towards facilitating a paradigm shift. Oranu (2011) recommended the following strategies: a) teachers should design collaborative tasks by giving student teachers should encourage clear, explicit instructions related to the goal of the course and subsequent tests; b) group learning should be highly valued and encouraged; c) teachers should encourage peer review when students make presentations which they should do frequently. Students should do networking exercises by allowing students to meet themselves and know each other; and d) there should be continuous professional development of teachers on the use of technology in the classroom.

Despite these benefits, in many Nigerian secondary schools, it is observed that students are easily distracted in the learning process. Many students sit in the back rows of the class and do not participate in the class learning activities. They may be preoccupied with individual issues or disconnected from the class activities due to the use of teacher-centred methods of instruction, the difficulty associated with the structure of the subject matter and content being taught or the general inability to concentrate. This calls for concern and proper intervention geared towards using instructional strategies that make it clear to all students that their involvement and valid voices are respected. This, in turn, helps to break down the barriers that may be holding students back from participation and helps teachers gain insight into why students may be disengaged. As soon as the barriers break down, students become liberated to engage with their class's academic content.

Flow is a state of deep absorption in an intrinsically enjoyable activity (Csikszentmihalyi, 2014). Individuals in

this state perceive their performance as pleasurable and successful, and the activity is perceived as worth doing, like athletes and other sportsmen and women. The individual function at his or her full capacity and gets rewarded. The flow theory is based on a symbiotic relationship between challenges and skill. It is believed to occur when one's skills are overmatched and under-utilized to meet a certain challenge. Csikszentmihalyi (2014) and Shernoff et al. (2003) opined that the balance of challenge and skill is fragile such that when there is disruption apathy (low challenges, low skills), anxiety (high challenges, low skills) or relaxation (low challenges, high skill) are experienced. These experiences may prompt the teacher to change the skill acquisition level of students. Giving appropriate challenges (tasks), providing opportunities, providing immediate feedback and building on previously learned skills enhance greater skill acquisition. This may be an ideal way of engaging students (Shernoff et al., 2003). dos Santos et al. (2017) found that flow is the balance between challenges and skills plus the absorption in the activity, including clearly defined goals and immediate feedback that paves the way for a low experience.

As students seek to master new challenges, they develop greater skills. Flow thereby invokes growth principles in which a more complex set of capacities is sought after and developed. Based on the flow theory, three factors must be experienced for flow to occur. They are concentration, interest and enjoyment. For concentration, flow experiences are described as states of intense concentration or absolute absorption in an activity. Interest is an activity that is an important aspect of flow experiences because it provides the basis for becoming engaged with a topic. On the other hand, enjoyment points to flow activities that include intellectually demanding tasks that need to also be enjoyable and satisfying because they provide a feeling of creative accomplishment and satisfaction. These three factors work together to provide a good platform for student engagement and the acquisition of skills.

However, researchers Izuagba et al. (2017) and Oviawe et al. (2016; 2015) have been concerned about the need for more student engagement in classroom instruction and frown at using teacher-centred teaching strategies that emphasize teaching rather than learning. Against this background, this study sought to find out technical education lecturers' knowledge of students' engagement in instruction using active learning strategies.

This study aimed to discover technical education lecturers' knowledge of students' engagement in instruction using active learning strategies in Universities South geo-political zone of Nigeria. Specifically, this study sought to find out 1) technical education lecturers' knowledge of the meaning and levels of students' engagement in instruction; 2) technical education lecturers' knowledge of the indicators of students' engagement in instruction; 3) technical education lecturers' knowledge of factors that influence students' engagement in instruction; and 4) technical education lecturers' knowledge of active learning strategies that promote students' engagement in instruction.

