

## USAGE OF PROBLEM-SOLVING AND COLLABORATION SKILLS IN THE CONTEMPORARY TEACHING-LEARNING PROCESSES IN PUBLIC TERTIARY INSTITUTIONS IN RIVERS STATE

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### Abstract

*The study is on the appraisal of the adoption of the 21<sup>st</sup> century skills in contemporary teaching-learning processes in public tertiary institutions in Rivers State. Descriptive survey research design was adopted. Population of the study was 10,083 made up of 3,712 lecturers and 6,371 post graduates. Taro Yamane formula was applied to arrive at a benchmark sample size of 385 which was increased to 700 for more acceptable generalization. Instrument for data collection was a questionnaire titled "Adoption of the Twenty-first Century Skills. In Contemporary Teaching-Learning Processes Questionnaire (ATCSCTLPO)" structured on a modified 4-point Likert type scale of very high extent (VHE), high extent (HE), low extent (LE) and very low extent (VLE) weighted 4, 3, 2 and 1. Criterion mean was 2.5 while the criteria for the decision were as follows: 0.01-1.25 (VLE), 1.26-2.49 (LE), 2.50-3.74 (HE) and 3.75-5.00 (VHE). Pearson's Product Moment Correlation Co-efficient Formula was adopted to establish the reliability index of (r) 0.84. Mean and standard deviation were used in answering the research questions while t-test was adopted in testing the null hypotheses at 0.05 level of significance. The findings of the study revealed that 21<sup>st</sup> Century problem-solving skills are adopted and it enable both lecturers and postgraduates to increase their quest for further research in contemporary teaching-learning process. It was also found that problem-solving skills enhances team work and creativity among lecturers and postgraduates. Furthermore, collaboration's skills adopted and it enhances self-confidence, positive social relationship skills, active participation and development of positive communication skills. It is however recommended among other things that government at all levels should endeavor to provide adequate infrastructural facilities, procure 21<sup>st</sup> century technological tools and provide an enabling teaching and learning environment.*

**Keywords:** Problem-Solving, Collaboration, Skills, Contemporary Teaching-Learning Processes, Public Tertiary Institutions

### Introduction

The identification and implementation of 21<sup>st</sup> century skills into the educational system and the workplaces began in the United States of America but later spread to Canada (21<sup>st</sup> Century Alliance in Pacific Policy Research Centre, 2010), United Kingdom and New Zealand (New Zealand Council for Educational Research) and through national and international organizations. In 1981, the United States Secretary of Education created the National Commission on Excellence in Education to examine the quality of education in the United States of America (Nation at Risk in Pacific Policy Research Centre, 2010). After a careful survey that lasted for two years, the Commission presented a report titled "A Nation at Risk" and opted for an educational reform in 1983 whose focus should be on creating a learning society. The report recommended that, there should be an overhauling of the school system by incorporating: instructional content, skills, abilities, communication proficiency, cultural, social and environmental understanding and implications, diverse learning across all disciplines and inclusion of technology. In order to respond to technological, demographic

and socio-economic changes, educational system began to make the shift towards providing their students with a range of skills that relied not only on cognitive but also on the inter-dependencies of cognitive, social and emotional characteristics (Erik & Andrew in Pacific Policy Research Centre, 2010).

The United States Secretary of Labour Commission on Advancing Necessary Skills (SCAN), a national coalition called the Partnership for 21<sup>st</sup> Century Skills (P21), the International Organization for Economic Co-operation and Development (OECD), the American Association of College and Universities, researchers at Media & Information Technology (MIT) and other institutions of higher learning and Organizations at a conference board survey in 2006, discovered that top skill set demanded by the United States five hundred (500) companies have shifted from the traditional four (4) Rs – Reading, wRiting, Religion and aRithmetic to teamwork, problem-solving and inter-personal skills (Cassel & Kolstad, 1998). Furthermore, over three hundred (300) employees revealed that, in addition to the 4 Rs which they still regarded as foundational to new work force entrants, they still need applied skills like critical thinking and competencies, collaboration/teamwork and communication skills, thus they suggested an urgent intervention in pedagogy and educational policy. By December 2018, it was recorded that forty-five (45) out of the fifty (50) States in America had completely adopted the common core Standards of education. The 21<sup>st</sup> century skills refer to the skills that must be developed in schools in order for students to thrive and succeed in the future. Such as critical thinking and problem-solving skills, collaboration and teamwork, communication and media literacy, creativity and innovation, digital literacy and technology skills (Pinkerton, 2023).

