

COLLABORATIVE TEACHING AND LEARNING PRACTICES FOR ACHIEVING
21st CENTURY SKILLS-BASED QUALITY EDUCATION IN NIGERIA

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Abstract

This study determined collaborative teaching and learning practices and their benefits towards achieving 21st century skills-based quality education to address the challenges of delivering curriculum contents and acquisition of interdisciplinary skills required for career success in an inclusive way. A descriptive survey research design was adopted and the study was carried out in Ondo State, South-West of Nigeria. Four tertiary institutions were used with a population of 45,000. A sample of 600 respondents made up of 140 final year students and 10 lecturers from each institution were selected using purposive sampling technique. A structured questionnaire with a reliability index of .83 was used as instrument for data collection. Three research questions were answered and analyzed using mean. Three null hypotheses were tested using the t-test statistics at 0.05 level of significance. The findings of the study revealed that group problem-solving, team-based learning, peer-to-peer learning, inquiry-based learning, project-based learning, web-based learning, research-based learning and interdisciplinary learning communities enhance skills-based quality education in the 21st century. The study recommended best ways of using collaborative teaching and learning practices to motivate students to acquire both academic contents and relevant skills needed for their career success in this 21st century.

Keywords: Collaborative Teaching and Learning, Quality Education, 21st Century Skills.

Introduction

In recent years, educational institutions in Nigeria are placing emphasis on effective instructional delivery that can bridge the gap between the learning experiences acquired by students in the school and the life career skills required to function successfully in this era. This is because desired learning outcomes in this 21st century are no

longer limited to examination scores and

certification but include acquisition of viable interdisciplinary career skills. Also, Nigeria labour market seeks graduates who possess the ability to combine modern work specific skills with effective communication, collaboration, problem-solving, critical and creative thinking skills. The major concern is how to meet the challenges of delivering both the curriculum contents and these skills in away that students genuinely acquire them. Thus, this study is very important to bridge

the skills gap by providing inclusive ways of imparting the needed academic and viable skills required for career success via collaborative teaching and learning practices to achieve 21 century skills-based quality education in Nigeria.

Mere outlining necessary skills in the school curriculum may not result in students acquiring them without concerted efforts to adopt innovative teaching and learning practices. Government and industries are calling on educational institutions to find lasting solution to the mismatch between skills demand and supply in Nigerian system of education because many Nigerian higher institutions still graduate students who could not fit into current world of work, and find it difficult to solve complex problems or think creatively to be successfully self-employed. Veletsianos and Navarrete (2012) recommended collaborative online learning community for schools to enhance quality instructional delivery and interdisciplinary skill. Also, Dawn (2017) suggested collaborative teaching and learning strategies to enrich students' experiences and expose them to viable social, interpersonal and interdisciplinary skills through active interaction, participation and deliberation.

Collaborative teaching and learning is an umbrella term for a variety of approaches involving joint intellectual efforts by students and teachers together. Usually, students work in groups of two or more to learn through social interaction and collaboration. According to Rosella (2016), collaborative teaching and learning refers to an instructional method that allows teachers and students work together to create and sustain a learning environment that allows students to investigate problems, provide explanations and generate ideas. Kelly (2017) described collaborative teaching and learning as an approach which enables students relate together in an unbiased way to share ideas and find solution to a given task. In the process, the teacher suggests the steps in

completing a task so that learners can focus on achieving the learning objectives rather than surfing aimlessly (Smith, 2018).

As teachers look for ways to meaningfully engage students for better learning outcomes in order to foster skills-based quality education, Hershey (2012) opined that collaborative instructional delivery is a viable option to make active deliberation and create participatory role among students. This is because teachers are expected to apply instructional delivery methods that help students to collaborate and develop their creative thinking, problem-solving, communication and leadership skills in line with modern workplace skills. Collaborative teaching and learning enables teachers to share their expertise, and once students understand the expected instructional behaviour, they will be prepared to excel in their roles; and in the process develop their creative thinking and problem-solving skills through collective brainstorming efforts (Rosella, 2016 & Miriam, 2018).