2. Literature Review

Engagement is a fundamental issue in teaching because it affects how much students learn daily. Studies have shaped the emergence of engagement as both a strategy for improving educational achievement and an independently valuable outcome of schooling. Engaged students do better than those who are not (Young & Bruce, 2011; Parsons & Taylor, 2011). Researchers have tried to define student engagement in several ways. Many believe that it is multidimensional. Student engagement is a desirable trait that often overlaps with student motivation (Fletcher, 2005) and happens due to a teacher's careful planning and carrying out research-based strategies. Marzano and Pickering (2010) indicate that student engagement combines short-term and long-term. They explain that engagement occurs when students answer in the affirmative to the following questions: How do I feel? Am I interested? Is this important? Can I do this?

Chapman (2003) asserted that student engagement is used to depict willingness to participate in routine activities such as attending classes, submitting required work and following the teacher's direction in class. Skinner and Delmont (1993) posited that engaged students show sustained behavioural participation in learning activities accompanied by a positive emotional tone. They select tasks at the border of their competencies, initiate action when given the opportunity, and exert intense effort and concentration in implementing learning tasks. Also, they show enthusiasm, optimism, curiosity, and interest in learning. In the context of this study, the researcher adopted the definition of Skinner and Delmont because it emphasizes what goes on in the instructional process.

There are various types of student engagement in literature. Finn and Pannozzo (2004) identified two types of student engagement. They are academic engagement and social engagement. Academic engagement refers to learning behaviors, while social engagement refers to pro-social and anti-social behavior. This presupposes that student engagement covers the four domains of educational learning: affective, cognitive, psychomotor and interpersonal. Since student engagement is targeted to these learning domains, teachers should strive to ensure that students are provided with learning opportunities for their overall development. Parsons and Taylor (2011) identified five core types of student engagement: academic, cognitive, behavioural, psychological and social. However, they supposed that more categories are added each year. Affirming the difficulty experienced in trying to arrive at a consensus definition of the concept of student engagement. Blatchford et al. (2011) identified three levels of student engagement, which they listed as a) behavioural engagement, comprising following rules, adhering to norms, participation, attention and persistence; b) cognitive engagement, comprising student's investment in learning, learning goals and self-regulation; c) emotional engagement consisting of classroom reactions such as interest, anxiety, and boredom. These are sometimes referred to as multidimensional stages of engagement.

Similarly, Fletcher (2005) identified five indicators for student engagement. They are: academic challenge, active

and collaborative learning, student-school interaction, enriching education experiences and a supportive learning environment technology. Indicators of the absence of student engagement include unexcused absences from classes, cheating on tests, and damaging school property. Shernoff et al. (2003) stated that several phenomenological factors, including the relevance of instruction and perceived control, may influence student engagement. In considering instructional relevance, students are more likely to become engaged with authentic academic work that involves solving real-life problems that extend beyond the classroom using inquiry. Other influences include external influences relating to social background and geographical location, school factors relating to pedagogy and curriculum, and interest in learning (Blatchford et al., 2011). According to Chapman (2003), another feature of student engagement is its measurement and assessment dimension. For example, self-report measures have been used by many researchers in assessing the behavioural, cognitive and affective features of student engagement. Also, the checklist and rating scales are another instrument used (Skinner & Belmont, 1993) and work sample analysis, which have equally been used to assess levels of learning task engagement, especially students' use of meta-cognitive strategies in confronting learning tasks. Other quantitative measures of students' engagement noted in literature are: a) attendance/participation rates/punctuality/graduation grades; b) achievement/academic levels (standardized test scores and grades); c) time on task, homework completion; d) checklist/rubrics of completed works; and e) extra-curricular participation rates/counts – attendance in sports, arts, after school programmes.

Pollack and Fusoni (2005) posited that interactive methods in the instructional process make teachers create a healthy, lively, and respectful environment for learning and achieve the following objectives as expressed by teachers: a) students become engaged in the learning process and passionate about the subject matter; b) classes to be fun and meaningful at the same time; c) students to learn to work together; and d) teachers form positive and respectful relationships with their students that make them learn more effectively from their teachers and allow the teachers to learn from them.