The 21<sup>st</sup> century critical thinking and problem-solving skills are essential for students to succeed in today's society. These skills involve analyzing information, evaluating arguments and developing creative solutions to complex problems (Pinkerton, 2023). By developing these skills students are better equipped to navigate the rapidly changing world and make informed decisions in both their personal and professional lives. Collaboration and teamwork are essential 21<sup>st</sup> century skills for students. Students who learn how to work well with others will be better equipped to handle complex challenges and succeed in the workplace. According to Pinkerton (2023), teamwork can help students develop communication skills, leadership abilities and a sense of empathy for others. By collaborating with others, students can learn how to listen to different perspectives, compromise and come up with creative solutions to problems. The 21<sup>st</sup> century skills refer to certain core competencies such as collaboration, digital literacy, critical thinking and problem- solving that advocates the believe that schools need to teach, in order to assist and enable students navigate easily in today's world (Education Week, 2010).

In addition, twenty-first century skills refers to twelve unique skills, abilities and learning dispositions which have been systematically identified as basic requirements for success in the 21<sup>st</sup> century society and workplace by a team of educators, business leaders, academicians and governmental agencies (Dede, 2009). Simply put, 21<sup>st</sup> century skills encompasses twelve distinct skills, abilities and competencies that today's students are in dire need of, in order to succeed with ease in their careers in this information era (Stauffer, 2022). In connection with critical thinking skill, problem- solving skill entails the ability of learners to reason effectively by asking pointed questions that will enable them solve problems after analyzing and evaluating different points of views, utilizing systems thinking. When employers talk about problem-solving skill, they are referring to the ability to handle difficult or unexpected situations in the workplace. Problem solving

skills are traits that enables an individual to tactically handle complex challenges in an organization by calmly identifying solutions to the problem on ground. Individuals who exhibit this trait are highly valued in the organization and other areas of life. Some related keys to problem solving skills are analysis, research, creativity, communication, decision- making and team- building. He further stated that problem solving skills are the ability to identify problems, brainstorm and analyze answers and implement the best solutions (Kaplan, 2023).

Collaboration skill entails that individuals are able to effectively and responsibly work together with other persons in a group in order to achieve a definite goal. Collaboration/ collaborative skill, according to Grilles in (Jibola & Adebayo 2019), is a skill that enable individuals to help each other in a direction of a common goal by increasing self- confidence, communication skills and active participation, be it in a classroom setting or a workplace. (Nilufu in Jibola & Adebayo, 2019), further asserted that collaboration within the classroom enable teachers to encourage learners' self- initiative and confidence as well as create ample opportunities for them to develop communication skills, such as language, interaction, empathetic skills and social skills as this could also be a strategy that would help teachers to achieve laudable results in their pedagogical management. In other words, collaboration skill in the 21<sup>st</sup> century promotes learners' ability to think positively, productively, creatively and open to change.

Collaboration skills are competencies required when working with other team members on a joint objective. Examples include communication, open mindedness and conflict resolution; these skills are essential to work successfully with others, get more goals accomplished, move up the corporate ladder and achieve better outcomes (He, 2021). Collaboration in the workplace occurs when employees in a department work together to accomplish a plan that will be of immense benefit to the entire department or organization at large. Working well with others either as a student or a worker may boost ones enthusiasm and commitment. Similarly, working as a team is a common practice in the 21<sup>st</sup> century, so having this skill set is very crucial. These abilities include acknowledging varying perspectives, balancing competing demands and being a dependable team player. Also working together as a team toward a similar objective is much faster when one is able to articulate one's thoughts and feelings clearly, listening attentively, owing up to grievances and appreciating the unique perspectives of other team players.

Developing collaboration skills effectively is not an instant deal, this skill should be constantly improved upon and one approach is to take advantage of available resources. Getting every employee on board with new plans and objectives is best. This step will help you foster a culture where workers are more invested in their work, more open to new ideas and more capable of collaboration to expand the organization.

### **Statement of the Problem**

Nigeria and indeed globally, there is a new evolution taking place in all sector of a nation's economy, the educational sector inclusive. That evolution is an accelerating pace of change from the primitive or traditional ways of doing things to a globally acceptable standard of doing things. In order to remain relevant globally and since the countries of the world have been streamlined to a "global village", there is the need to critically examine this influx of change, adopt and adapt to it in order to become a major key player in the contemporary world.