Skills-based quality education is not a new concept. It refers to emphasis on acquisition of viable interdisciplinary career skills in addition to academic subject matter required for students to be more successful in this 21st century. In this study, it is used to bridge the gap between skills and literacy acquired in schools and skills required in the real life experience based on learning system or instructional delivery that constantly engage students in problem-solving, creative thinking and innovation to improve learning outcomes. Paige (2009) explained that 21st century skills movement emphasizes interdisciplinary skills needed in real life experience in order to add values to the quality education acquired by students. Thus, using best collaborative teaching and learning practices to impart relevant

skills and knowledge during curriculum implementation is a key factor towards achieving skills-based quality education in Nigeria.

Statement of the Problem

The mismatch between the skills required in the labour market and skills acquired by students in the school has become a serious concern because of the rising unemployment rate in Nigeria. The Nigeria's National Bureau of Statistics (NBS) reported that unemployment rate was 18.8% in the last quarter of 2017, up from 14.2% in 2016 to decry many institution graduates lack of required skills to work with modern facilities, and find it difficult to solve complex problems or think creatively to be successfully self-employed (National Bureau of Statistics, 2017). This calls for innovative ways of imparting modern work-specific and interdisciplinary skills because students need to acquire generic skills for career success in addition the school subjects to improve the quality of Nigerian system of education in this 21st century. The major challenge is how to deliver both the academic contents and the required functional skills for career success in an inclusive way for students to genuinely acquire them. Thus, the concern of this study is to address the challenges of delivering curriculum contents and interdisciplinary skills needs of students via collaborative teaching and learning practices to achieve 21st skills-based quality education in Nigeria for better learning outcomes.

Purpose of the Study

The main purpose of this study is to determine collaborative teaching and learning practices for achieving 21st century skills-based quality education. Specifically, the study sought to determine:

1. collaborative teaching and learning practices for achieving 21st century skills-based quality education;
2. best ways of using collaborative teaching and learning practices to achieve 21st century skills-based quality education; and

3. benefits of using collaborative teaching and learning practices for achieving 21st century skills-based quality education.

Research Questions

The following research questions guided the study:

1. What are the collaborative teaching and learning practices for achieving 21st century skills-based quality education?
2. What are the best ways of using collaborative teaching and learning practices to achieve 21st century skills-based quality education?
3. What are the benefits of using collaborative teaching and learning practices for achieving 21st century skills-based quality education?

Research Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

H₀₁: There is no significant difference in the mean responses of lecturers and students on the collaborative teaching and learning practices for achieving 21st century skills-based quality education.

H₀₂: There is no significant difference in the mean responses of lecturers and students on the best ways of using collaborative teaching and learning practices to achieve 21st century skills-based quality education.

H₀₃: There is no significant difference in the mean responses of lecturers and students on the benefits of using collaborative teaching and learning practices for achieving 21st century skills-based quality education.

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The term collaboration is often used for joint efforts, roles and/or alliance between two or more people to achieve a set goal. Thus, collaborative teaching and learning requires group goals and students'

roles to be established in order to be effective for better learning outcomes. There are different kinds of collaborative teaching and learning methods or practices for achieving skills-based education. Effective collaborative teaching and learning practices for delivering quality education should among others focus on 21st century skills and interdisciplinary themes, knowledge and expertise; and engage students with the real world data, tools and needed skills they will encounter on the job or in life (Partnership for 21st Century Skills, 2006; Drew, 2013; Halah & Patrick, 2015). Veletsianos and Navarrete (2012) found out that collaborative web-based teaching and learning facilitates online learning environment and access to multiple perspectives on issues and make use of technologies for students in different locations to share vital information.

Group work is another form of collaborative learning. Barbara, Felder, Brent and Imad (2004) found out that making students work in groups harmonizes diversity of skills and encourages team spirit to achieve a common goal. For example, through group media project students can acquire new knowledge and skills in the course of designing and producing a multimedia product. Another method is collaborative research-based learning. Collaborative research-based learning promotes information-seeking skills and use of technologies to access and process relevant information that help students find solution to a given problem (Halah & Patrick, 2015). Students become informed about a topic of inquiry, collaborate to search for solution and sometimes publish findings for others to use. Lombard (2007) suggested use of problem-solving to promote authentic learning and critical thinking skills to help students overcome challenges they may face in the real world.