Increasing active student involvement results in engagement. Manuel (2011) asserted that the active learning strategies to be integrated are: a) peer tutoring; b) small, structured in-class discussion groups; c) small groups in which student has an assigned role and contributes to the end-product (jigsaw, like a puzzle in which each student has a piece; d) hands-on activities or projects that illustrate or expand upon instructional content; and e) building better connections between classroom content and the world outside of the classroom – to students' career interests, the local community, or recent events tapping into students' interest by providing choices on the ways that students may complete projects or assignments. The active learning strategies listed above are not exhaustive but are delimited to them at this moment for this study.

3. Methodology

The study adopted the descriptive survey research design to investigate technical education lecturers' knowledge of students' engagement in instruction using active learning strategies in Universities South geo-political zone of Nigeria.

The population for the study consisted of all 92 technical education lecturers from the eight universities (68) offering technical education programmes in South Nigeria and 24 technical education lecturers in Colleges of Education (Technical) in South Nigeria comprising of the following six States: Akwa-Ibom, Bayelsa, Cross River, Delta, Edo and Rivers. Due to the manageable size of the population, there was no sampling; hence, the entire population was used in the study.

The instrument used for data collection in this study was a 20-item questionnaire developed by the researcher from the literature review. The questionnaire had five sections: A, B, C, D, and E. Section A dealt with the respondent's data, while sections B to E addressed the research questions. The questionnaire was structured on a five-point Likert-type scale of Very Highly Knowledgeable (VHK) – 5; Highly Knowledgeable (HK) – 4; Knowledgeable (K) -3; Moderately Knowledgeable (MK) -2; and Not Knowledgeable (NK) -1.

Five experts validated the instrument. Two from the Department of Vocational and Technical Education and one in Test and Measurement in Universities in South Nigeria. Their suggestions and corrections resulted in the final draft of the instrument used for this study.

The instrument's reliability was determined by trial testing using 10 technical education lecturers from a neighbouring Anambra State. Cronbach's Alpha was used to establish the internal consistency of the items in the instrument. A reliability index of 0.83 was obtained. The instrument was administered by the researcher and five other research assistants.

The questionnaires were administered with the help of five research assistants. All the copies (92) of the questionnaire were duly completed and returned after two weeks. This gave a 100% return rate.

The data collected were analyzed using Mean and standard deviation to answer the research questions, while t-test statistic was used to test the hypotheses. The real limit of numbers was applied for interpreting the analyzed data as follows: 4.50–5.00 (Very Highly Knowledgeable), 3.50–4.49 (Highly Knowledgeable), 2.50-3.49 (Averagely Knowledgeable), 1.50-2.49 (Slightly Knowledgeable), 1–1.49 (Not Knowledgeable). The standard deviation was used to decide on the closeness or otherwise of the respondents to the mean in their responses. Any item with a standard deviation of less than 1.96 (confidence level of 95%) indicated that the respondents were not too far from the mean or one another in their responses.

In testing the hypotheses, a hypothesis of no significant difference was retained when the probability (p) value is greater than or equal to .05; otherwise, it is rejected where the p-value is less than .05.

4. Results

Research Question 1: What is technical education lecturers' knowledge of the meaning and levels of students' engagement in instruction in tertiary institutions in South Nigeria?

Hypothesis 1: There is no significant difference in the mean responses of technical education lecturers from universities and colleges of technical education on their knowledge of the meaning and levels of students' engagement in instruction in South Nigeria.

