Sustainable Collaborative Practices for Outcome-Based Learningin TVET Institutions in Enugu State, Nigeria
by

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Abstract
The study examined the sustainable collaborative practices for outcome-based learning in Technical Vocational Education and Training (TVET) institutions. The study adopted the descriptive survey research design. A total of 180 respondents made up the population of the study which comprises of TVET 78 Lecturers and TVET 102 technical instructors in 2 tertiary institutions in Enugu State. Because of the manageable size of the population, no sampling was done; rather all the 180 TVET educators were used for the study. Data were collected using a researcher structured questionnaire. The instrument clusters were designed on a five-point likert scale of Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (UD) = 3 Disagree (D) = 2 and Strongly Disagree (SD) = 1. Three experts from TVET institution validated the research instrument. The Cronbach's Alpha reliability method was used in testing the reliability of the instrument and a reliability coefficient of 0.821 was obtained. The mean and standard deviation was used to analyze the research questions, while the T-test was used to test the hypothesis at 0.05 level of significance. The study revealed some of the strategies for implementing outcome-based learning through collaborative practices, the challenges that hinder its implementation and interventions that can be implemented to strengthen and sustain outcome-based learning through collaborative learning practices especially in TVET institutions. The study recommended among others thatOutcome based learning (OBL) should be embraced for teaching, research, community development, and accreditation of all TVET institutions in Nigeria which could be achieved through an effective communication and proper coordination of OBL among regulators, educators, and all stakeholders.
Keywords: Sustainability, Collaborative Learning Practices, Outcome-Based Learning,Traditional Education Learning and TVET Institutions

Introduction

Poor classroom participation among students globally and in Nigeria, is a concern for learning institutions. Ogedi andObionu (2017) noted that factors such as classroom climate, student background, culture, and language create barriers to active and participatory classroom experience for students. Oyebode (2020) found that most students in developing countries like Nigerian are academically, socially, and historically marginalized, lacking access to quality education compared to their urban counterparts. Similarly, Omodan (2020) also argues that cultural assumptions, social beliefs, norms, and environmental influences contribute to the poor classroom participation among students in most technical vocational education and training (TVET) institutions. Consequently, most TVET students miss out on the benefits of learning from peers, engaging in collaborative learning, exchanging

ideas, and developing critical reasoning skills beyond the classroom. This poses a threat to their educational development. Moreover, Oyelere, Suhonen, Wajiga and Sutinen (2018) proposed that professionals and capable teachers who promote learner-centred teaching methods like collaborative learning(CL) practices are more inclined to motivate and engage students in classroom participation.

Collaborative learning practice is a type of learning where students in the classroom are arranged in group of two or more persons and tasked with the responsibility of working together and sharing workload equitably to complete assignments which have been devised to meet the learning outcome of the students (Chang & Brickman, 2018). Collaborative learning practice according to Syakur and Sabat (2020)is an educational approach that involves students learning together to solve problems and achieve common goals. In other words, collaborative learning practices involve planned and intentional methods to facilitate collaboration in the class. This approach helps teachers develop critical thinking, learn from one another, master content, and actively engage with the subject matter. Nurhayati and Harton (2017) noted that some collaborative learning practices include think-pair-share and peer review. Think-Pair-Share is considered a classic collaborative learning strategy where students spend time alone with their thoughts, working through a question or problem independently. After students have concretized their own thoughts (by formulating an answer or potential solution, depending on the prompt), they chat with a peer and share their ideas. Peer review processes require a certain amount of front-loading to ensure students know how to engage and offer feedback to one another because it is not only teachers' feedback that helps students improve. Whether students are working on revising a composition, preparing talking points for a presentation, or even something with much

lower stakes, students can use each other in the review process.