Another way to enhance skills-based quality education is through cooperative learning communities.

Cooperative learning strategy divides students into different learning communities with diverse abilities or talents, and uses joint contributions of every member to achieve distinctive results (Miriam, 2018). Barbara et al (2004) reported that peer-to-peer collaboration approach allows students to collaborate with colleagues to enhance students' capacities in problem solving under the supervision of their teachers. This may involve students teaching one another, and sometimes, teacher to students relating as colleagues. Collaborative teaching and learning makes knowledge and skills to be constructed by students in their own preferred learning styles, and contribute to each other success through collaboration (Rosella, 2016 & MAiriam, 2018). Rotherham and Willingham (2009) observed that the challenge of implementing 21st century skills is using appropriate instructional methods to equip students with multi-tasking skills to solve complex challenges.

Some of the desirable skills according to include critical thinking and problem solving skills; information and communication technology (ICT) skills; creativity and innovation skills; adaptability, collaboration and leadership skills; social, interpersonal and diversity skills (Trilling & Fadel, 2009). Critical thinking skill equips students with ability to analyze, interpret, evaluate, summarize, synthesize information and think outside of the box to initiate smart solutions to complex problems (Partnership for 21st Century Skills, 2006 & Paige, 2009). Social interaction is unavoidable, thus, students are expected to develop interpersonal skills, high sense of social responsibility, adaptability and leadership skills with others for success. Previous researchers focused on specific aspects while this study combines different collaborative teaching and learning practices, and best ways of using them in an inclusive way for both academic and

skills needs of students in order to achieve 21s century skills-based quality education. Methodology

A descriptive survey research design was adopted for the study in line with the submission of Ezech (2011)that it is suitable for collection of public opinions on a phenomenon. The study was carried out in Ondo State, South-West of Nigeria using the four major public tertiary education institutions in the state (AdekunleAjasin University, Akungba-Akoko;Federal University of Technology, Akure;Rufus Giwa Polytechnics,Owo: and Adeyemi College of Education. Ondo).The institutions have an estimated population of 45.000 students and lecturers.A purposive sampling technique was used to select 600 respondents (140 final year students and 10 lecturers from each institution). A structured questionnaire made up of 43 items developed from relevant literature was used as instrument for data collection. Each questionnaire item had 5-point rating scale: strongly agree, agree, disagree, strongly disagree and undecided with assigned numeric weights 5,4,3,2 and 1

Result

Research Question One: What are the collaborative teaching and learning Table 1

respectively to elicit responses from the respondents in line with the research questions.

The instrument was face validated by three experts and Cronbach Alpha technique was used to obtain areliability index of 0.83 from 20 copics administered outside the selected institutions. The researchers administered 600 copies of the questionnaire to the respondents and were duly collected representing 100% return rate.The data collected were analyzed using mean based on the combine responses of the lecturers and students to answer the research questions.The results of the combine mean responses on each questionnaire item were interpreted as follows: 4.50-5.00 strongly agree, 3.50-4.49 agree, 2.50-3.49 disagree, 1.50-2.49 strongly disagree and 0.50-1.49 undecided. Three hypotheses were tested at 0.05 level of significance using t-test. The 2-tail significant values and calculated values of the t-test result were obtained from the Statistical Package for Social Science (SPSS). Any hypothesis with the significant value above 0.05 probability level was not rejected otherwise, it was rejected.

practices for achieving 21s century skills-based quality education?

Mean,Standard Deviation and t-test Analysis on the Collaborative Teaching and Learning Practices for achieving 21st Century Skills-Based Quality Education

Practices	X	SD1	X:	SD:	Xc	t-cal	P-val	Rmk	Dec.
1. Group problem solving	4.84	69	4.73	74	4.79	916	453	SA	NS
2. Team-based teaching and learning	4.28	72	4.20	86	4.24	571	374	A	NS
3. Collaborative inquiry-based learning	4.58	.58	4.50	60	4.54	714	335	SA	NS
4. Collaborative discovery learning	4.80	68	4.72	79	4.76	479	409	SA	NS
5. Collaborative project-based learning	4.68	76	4.64	56	4.66	286	374	SA	NS
6. Collaborative web-based learning	4.87	44	4.81	52	4.84	857	264	SA	NS
7. Collaborative research-based learning	4.66	63	4.54	78	4.60	1.01	346	SA	NS