Table 1 shows the mean ratings and standard deviations of respondents on the knowledge of the meaning and levels of students' engagement in instruction in tertiary institutions in South Nigeria. The results revealed that the respondents were knowledgeable in two out of the five items; the items are 1 and 2, with Mean ratings ranging from 4.23 to 4.83, indicating that the respondents were knowledgeable in the items dealing with the meaning of students' engagement. The results for items 3, 4, and 5 revealed that the items had their mean ratings ranging from 2.08 to 2.76, indicating that technical teacher educators needed to be more knowledgeable in these items. The standard deviations ranged from .77 to 1.07, less than 1.96. This implies that the respondents were close to each other in their opinions. Since the calculated Grand Mean on research question 1 is 3.31, it is concluded that technical education lecturers were averagely knowledgeable in the meaning and levels of students' engagement in instruction using interactive learning strategies technology. This implies that these respondents require training to foster their knowledge of the meaning and levels of students' engagement.

To test hypothesis 1, independent t-test statistic was used and the data in Table 1 revealed that the five items had probability values ranging from .05 to .83. Therefore, the null hypothesis of no significant difference for these items was retained. This indicated that technical education lecturers in both universities and colleges of technical education had similar knowledge of the meaning and levels of students' engagement in South Nigeria.

Table 1: Mean ratings, standard deviations and t-test of responses of respondents on the knowledge of the meaning and levels of students' engagement in instruction in tertiary institutions in South Nigeria

S/N	Items	$\bar{Xt}$	SD_t	$\bar{X_1}$	SD_1	$\bar{X_2}$	SD_2	p-value	Remarks RQ	Remarks H_0
1	Sustained behavioural involvement in learning activities	4.83	1.07	4.82	1.04	4.84	1.09	.83	K	NS
2	Willingness to participate in routine activities	4.23	.77	4.20	.79	4.25	.75	.45	K	NS
	Level of engagement involves:									
3	Behavioural engagement	2.67	.93	2.64	.88	2.71	.97	.36	NK	NS
4	Cognitive engagement	2.08	.86	2.01	.80	2.15	.93	.05	NK	NS
5	Self-regulation	2.76	1.05	2.74	1.05	2.77	1.05	.69	NK	NS
	Grand mean	3.31	.94							

Key:

$\bar{Xt}$ = Mean of the two groups of respondents
$\bar{X}_1$ = Mean of technical education lecturers from universities
$\bar{X}_2$ = Mean of technical education lecturers from colleges of education (technical)
SD_1 = Standard deviation of technical education lecturers from universities
SD_2 = Standard deviation of technical education lecturers from colleges of education (technical)
P-value = probability value
RQ = Remarks on research questions
K = Knowledgeable
NK = Not Knowledgeable
NS = Not Significant
S = Significant

Research Question 2: What is technical education lecturers' knowledge of the indicators of students' engagement in instruction in tertiary institutions in South Nigeria?

Hypothesis 2: There is no significant difference in the mean responses of technical education lecturers from universities and colleges of education (technical) on their knowledge of the indicators of students' engagement in instruction in South Nigeria.

Table 2 shows respondents' mean ratings and standard deviations on their knowledge of the indicators of students' engagement in instruction in tertiary institutions in South Nigeria. The results revealed that the technical education lecturers needed to be more knowledgeable in four items, items 1, 2, 3, and 4, with mean ratings ranging from 2.07 to 2.14. But are knowledgeable in item 5, dealing with supportive learning environment technology, with a mean rating of 3.97. The standard deviations ranged from .78 to .93, less than 1.96. This implies that the respondents were close to each other in their opinions. Since the Grand Mean for research question 2 was 2.48, it is concluded that technical education lecturers were slightly knowledgeable of the indicators of students' engagement in instruction in tertiary institutions in South Nigeria. The implication is that these respondents require training to improve their knowledge of the indicators of students' engagement in instruction.

To test hypothesis 2, Table 2 revealed that the five items had probability values ranging from .05 to .92. Therefore, the null hypothesis of no significant difference was retained. This indicated that technical education lecturers in both universities and colleges of technical education were similar in their opinions on the indicators of students' engagement in South Nigeria.