The theory of social constructivism and the observational learning theory are the two major theories in which collaborative learning is rooted in. Vygotsky (1978) stated in social constructivism that knowledge is developed through the social interaction of people with one another while in observational learning theory; Bandura (1977) stated that people acquire knowledge by observing and imitating other people around them. The process of adopting the use of collaborative learning enables instructors to engage three of the seven principles for good education practices as noted by Chickering and Gamson (1987) which includes: promoting effective cooperation and learning among students, encouraging active learning among students and facilitating student-teacher relationship. The adoption of collaborative learning in the classroom puts the students in charge of their learning and also helps the instructor to take the position of a guide or facilitator of learning rather than a deliverer of knowledge. Ali, and Jabeen, (2015) suggested that sustainable collaborative practices among TVET teachers and learners could promote outcome-based learning.

Outcome-based learning (OBL) is a new age educational philosophy that focuses on outcomes that students should achieve. With contrary to the fact that most teachers put the center of their attention too much on what they teach rather than on what their students learn, outcome-based learning (OBL) emphasizes on what is expected from the student to finally achieve when they complete their course rather than how they achieved it(De Guzman, Edaño, &Umayan, 2017). Outcome-based education is defined by Higinio, Mar and Andr (2020) as an approach to education in which decisions about the curriculum are driven by the outcomes the students should display by the end of the course- professional knowledge, skills,

abilities, values and attitudes- rather than on the educational process. In other words, outcome-based learning (OBL) is a student-centric teaching and learning methodology in which the course delivery, assessment is planned to achieve stated objectives and outcomes. It focuses on measuring student performance i.e., outcomes at different levels (Loes & Pascarella 2017).

Sustainability refers to meeting the needs of the present society without compromising the ability of future generations to meet their own needs (Ahmad 2021). According to Omodan (2020) sustainability is the ability to protect and preserve natural environment, including natural resources like water, air, and land, reducing pollution and waste, conserving bio-diversity and mitigating climate challenge. Sustainable outcome-based learning encourages the integration of knowledge and perspectives from various disciplines to tackle complex sustainability issues. Bhat, and Bhat, (2019) noted that sustainable outcome-based learning is an educational approach that focuses on achieving specific, measurable, and sustainable outcomes related to environmental, social, and economic well-being. Nazar, Chaudhry, Ali and Faheem (2018) stressed that sustainable outcome-based learning center on clearly defined, measurable learning outcomes that are aligned with sustainable development goals. It emphasizes aligning learning objectives with the principles of sustainable development and ensuring that students acquire the necessary knowledge and skills to address complex sustainability challenges. While the traditional teaching focuses primarily on content delivery and often lacks a clear focus on real-world application and sustainability, outcome-based learning emphasizes the development of specific skills and knowledge that can be applied to real-world situations. It highlights the fact that students have to know the final destination of their journey before they start

voyaging. Higinio et al., (2020) listed some sustainable outcome-based learning practices to include;developing curricula for TVET programs that focus on practical applications and real-world problem-solving;training corporate sustainability officers to implement sustainable practices within TVET institutions;designing TVET engagement initiatives focused on waste reduction, renewable energy adoption, or other sustainable practices andusing outcome-based assessment methods to evaluate the effectiveness of sustainability initiatives and ensure that educational efforts translate into measurable improvements. There is a need for tertiary education to provide both professional knowledge/skills and all-round attributes to the graduates so as to enable them to face the diversified yet global demands of the 21st century society. Therefore, exploring new ways for teaching and learning, especially in technical vocational education and training (TVET) is a worldwide pursuit.

Statements of the problem

The Technical Vocational Education and Training (TVET) sector plays a crucial role in equipping individuals with the practical skills and competencies required for employment and entrepreneurship. However, TVET institutions face numerous challenges that hinder their effectiveness in delivering quality education and training. Among other challenges, poor classroom participation amongstudents is a concern for TVET institutions. Report shows that factors such as classroom climate, student background, culture, and language create barriers to active and participatory classroom experience for students. Reports also found that most students in developing countries like Nigerian are academically, socially, and historically marginalized, lacking access to quality education compared to their urban counterparts.