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8.	Peer-to-peer teaching and learning	3.99	91	3.88	82	3.94	647	410	A	NS
9.	Interdisciplinary learning communities	4.93	40	4.87	55	4.90	750	282	SA	NS
10.	Guided group discussion			4.65	69	4.56	81	4.61	692	367 SA
	NS									

Students,SD-Standard Deviation-Comhuned Mean,SA-Strongty Agree,A-Agre,cal-Calculat eat Value,P-ol-2-tail Significunt
Value.NS-Nor Significan

Data analysis in Table 1 show that items 1,3-7 and 9-10 with combine mean values ranging from 4.54 to 4.90 indicated strongly agree. Also, items 2 and 8 with combine mean values of 4.24 and 3.94 respectively indicated agree. This implies that the respondents agreed that all the collaborative teaching and learning practices in items 1-10 for achieving skills-based quality education. Table 1 also shows that all the items had p-values from .264 to .453 above the 0.05 level of

significance. Therefore, hypothesis one was upheld since no significant difference existed in the mean responses of the respondents on the collaborative teaching and learning practices for achieving skills-based quality education in this 21st century.

Research Question Two: What are the best ways of using collaborative teaching and learning practices to achieve 21st century skills-based quality education?

Table 2: Mean, Standard Deviation and t-test Analysis on the Best Ways of Using Collaborative Teaching and Learning Practices to achieve 21st Century Skills-Based Quality Education

S/N Best Ways of Using Collaborative

Teaching and Learning Practices Dec.	81	SD1	SD2	Xc	t-cal	P-val	Rmk
1. Establish group goal(s) to achieve	4.95	.49	4.83	.75	4.89	1.20	.124 SA NS
2. Keep sizeable group for effectiveness	4.65	.82	4.54	.86	4.60	.733	.387 SA NS
3. Create individual and group roles	4.89	.60	4.81	.72	4.85	.684	.342 SA NS
4. Establish flexible group norms	4.80	.63	4.74	.78	4.77	.484	.316 SA NS
5. Establish procedure for group interactions to avoid distractions	4.66	.76	4.52	.89	4.59	1.05	.148 SA NS
6. Consider diversity, gender balance and individual intellect or talents	4.97	.41	4.89	.82	4.92	.889	.299 SA NS
7. Handle emotional and interpersonal criticism carefully	4.79	.96	4.65	.79	4.72	.773	.425 SA NS
8. Consider technologies that can make learning and collaboration very easy	4.97	.32	4.88	.60	4.93	1.32	.260 SA NS
9. Discourage inferiority feelings as each student performs assigned roles	4.79	.78	4.71	.85	4.75	.533	.387 SA NS
10. Build confidence and promote open communication amongst students	4.90	.69	4.96	.38	4.93	-.469	.357 SA NS
11. Engage students to discuss and solve real-world problems	4.98	.26	4.90	.67	4.94	1.17	.162 SA NS
12. Include different types of learning scenarios							

	nd strategies	4.61	.89	4.47	.96	4.54	.823	.416	SA	NS
13.	Focus on enhancing creative thinking and problem-solving skills	4.93	.54	4.81	.86	4.87	1.09	.134	SA	NS
14.	Give opportunities for all the students to give feedback	4.61	.92	4.52	.88	4.56	.511	.419	SA	NS
15.	Carefully handle individual differences									
	Assess the progress of individual student and group performances	4.80	.87	4.68	.94	4.74	.750	.411	SA	NS
16.	Re-explain areas of gaps in knowledge and needed skills after assessment	4.89	.85	4.71	.97	4.80	1.13	.127	SA	NS
17.		4.98	.24	4.89	.71	4.94				S

4.98 .24 4.89

Keys:X1=Lecturers,X2=Students,SD=Standard Deviaon,Xc=CombineCombined Mean,SA= Strongly Agree,A

=Agree,t-cal=Calculated

P-val=2-tail Sil Significant Value,

Not Significant.