Table 2: Mean ratings, standard deviations and t-test of responses of respondents on the knowledge of the indicators of students' engagement in instruction in tertiary institutions in South Nigeria

S/N	Items	$\bar{Xt}$	SD_t	$\bar{X_1}$	SD_1	$\bar{X_2}$	SD_2	p-value	Remarks RQ	Remarks H_o
1	Level of students' academic challenge	2.07	.90	2.06	.92	2.07	.88	.92	NK	NS
2	Active and collaborative learning	2.14	.93	2.09	.92	2.20	.94	.17	NK	NS
3	Student school interaction	2.12	.78	2.12	.80	2.10	.75	.83	NK	NS
4	Enriching education experience	2.08	.86	2.01	.80	2.15	.93	.05	NK	NS
5	Supportive learning environment technology	3.97	.80	3.01	.79	3.94	.81	.26	K	NS
	Grand mean	2.48	.85							

Research Question 3: To what extent are technical education lecturers knowledgeable of the factors influencing students' engagement in instruction in tertiary institutions in South Nigeria?

Hypothesis 3: There is no significant difference in the mean responses of technical education lecturers from universities and colleges of technical education on their knowledge of the factors influencing students' engagement in instruction in South Nigeria.

Table 3 shows that the technical education lecturers knew the factors influencing students' engagement, with mean ratings ranging from 3.58 to 3.99, above the criterion mean of 3.00. The standard deviations ranged from .70 to 1.07, less than 1.96. This implies that the respondents were close to each other in their opinions. The calculated Grand Mean for research question 3 indicated 3.86; this implies that technical education lecturers in universities and colleges of technical education were highly knowledgeable of the factors influencing students' engagement in instruction in tertiary institutions in South Nigeria.

To test hypothesis 3, Table 3 revealed that the five items had probability values ranging from .11 to .95, which were greater than .05. Thus, the hypothesis of no significant difference was retained. Therefore, It is concluded that technical education lecturers in both universities and colleges of education (technical) were similar in their opinion of the factors that influence students' engagement in South Nigeria.

Table 3: Mean ratings, standard deviations and t-test of responses of respondents on the knowledge of the factors that influence of students' engagement in instruction in tertiary institutions in South Nigeria

S/N	Items	$\bar{Xt}$	SD_t	$\bar{X_1}$	SD_1	$\bar{X_2}$	SD_2	p-value	Remarks RQ	Remarks H_o
1	Relevance of content and instruction	3.97	.81	3.96	.84	3.97	.75	.95	K	NS
2	Perceived teacher class control	3.81	.91	.379	.88	3.82	.93	.74	K	NS
3	Interest in learning	3.97	.70	3.93	.65	3.99	.72	.50	K	NS
4	Teaching strategies use technology	3.58	1.07	3.50	1.05	3.62	1.08	.38	K	NS
5	Social background of students	3.99	.83	3.04	.87	3.88	.74	.11	K	NS
	Grand mean	3.86	.86							

Research Question 4: To what extent are technical education lecturers knowledgeable of the interactive learning strategies and technology that promote student engagement in instruction in tertiary institutions in South Nigeria?

Hypothesis 4: There is no significant difference in the mean responses of technical education lecturers from universities and colleges of technical education on their knowledge of the interactive learning strategies technology that promote student engagement in South Nigeria

Table 4 shows that the technical education lecturers were knowledgeable in items 1, 2 and 3, with mean ratings ranging from 3.23 to 4.83. In contrast, their responses for items 4 and 5 had mean ratings ranging from 2.07 to 2.12, indicating that the respondents needed to be more knowledgeable about these items. Since the Grand Mean for research question 4 was 3.09, it is concluded that technical education lecturers were averagely knowledgeable of the interactive learning strategies technology that promote students' engagement in instruction in tertiary institutions in South Nigeria. The implication is that these respondents require training in interactive strategies that enhance student engagement.