Similarly, cultural assumptions, social beliefs, norms, and environmental influences

contribute to the poor classroom participation among students in most technical vocational education and training (TVET) institutions. Consequently, most TVET students miss out on the benefits of learning from peers, engaging in collaborative learning, exchanging ideas, and developing critical reasoning skills beyond the classroom, as everyone should have equal access to quality education and resources. This poses a threat to their educational development. However, professionals and capable teachers could promote learner-centred teaching methods such as outcome-based learning (OBL) through collaborative learning (CL) practices in order to motivate students for more classroom participation. So, there is a need for more research and awareness on how collaborative learning outcomes can be implemented to enhance outcome-based learning among teachers and students in TVET institutions and address the barriers to its adoption.The general purpose of this study was to ascertain the sustainable collaborative practices for outcome-based learning. Specifically, the study determined:

1. The sustainable collaborative learning practices for implementingoutcome-based learning.
2. The challenges that could hinder the implementation of the collaborative learning practices for outcome-based learning.
3. Intervention practices that can be implemented to strengthen outcome-based learning through collaborative learning practices.

Hypothesis

The following null hypothesis guided the study and was tested at 0.05 level of significance:

1. There is no significance difference in the mean responses of TVET lecturers and technical instructors on the interventions practices that can be implemented to strengthen outcome-based learning through collaborative learning practices.

Literature Review

Collaborative Learning practices

Collaborative learning in the classroom varies widely but always presents as learner-centered. As an educational approach, collaborative learning shifts responsibility from teacher to student, asking them to work with their peers to learn something new together (Sutton &Shouse 2016). This active learning approach allows students to explore a topic and construct meaning amongst themselves, with the teacher acting as a facilitator throughout the process (Ishtiaq, Ali & Salem, 2015). Moreover, critical thinking and teamwork are paramount in today's world along with the adoption of new technology. Research indicates that collaborative learning is one such student-centred method, which changes the attitude of the students and ensures their active participation (Barkley, Major & Cross 2014). Students-Team-Achievement-Division (STAD) is one such collaborative learning practice, which inculcates critical thinking and teamwork along with a positive attitude (Ahmad 2021). In this strategy, students with different learning levels are put together in a small group of 4-5 members to achieve the defined outcome. This methodology was designed by Robert Slavin and his associates at the Johns Hopkins University (Nazar, Chaudhry, Ali & Faheem 2018). In this method, the teacher initially discusses the content/lesson, and later, the learners work together within their teams to ensure that all members of the team have attained proficiency in the subject. Finally, the level of learning is tested individually through a well-defined metric of measurement, at which time the students may not help one another.

Outcomes-Based Learning (OBL)

Outcomes-based learning (OBL) shifts from measuring input and process to include measuring the output (outcome) of educational

activities. The term clearly means focusing and organizing everything in an education system around what is essential for learners to be able to do successfully at the end of their learning experiences(Hilario 2015).OBL by Higinio, Mar, Andr and Mar (2020) implies emerging with a vivid idea of what is important for learners to be able to do by determining the outcomes, thereafter developing the programmes for learning, implementing it and assessing the learner on a continuous basis to ensure that learning has ultimately taken place. OBLis a comprehensive approach to organizing and operating a curriculum that is focused on and defined by the successful demonstrations of learning sought from each learner. According to Mahmood, Khan andKiani (2015) the outcomes-based learning approach requires; developing a clear set of outcomes organized into the system's subjects and establishing conditions and opportunities within the system to enable and encourage learners to achieve these outcomes. The attributes of OBLalso comprises a vision and mission, programme educational objective, programme outcome, course outcome and how the structural knowledge be implemented into practice. Noronha, Bhat, and Bhat (2019) OBL is student-centred instruction model that stresses on judging student performance through outcomes. Outcomes include knowledge, skills and behaviour. Assessments can provide direct or indirect measures of student learning. Direct measures require students to demonstrate their achievement and often involve quantitative measurement procedures. Indirect assessment is based on opinions. Direct evidence of student performance or attainment relies upon direct scrutiny or examination of student performance or attainment for individual students. These methods allow teachers to collect the evidence of student learning or achievement directly from students on various works they submit.