SA=Strongly

Significant.

NS=Not Significant.NS = Not

Data analysis in Table 2 show that all the items had combine mean values ranging from 4.54 to 4.94. This implies that all the respondents strongly agreed on the best practice collaborative teaching and learning tips in items 1-17 to achieve skills-based quality education. The table also showed that all the items had p-values from .264 to .435 above the 0.05 level of significance. Therefore, hypothesis two was upheld since no significant difference existed in the mean responses of the respondents on the best ways of using collaborative teaching and learning

practices to achieve skills-based quality education in this 21st century.

Research Question Three: What are the benefits of using collaborative teaching and learning practices for achieving 21st century skills-based quality education?

Table 3: Mean, Standard Deviation and t-test Analysis on the Benefits of Using Collaborative Teaching and Learning Practices for achieving 21st Century Skills-Based Quality Education

S/N Benefits of Using Collaborative Teaching and										
	Learning Practices	8	SD	82	SD2	8c	t-cal	P-val	Rmk	Dec.
1.	Promote open communication skill		4.89	67	4.81	70	4.85	1.20	124	SA NS
2.	Foster curiosity, tolerance and team spirit engagement		4.71	.87	4.67	84	4.69	.733	387	SA NS
3.	Enhance active participation and flexible learning									
	Develop social and interpersonal skills		4.78	.65	4.92	61	4.85	.684	342	SA NS
4.	Harmonize students talents and enhance diversity									
	skill		4.96	45	4.94	49	4.95	.484	316	SA NS
5.	Enable students to construct their own knowledge									
	for creative thinking skill		4.91	83	4.83	91	4.87	1.05	148	SA NS
6.	Enhance inclusive interactive learning environment									
	for students to perform		4.95	33	4.89	69	4.92	.889	299	SA NS
7.	Reduce learning anxiety by giving students									
	opportunity to collaborate		4.62	89	4.48	97	4.55	.773	425	SA NS
8.	Expose students to leadership skill as each student									
	performs assigned roles		4.94	46	4.82	75	4.88	1.32	260	SA NS

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9.	Enhance cooperation and positive heteroge	ncous									
	relationship		4.69	80	4.55	60	4.62	533	387	SA	NS
10.	Reduce inferiority and phobia										
	Build self-esteem,confidence and sens	e of	4.88	.77	4.76	88	4.82	801	257	SA	NS
11.	responsibility in students		4.85	.61	4.69	97	4.77	1.26	355	SA	NS
12.	Enhance different learning	scenarios									
	instructional strategies	and	4.95	46	4.84	.77	4.90	1.15	309	SA	NS
13.	Make students engage actively in problem solv	ing									
			4.71	84	4.57	88	4.64	.875	402	SA	NS
14.	Promote learning communities and interdisci	plinary									
	skills		4.93	52	4.81	66	4.87	1.17	320	SA	NS
15.	Foster networking,knowledge-sharing and o	nline									
	ICT skill		4.68	59	4.54	97	4.61	1.14	349	SA	NS
16.			4.87	64	4.71	75	4.79	1.28	271	SA	NS

Data analysis in Table 3 show that all the items had combine mean values ranging from 4.55 to 4.95. This implies that all the respondents strongly agreed on the benefits of using collaborative teaching and learning practices in items 1-16 for skills-based quality education. Table 3 also shows that all the 16 items had p-values ranging from .124 to .425 above the 0.05 level of significance. Therefore, hypothesis three was upheld since no significant difference existed in the mean responses of the respondents on the benefits of using collaborative teaching and learning practices for achieving skills-based quality education in this 21 century.

Discussion of the Findings

The findings on research question one revealed that group problem solving, team-based teaching and learning, peer-to-peer teaching and learning, guided group discussion, collaborative inquiry-based learning, discovery learning, project-based learning, web-based learning, research-based learning and interdisciplinary learning communities can be used to enhance skills-based quality education in this 21st century. The findings are similar to the submission of Drew (2013) that there is a significant correlation between problem-solving activities and the critical thinking skills. Similarly, the findings of this study give credence to the reports of Herrington and Kervin (2007) and Dunlosky (2013) that students who work together as a team usually solve problems and create meaningful projects better than those who do not. Also, these findings are in line with the report of Barbara, et al (2004) that students taught in a manner that incorporates small group learning achieve higher grades, learn at a deeper level, retain information longer, and acquire greater communication and teamwork skills. The result of null hypothesis one was not rejected because significant difference did not exist in the mean responses of the respondents. This confirms that the respondents had similar

views to establish that collaborative teaching and learning enhances skills-based quality education in this 21st century.