To test hypothesis 4, Table 4 revealed that the five items had probability values ranging from .07 to .83, which were greater than .05. Thus, the hypothesis of no significant difference was retained. It is therefore concluded that technical education lecturers in both universities and colleges of technical education were similar in their knowledge of the interactive learning strategies technology that enhance students' engagement in South Nigeria. This means the responses of technical education lecturers from universities and colleges of education (technical) on their knowledge of the interactive learning strategies technology that promotes students' engagement in instruction in tertiary institutions in South Nigeria are the same. Therefore, the null hypothesis is retained.

Table 4: Mean ratings, standard deviations and t-test of responses of respondents on the knowledge of the interactive learning strategies technology that promote students' engagement in instruction in tertiary institutions in South Nigeria

S/N	Items	$\bar{Xt}$	SD_t	$\bar{X_1}$	SD_1	$\bar{X_2}$	SD_2	p-value	Remarks RQ	Remarks H_o
1	Small, structured in-class group	4.83	1.07	4.82	1.04	4.84	1.09	.83	K	NS
2	Peer tutoring	3.23	.77	3.20	.79	3.25	.75	.45	K	NS
3	Small groups (reciprocal peer tutoring) in which students are assigned roles	3.23	.90	3.19	.88	3.26	.92	.35	K	NS
4	Hands-on activities or project technology	2.07	.94	2.01	.96	2.15	.91	.07	NK	NS
5	Building connections between classroom content and the outside world	2.12	.78	2.10	.75	2.12	.80	.83	NK	NS
	Grand mean	3.09	.89							

5. Discussion

The findings of this study revealed that technical education lecturers were averagely knowledgeable of the meaning and levels of students' engagement in instruction, slightly knowledgeable of the indicators of students' engagement in instruction, highly knowledgeable of the factors that influence students' engagement in instruction; and averagely knowledgeable of the interactive learning strategies technology that foster students' engagement in instruction. This is worrisome, considering student engagement and interactive classroom strategies' role in ensuring that students construct knowledge, which Blatchford et al. (2011) say is the hallmark of 21st-century teaching and learning. These

calls for intervention if technical teacher trainees will acquire the requisite knowledge and technical and workplace skills they require to facilitate learning at the different levels of education they will be required to teach upon graduation. Oviawe et al. (2016; 2015); Manuel (2011); Oranu (2011), in line with these findings, suggested peer tutoring: small, structured in-class discussion groups, group tasks, small groups in which each student has an assigned role (reciprocal peer tutoring) as students' interactive strategies to be employed in instructional delivery.

The findings of this study revealed that technical education lecturers were averagely knowledgeable of the interactive learning strategies and technology that enhance students' engagement in instruction in tertiary institutions in South Nigeria. This could be the probable reason for the non-usage of interactive strategies in instruction, with the resulting inability to see it as capable of fostering student engagement. This calls for concern. To this end, technical education lecturers require capacity building in interactive instructional strategies to promote better and enhanced performance and skill acquisition for technical students. This finding could be attributed to the laissez-faire attitude exhibited by some technical education lecturers towards the paradigm shift from teaching to learning. Some technical education lecturers still need to apply the 19th and 20th-century teaching skills, techniques and strategies of technology that are teacher-centred, which can no longer suffice for the 21st-century classroom. This finding aligns with that of Izuagba et al. (2017) and Oviawe et al. (2016), who reiterated the importance of using interactive strategies to suit the 21st-century learners' needs and that of the ever-dynamic workplace. Buttressing the need for interactive instructional strategies (Oviawe et al., 2016; 2015; Young & Bruce, 2011; Oranu, 2011). Parsons and Taylor (2011) posited that students who are engaged in instruction with interactive strategies and technology perform better than those who are not.