OBL Implementation Standards

Network for Outcome-Based Schools in 1993 approved several standards that educational organizations should apply. The standards for implementing OBL are as follows (Kilgo, Ezell Sheets, & Pascarella 2015):

1. Mission: Mission includes statements that are jointly endorsed as a reflection of teacher and students' commitment.
2. Results/Outcomes: Educational outcomes should be clearly defined and passed down by the learning community.
3. Curriculum: A detailed framework of the programme, lessons learned, and the results to be achieved should be developed.
4. Decision Making: A consistent system of decision-making and delivery of learning.
5. Assessment: The assessment system is applied consistently based on criteria, performance standards, student credentials, and reporting.
6. Organization: Organizational system regarding learning and its delivery to students.
7. Culture: Strong organizational culture and climate in the development of students and employees to have high quality.
8. Improvement: this includes a continuous improvement of educational programmes to ensure the quality of educational institutions.
9. Database: There should be regular updates of all students' lecture data and achievement units and other critical indicators used.

Comparison of Traditional Education Learning and Outcome Based Learning

Researchers such as Susak (2016) contend that the Outcome-Based Learning (OBL) model represents a modified instructional strategy that places learner integrity and positive motivation as paramount variables for educators. The OBL approach has evolved through various stages of

development, culminating in its widespread implementation across educational systems globally. This paradigm, view education as a multifaceted process, encompassing educational goals, learning experiences, and progress evaluation. Some of the notable differences between traditional education learning in Nigeria and outcome-based learning include: traditional education learners are passive while OBL learners are usually active. The approach in traditional education learning is mostly exam-driven while in OBL, learners are assessed on an ongoing basis. According to Noronha et al, (2019) rote-learning is encouraged is highly encouraged in traditional education learning while in OBL,critical thinking, reasoning, reflection and action are encouraged. The syllabus in traditional education learning is content-based and divided into subjects, while the OBL content is integrated and learning is relevant and connected to real-life situations.Also in traditional education learning, learning is textbook/worksheet-bound and teacher-centered while in OBLlearning is learner-centered; the teacher facilitates and constantly applies group work and team work to consolidate the new approach(Vogt, &Skop, 2017). In traditional education learning, the teacher sees the syllabus as rigid and non-negotiable but in OBL, learning programmers are seen as guides that allow teachers to be innovative and creative in designing their programmes(Woo, Kim & Lim 2017). Teachers are responsible for learning and motivation depends on the personality of the teacher in traditional education learning. However, in outcome-based learning, learners take responsibility for their own learning and are motivated by feedback and affirmation of their worth.

Methodology

The study employed the descriptive survey research design. Yayeh, (2021) stated that descriptive survey research design is a method of research that aims to gather information about prevailing conditions or situations for the purpose of description and interpretation. It involves the collection of qualitative and quantitative data, which is then analyzed and described in the form of words and language. The researchers considered survey research design appropriate because the variable in the study were not manipulated. The population for the study is 180 respondentswhich comprises of 78 Lecturers and102 technical instructors of Technical and Vocational Education in 2 tertiary institutions in Enugu State. These TVET educators were drawn from the Faculty of Vocational and Technical Education, University of Nigeria Nsukka and Department of Technology and Vocational Education, Enugu State University of Technology. These respondents are suitable for the study because they are qualified Technical Vocational Education and Training (TVET) teachers in their institutions. Because the population size was considered manageable, no sampling was done; rather all the 180 TVET educators were used for the study.

The data collection was done using a structured questionnaire with title: Questionnairesustainable collaborative practices for outcome-based learning(QSCPOBL). The QSCPOBLhadtwo parts; the first part elucidated information on personal data of respondents while the second part had Clusters A, B, and C consisting of 30-items. The response format of QSCPOBL cluster were based on a five-point likert'sscale of Strongly Agree (SA) = 5, Agree (A) =4, Undecided (UD) = 3 Disagree (D) = 2 and Strongly Disagree (SD) =1. Three experts from TVET institution validated the research instrument. The experts' comments and corrections led to the modification and improvement of the final instrument for data collection.