The findings on research question two revealed that the best ways of using collaborative teaching and learning practices to achieve skills-based quality education include: establish group goal(s) to achieve, procedure for interactions to avoid distractions, flexible group norms, individual and group roles; consider diversity, gender balance, individual talents and differences, sizeable group and technologies to make learning and collaboration effective; discourage inferiority, emotional and interpersonal criticism to build confidence and promote open communication. Others are involving students in real-world problems, different types of learning scenarios and strategies, creative thinking and problem-solving skills, assessments and feedback to monitor their progress; re-explain areas of gaps in knowledge and needed skills after assessments. The findings are similar to the submission of Ebner, Leichardt, Rohs and Meyer (2010) and Hershey (2012) that collaborative instructional delivery makes active deliberation, participation and team spirit across students possible. These findings give more credence to the recent studies of Dawn (2017) and Miriam (2018) that collaborative learning strategies promote inclusive learning environment where learners can freely exchange information, ideas and experiences for interactive, informative and educational purposes. Similarly, the result of null hypothesis two was not rejected because significant difference did not exist in the mean responses of the respondents. This confirms that the respondents had similar views to justify that use of collaborative teaching and learning practices in this study are indispensable to achieving skills-based quality education in this 21st century.

The findings on research question three revealed the following benefits of

using collaborative teaching and learning practices: open communication skill, social and interpersonal skills; positive heterogeneous relationship, cooperation, team spirit engagement and diversity skill: creative thinking, innovation, problem solving and leadership skills; ICT skill through online knowledge-sharing; active participation, self-esteem, trust and sense of responsibility in students; reduce inferiority feelings, enhance inclusive and flexible learning environment. The findings are in line with the submission of Halah and Patrick (2015), Rosella (2016) and Kelly (2017) that collaborative learning promotes implementation of 21 century curriculum standards, social and interdisciplinary skills movement. Also, they are in line with the report of Trilling and Fadel (2009) that 21st century learning systems constantly engage students in critical thinking, communication, collaboration and problem solving to improve learning outcomes. These findings further collaborate with the studies Lombardi (2007) Drew (2013) and Smith (2018) that collaborative learning prepares students with authentic experience, creative and innovation skills needed in real life experience. The result of null hypothesis three was not rejected because significant difference did not exist in the mean responses of the respondents. This confirms that the respondents had similar views on the benefits of using collaborative teaching and learning practices for achieving skills-based quality education in 21 century.

Conclusion

This study emphasized skills-based quality education to bridge the gap in the skills needs of students so that learning experiences acquired in the school are in line with the demands of 21st century work place skills. In order to enhance instructional delivery of both academic contents and relevant skills in an inclusive way, the study therefore identified collaborative teaching and learning practices and best ways of using them to

achieve 21st century skills-based quality education. It was upheld that collaborative teaching and learning helps students to develop their communication skill, social and diversity skills, team spirit engagement and leadership skills, creative thinking and problem solving skills, online knowledge-sharing and information seeking skills through active collaboration between students to students and teacher(s) to students.

Recommendations

Based on the findings, the study recommended that:

1. Lecturers/teachers should engage students in collaborative group problem-solving, team-based learning, peer-to-peer learning, guided group discussion, inquiry-based learning, project-based learning, web-based learning, research-based learning and interdisciplinary learning to enhance skills-based quality education in the 21 century.
2. Lecturers/teachers should carefully adopt best ways of using collaborative teaching and learning practices identified in this study so that students can acquire both academic contents and relevant skills to achieve skills-based quality education.
3. Students should be well motivated to take advantages of the benefits of collaborative teaching and learning practices to develop their social and diversity skills, team spirit engagement and leadership skills, creative thinking and problem solving skills, online knowledge-sharing and information seeking skills.

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