The findings of the study also revealed that technical education lecturers in both universities and colleges of technical education in South Nigeria did not significantly differ in their knowledge of the meaning and levels of students' engagement, knowledge of the indicators of students' engagement in instruction; knowledge of the factors that influence students' engagement in instruction; and knowledge of the interactive learning strategies technology that promote students' engagement in instruction. This finding implies that technical education lecturers in both universities and colleges of technical education need more knowledge and skills of students' engagement in instruction and thus require re-training.

6. Conclusion

The benefits of students' engagement involve high academic performance and the acquisition of various technical and workplace skills required to fit into the ever-dynamic world of work upon graduation. It is also geared to the four learning domains; hence, technical education lecturers and teachers must strive to ensure that students have learning opportunities for their (learners) total development. Based on the findings of this study, it is concluded that technical education lecturers in both universities and colleges of technical education are averagely knowledgeable of the meaning and levels of students' engagement in instruction, slightly knowledgeable of the indicators of students' engagement in instruction; highly knowledgeable of the factors that influence students' engagement in instruction; and averagely knowledgeable of the interactive learning strategies technology that foster students' engagement in instruction.

Based on the findings of this study, it is recommended that: a) students' engagement in instruction should be emphasized in capacity building through mentoring and peer collaboration that offer technical teacher education programmes organized within tertiary institutions by government and other stakeholders, b) interactive learning strategies technology should be incorporated into technical teacher education curriculum, c) technical education lecturers' should be encouraged to employ more interactive learning strategies technology to promote students' engagement, d) retooling programme should be put in place for technical education lecturers' on the application of interactive learning strategies technology to foster students' engagement.

References

Bimbola, O., & Daniel, O. I. (2010). Effect of constructivist-based teaching strategy on academic performance of students in integrated science at the junior secondary school level. *Educational Research and Reviews, 5(7),* 347. *Scribbr*. http://www.academicjournals.org/ERR2

Blatchford, P., Bassett, P., & Brown, P. (2011). Examining the effect of class size on classroom engagement and teacher–pupil interaction: Differences in relation to pupil prior attainment and primary vs. secondary schools. *Learning and Instruction, 21(6),* 715-730. https://doi.org/10.1016/j.learninstruc.2011.04.001

Chan, C. K., Fong, E. T., Luk, L. Y., & Ho, R. (2017). A review of literature on challenges in the development and implementation of generic competencies in higher education curriculum. *International Journal of Educational Development, 57,* 1-10. https://doi.org/10.1016/j.ijedudev.2017.08.010

Chapman, E. (2003). Alternative approaches to assessing student engagement rates. *Practical assessment, research & evaluation, 8(13),* 1-10. *Scribbr.* http://pareonline.net/getvn.asp?v=8&n=13

Csikszentmihalyi, M. (2014). Toward a psychology of optimal experience. Flow and the foundations of positive

psychology: *The collected works of Mihaly Csikszentmihalyi, 209-226*. https://doi.org/10.1007/978-94-017-9088-8_14

Dyson, L. E., Litchfield, A., Raban, R., & Tyler, J. (2009). Interactive classroom m-Learning and the experiential transactions between students and lecturer. *Proceedings of Ascilite, Auckland, 233-242. Scribbr.* https://ascilite.org/conferences/auckland09/procs/dyson.pdf

dos Santos, W. O., Gomes, T., & Silva, C. (2017, October). Towards to flow state identification in educational games: An empirical study. *In Brazilian Symposium on Computers in Education (Simpósio Brasileiro de Informática na Educação-SBIE), 28(1), 927.* https://doi.org/10.5753/cbie.sbie.2017.927

Federal Republic of Nigeria (FRN). (2014). *National Policy on Education*. Lagos: NERDC Press.

Finn, J. D., & Pannozzo, G. M. (2004). Classroom organization and student behavior in kindergarten. *The Journal of Educational Research, 98(2),* 79-92. https://doi.org/10.3200/JOER.98.2.79-93

Fletcher, A. (2005). *Meaningful student involvement: Guide to students as partners in school change (2nd Ed.)*. Olympia, WA: SoundOut Books.