In order to test the instrument for reliability, twenty (20) copies were distributedto ten technical instructors and ten

lecturers in the Department of Vocational and technical Education, Benue State University. The Cronbach's Alpha reliability method was used in testing the reliability of the questionnaire and a reliability coefficient of 0.821was obtained. This indicates that the instrument was reliable enough for use in data collection. The researchers with the help of 2 research assistants administered the questionnaires to the respondents. A total of 180 questionnaireswere distributed to the respondents while 175 questionnaires were returned, which recorded 95% return rate. The statistical package for social sciences (SPSS

20) software was employed for the statistical analyses. The research questions were analyzed using the mean and standard deviation, while the t-test was used to test the hypothesis at 0.05 level of significance. Mean values of 3.50 and above were accepted while mean values below 3.50 were rejected. Also, where the t-calculated, based on real limit of numbers was equal or greater than the table t-value, it indicates significant difference; the null hypothesis is rejected but if otherwise, the null hypothesis is accepted.

Results

The data for answering research question 1 to 3 are presented in Table 1 to 3.

Table 1

Mean responses and standard deviation of the respondents on sustainable collaborative learning practices for sustaining outcome-based learning.

N=175

S/N	Items	X	SD	Remarks
1	By engaging students in think-pair-share or write-pair-share learning strategy where they must work independently, communicate their ideas to peers, consider peer responses, and share that discussion in a way that begins to synthesize knowledge exchange.	3.61	0.80	Agree
2	By engaging students in peer review activitieswhich guides students as they review each other's' drafts of written work.	3.55	1.36	Agree
3	By engaging students in jigsaw learning technique which breaks problems into small parts and assigns parts to groups who report back, contributing a piece of the puzzle's solution.	3.51	1.52	Agree
4	By engaging students in group problem-solving activities which offer students the chance to interact with peers, to listen, and to teach.	3.58	0.70	Agree
5	By engaging students incase studies activities to solve educational tasks of similar difficulty.	4.05	1.15	Agree
6	By engaging students in small group discussion which offers students the chance to interact with peers, to listen, and to teach.	3.88	0.83	Agree
7	By engaging students in problem-based learning activities that introduce a specific problem to students, usually in groups, over an extended period, and require that they understand the problem and begin to propose a response or solution.	3.76	0.91	Agree
8	By engaging students inguided design, a type of problem-based learning activities, which leads students through steps as they work on a problem.	3.83	0.85	Agree
9	By engaging students in simulations where students adopt different roles as they perform the work of a problem-solving group.	4.35	0.83	Agree
10	By engaging students in peer teaching activitiesthat help to increase the structure and student engagement in collaborative activities.	3.68	1.15	Agree
	Grand mean	3.69	1.62	

The result on Table 1 showed that the mean scores of all the ten items exceed the cut-off point of 3.50. This means that the respondents used in the study agreed that allthe listed items are thesustainable collaborative learning practices for sustaining outcome-based learning.

Table 2

Mean responses and standard deviation of the respondents onthe challenges that could hinder implementation of the collaborative learning practices for outcome-based learning. **N=175**

S/N	Items	X	SD	Remarks
11	Teachers' resistance to change or resistance to adopting collaborative practices to achieve outcome-based learning.	3.66	1.32	Agree
12	Teachers' incompetence or lack of capacity to adopt and employ collaborative practices for students.	3.56	0.95	Agree
13	Teachers' preference to the use of traditional learning style instead of collaborative learning.	3.70	1.02	Agree
14	Imbalanced task distribution among the group of students by the teachers could lead to some students not acquiring the required knowledge and skills.	3.60	0.85	Agree
15	Uneven participation from the group of students.	3.77	0.95	Agree
16	Personal conflict can cause distractions from learning activities within a group of students who have been assigned to fulfill a task together.	3.80	1.20	Agree
17	Collaborative learning approaches may be difficult to apply in e-learning experiences due to lack of peoples' physical presence.	3.75	0.91	Agree
18	Language barrier can affect students who speak different languages by reducing their ability to communicate and learn together in a group.	3.52	1.13	Agree
19	Teachers may struggle with time management when academic calendars are stretched, thus resorting to traditional learning style.	4.05	0.9	Agree
20	Lack of qualified teachers.	3.51	0.83	Agree
	Grand mean	**3.68**	**1.13**	

The result of Table 2 showed that the mean scores of all the ten items exceed the cut-off point of 3.50. This implies that the respondents used in the study agreed that all the listed items arethe potential challenges that could hinder implementation of the collaborative learning practices for outcome-based learning.

Table 3

Mean and Standard Deviation of respondents on intervention practices that can be implemented to strengthenoutcome-based learning through collaborative learning practices. *N = 175*

S/N	Item Statements	X	SD	P-values	Remarks	SIG
21	Teachers should establish mission statement and programmeeducational objectives should adequately map with learning objectives before engaging students.	3.67	0.71	0.14	Agree	NS
22	Teachers should state the course objectives and course learning outcomes before engaging students.	3.51	0.70	0.18	Agree	NS
23	Teachers should map assessment patterns with collaborative practices before engaging the students.	3.63	0.75	0.10	Agree	NS
24	Teachers should define pedagogical tools for course outcome delivery before engaging the students.	3.72	0.60	0.15	Agree	NS
25	Teachers should track students' performance by proposing proper remedial measures.	3.58	0.66	0.09	Agree	NS
26	Teachers should be educated on the new OBL strategy, including how to create efficient exams and evaluate student success using OBL rubrics.	3.53	0.72	0.12	Agree	NS
27	Strong synergy between academia and industries has to be structured, monitored, and sustained.	3.73	0.60	0.15	Agree	NS
28	Adequate provision of teaching/learning facilities; classrooms, learning-support facilities, study areas, information resources (library), ICT-technology systems, laboratories /workshops, and associated equipment for learning institutions.	3.55	0.65	0.20	Agree	NS
29	There should be engagement of experienced and qualified staff for teaching and research is very essential.	3.54	0.74	0.26	Agree	NS
30	Strategies should be put in place for infrastructural growth, funding, and appropriate grants attraction for research.	3.62	0.66	0.09	Agree	NS
	Grand mean	**3.57**	**1.11**	**0.10**		

Keys: X = Mean SD =Standard Deviation, NS-Not significant.

The data in table 3 revealed that the 10 items have their mean values all above the cut-off point of 3.50. This indicates that all the items were accepted by the respondents as strategies and interventions that can be implemented to strengthen and sustain outcome-based learning through collaborative learning practices. The standard deviation of the 10 items in table 3 ranges from 0.71-0.60 which shows that the respondents were not far from each other in their responses. On the other hand, the hypothesis showed that all the 10 items in table 3 have their p-values greater than 0.05 level of significance. The null hypothesis that there is no significance difference in the mean responses of TVET lecturers and technical instructors on the intervention practices that can be implemented to strengthen outcome-based learning through collaborative learning practices was therefore accepted.

Discussion

The findings from Table 1 revealed the sustainable collaborative learning practices for sustaining outcome-based learning in Technical Vocational Education and Training (TVET) institutions. Some of thesepractices include: engaging students in think-pair-share or write-pair-share learning strategy where they must work independently, communicate their ideas to peers, consider peer responses, and share that discussion in a way that begins to synthesize knowledge exchange and engaging students in peer review activities which guides students as they review each other's' drafts of written work. The findings were similar to that of Barkley et al., (2014) who listed some OBL principles that should be implemented to ensure students were competitive after graduation. These principles include a focus on learning outcomes (clarity of focus), curriculum design based on achievements (design down), high expectations (high expectations), and broad opportunities (expanded opportunities). The findings are also in line with Higinio et al.,

(2020), who stated that implementing an outcome-based learning system in any educational institutions requires fine-tuned planning and resultoriented approach. This task is further simplified by integrating a reliable OBL strategy such asperforming a thorough self-assessment of the institution, defining learning outcomes clearly,receiving detailed feedback from students, teachers, parents, industry experts, and policy makers of the educational institution. Once the exit outcomes have been defined clearly, a connection between the main outcome aims and short-term goals should be established. Mahmood et al., (2015) stated that consistent evaluation is an important factor to successfully implement OBL teaching methods. This involves getting feedback from students at every stage of education, and performing assessments frequently. This way, you can easily identify areas of improvement in curriculum, and ensure that students achieve the desired results of the outcome-based learning plan.