Izuagba, A. C., Afurobi, A. O., & Jeremiah, S. (2017). *Theory and practice of child friendly schools in Nigeria*. Divine Favour Digital Concepts Publisher.

Manuel, S. (2011). How classroom management affects student engagement. *Theory into practice, 48(2),* 114-121.

Marzano, R. J., & Pickering, D. J. (2010). *The highly engaged classroom.* Solution Tree Press.

Nussbasum-Beach, S. (2015). The key to making the shift to active learning (and why technology is not enough) powerful learning practice. *Scribbr.* http://plpnetwork.com/2015

Ogbuanya, T. C., & Onatunde, E. K. (2015). Effects of cooperative mastery learning approach (CMLA) on students' interest towards learning technical drawing in technical colleges in Federal Capital Territory (FCT), Abuja, Nigeria. *International Journal of Educational Research, 14(1),* 40-56.

Olaitan, S. O., Asogwa, V. C., & Eze, S. O. (2011). Entrepreneurial skill capacity building needs of instructors in range and pasture management for effective teaching of students of Animal Production in schools of Agriculture in Southeast, Nigeria. *Journal of Nigeria Educational Research Association, 16(1),* 105-114.

Oranu, P. C. (2011). Student engagement: Issues and concerns for Nigerian schools in achieving millennium development goals. *International Journal of Academic Research in Progressive Education and Development, 1(1),* 256-259. *Scribbr.* https://ijarped.com/index.php/journal/article/view/22

Oviawe, J. I. (2019). Professional teaching competencies required by lecturers for effective implementation of technical drawing curriculum in tertiary institutions in South-South Nigeria. *Journal of Educational Realities, 8(1),* 12-29.

Oviawe, J. I., Ezeji, S. C. O. A., & Uwameiye, R. (2016). Effects of cooperative learning on building technology students' acquisition of workplace skills. *Indian Journal of Vocational Education, 20, 77*-88.

Oviawe, J. I., Ezeji, S. C. O. A., & Uwameiye, R. (2015). Comparative effectiveness of three methods on the academic performance of students in building technology in Nigerian polytechnics. *European Scientific Journal, 11(12),* 274-285.

Parsons, J., & Taylor, L. (2011). *Improving student engagement. Current issues in education, 14(1*). *Scribbr.* https://cie.asu.edu/ojs/index.php/cieatasu/article/view/745

Pollack, S., & Fusoni, M. (2005). *Moving beyond icebreakers: An innovative approach to group facilitation, learning, and action*. James Currey.

Schweitzer, D., & Brown, W. (2007, March). Interactive visualization for the active learning classroom. *In Proceedings of the 38th SIGCSE Technical Symposium on Computer Science Education* (pp. 208-212). https://doi.org/10.1145/1227310.1227384

Seghedin, E. (2014). From the Teachers Professional Ethics to the Personal Professional Responsibility. *Acta Didactica Napocensia, 7(4),* 13-22. *Scribbr.* https://eric.ed.gov/?id=EJ1053254

Shernoff, D. J., Csikszentmihalyi, M., Shneider, B., & Shernoff, E. S. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly, 18(2),* 158. https://doi.org/10.1521/scpq.18.2.158.21860

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85(4),* 571. https://doi.org/10.1037/0022-0663.85.4.571

Vujovic, P. (2016). Improving teaching skills: from interactive classroom to applicable knowledge. *Advances in Physiology Education, 40(1),* 1-4. https://doi.org/10.1152/advan.00139.2015

World Bank. (2003). *Tertiary education (Higher Education).* Washington DC: The World Bank.

Young, S., & Bruce, M. A. (2011). Classroom community and student engagement in online courses. *Journal of Online Learning and Teaching, 7(2),* 219-230. *Scribbr*. https://jolt.merlot.org/vol7no2/young_0611.pdf