The findings from Table 2, shows the potential challenges that could hinder implementation of the collaborative learning practices for outcome-based learning in TVET institutions. Some of these challenges include: teachers' resistance to change or resistance to adopting collaborative practices to achieve outcome-based learning andteachers' incompetence or lack of capacity to adopt and employ collaborative practices for students. The findings are also in consonance with the findings of Loes and Pascarella (2017), who states that there are many challenges for TVET in implementing collaborative practices for outcome-based learning such as: there is a lack of adequate physical facilities such as classrooms, structures, equipment, and other essential facilities in most institutions.The staffing may not be adequate in terms of staff mix and staff by rank for teaching and research. Sutton and Shouse (2016) also stated that there are outdated curricula and a lack of

attention for adequate learning to review the curriculum. The available programme is neither challenging students to achieve greater heights nor satisfying the minimum standards. There is a deficit in infrastructural growth, inadequate funding, and grants for research. Bahmanbijar et al., (2019) also stated that there are problems in implementing the OBL curriculum, including the diversity of understandings of each head of the study program and lecturers regarding how to design a curriculum, implement teaching and learning activities, and how to assess program education objectives, program learning outcomes (PLO), and course learning outcomes (CLO). Meanwhile, the change in curriculum design from a teaching center to a student center is not entirely accepted by lecturers and students. Likewise, changes in the assessment process have not been fully understood by the head of the study program, lecturers, and students in most institutions.

The findings from Table 3, shows thestrategies and interventions that can be implemented to strengthen and sustain outcome-based learning through collaborative learning practices in TVET institutions. Some of them include;teachers should establish mission statement and programme educational objectives should adequately map with learning objectives before engaging students, there should be adequate provision of teaching and learning facilities such as classrooms, learning-support facilities, study areas, information resources (library), computing and information-technology systems, laboratories and workshops, and associated equipment for learning institutions.These findings are in line with the findings of Ali andJabeen (2015) who stated thatto increase the understanding of study program heads and lecturers regarding the implementation of the OBL curriculum, learning institutions, needs to develop appropriate strategies and programs in the form of periodic and structured capacity building. Other implementation strategies by

Ogedi and Obionu (2017) include adequate funding in all TVET institutions. Strong synergy between academia and industries has to be structured, monitored, and sustained. Programme educational objectives should adequately map with learning objectives. There should be adequate provision of physical facilities, laboratory equipment, and other essential facilities for engineering institutions.

Conclusion

The study examined the sustainable collaborative practices for outcome-based learning in Technical Vocational Education and Training (TVET) institutions. The study revealed some of the strategies for implementing outcome-based learning through collaborative practices, the challenges that hinders its implementation and intervention practices that can be implemented to strengthen outcome-based learning through collaborative learning practices especially in TVET institutions.The study concludes that active participation of lecturers, technologists, administrators, experts from industries, and support staff will enhance the continuous flow of education and quality improvement process. Adequate provision of equipment of laboratories, workshops, manpower development, capacity building, provision of physical facilities within the academia will enhance synergy betweenTVET institutions and industry in Nigeria. OBLwill improve the quality of education especially in TVET as it will enhance staff exchange programmes, best practices, improvement in visibility and reputation of TVET institution. OBL will always promote the competency and capacity of educators and ensure enhanced national and international recognition of TVET graduates.

Recommendations

The following recommendations are made:

1. Outcome based learning (OBL) should be embraced for teaching, research, community development, and

accreditation of all TVET institutions in Nigeria. This can be achieved through an effective communication and proper coordination of OBL among education regulators and other stakeholders like educators, students and society.

2. There should be periodic curriculum reviews according to the latest development and trends of technology especially in the adoption and use of OBL in teaching and learning. Good programme, educational objectives, outcomes statements, mapping of courses to programme learning outcomes should be enforced, monitored, and periodically

improved across all TVET institutions in Nigeria.

3. Adequate staffing should be in place to achieve full implementation of OBL. Up to date facilities should be made available and school authorities should ensure they do not exceed the recommended student-equipment ratio appropriate to the relevant discipline in TVET institutions. This is to ensure that the available staff strength will not be overwhelmed by the large number of students thereby not being able to control them or enforce collaborative learning practices.

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