The 21<sup>st</sup> century society is a knowledge- based society fully enriched with innovative ventures where education is technologically oriented and launches both individuals and nations into global competitiveness. Education in the past three decades focused more on building basic literacy, numeracy and capabilities for graduating students to barely survive and be productive in the workforce. There is “ a new normal” as education and the workforce have sharply shifted from the traditional mode and methods of the past decades to a more complex and innovative ways of either imparting knowledge, values, attitudes, skills and competencies to students or ways of carrying out job descriptions in the workplace.

Simply put, the 21<sup>st</sup> century workforce and work place success requires more than basic knowledge and skills. It emphasizes real world application of knowledge and skills and the development of critical thinking, communication in a variety of media and collaboration, while the 21<sup>st</sup> century approach to knowledge is laden with creativity and re-orientation of the mindset of both students and teachers. This paradigm shift has created a great discrepancy or disparity between the knowledge content in schools and the realities in the workplace, hence the need to fully incorporate the 21<sup>st</sup> century skills in our educational system in order to steer students towards meeting the demands of the changing workforce. According to the Partnership framework for 21<sup>st</sup> century (P21), these skills have been categorized into three main areas namely: learning and innovative skills, digital literacy skills, career and life skills. Based on the above disparity between the knowledge content received by the students and the realities in the workplace, where the product of the school system is expected to contribute their quota to national development, therefore, there is a need to painstakingly bridge the gap between the town and gown.

### **Aims and Objectives**

The aim of the study is to examine the usage of problem-solving skills and collaboration skills in the contemporary teaching-learning processes in public tertiary institutions in Rivers State. Specifically, the objectives of this study are to:

- i. Find out the usage of problem-solving skills are used in contemporary teaching-learning processes in public tertiary institutions in Rivers State.
- ii. Ascertain the usage of collaboration skills in the contemporary teaching-learning processes in public tertiary institutions in Rivers State.

### **Research Questions**

Based on the aim and objectives of the study, the following research questions were raised to guide the study.

- i. To what extent are the problem-solving skills used in contemporary teaching-learning processes in public tertiary institutions in Rivers State?
- ii. To what extent are collaboration skills used in contemporary teaching-learning processes in public tertiary institutions in Rivers State?

### **Hypotheses**

Based on the research questions, the following null hypotheses testable at 0.05 level of significance were formulated to guide the study.

**H<sub>01</sub>:** There is no significant difference between the usage of problem-solving skills and the contemporary teaching-learning processes in public tertiary institutions in Rivers State.

**H<sub>02</sub>:** There is no significant difference between the usage of collaboration skills and the contemporary teaching- learning processes in public tertiary institutions in Rivers State.

### Methodology

The basic design for this study was the descriptive survey design which enabled the researcher to effectively collect information from the respondents about the problem of the study. According to Osaat (2009), the descriptive survey design involves the gathering of facts about an investigative situation, state or event and describing in a systematic manner the characteristics of a given population. The area of study is Rivers State. Rivers State is one of the Thirty-Six States of Nigeria. Its capital and largest city, Port Harcourt is economically and educational significant to the development of Nigeria. It is a state that most Nigerian youths long to stay because the state houses strategic tertiary institutions.

The population of the study consist of all lecturers and postgraduates in all the seven public tertiary institutions in Rivers State. The total number of lecturers are three thousand seven hundred and twelve (3,712) while postgraduates are six thousand three hundred and seventy-two (6,372) making it a total number of ten thousand and eighty three (10,083).

The sample size for the study is seven (700) hundred persons. Taro Yamane's sampling formula was applied which gave three hundred and eighty-five (385). Since the product of Taro Yamane sampling formula is the minimum benchmark, the researcher therefore, increased the sample size to seven hundred (700) persons. Having decided the sample size, stratified sampling technique was applied and afterwards, simple random sampling technique was also applied. Later, the sample from each stratum were added together to arrive at the aforementioned sample size of 700. The instrument for data collection was a questionnaire designed by the researcher with the title Adoption of the Twenty-first Century Skills in Contemporary Teaching-Learning Processes Questionnaire (ATCSCTLPQ). The questionnaire consisted of two sections: 'A' and 'B'. Section 'A' contained information on the bio-data of the respondents. Section 'B' contained question items based on the problem of study and research questions. The instrument adopted the modified 4- point Likert scale of: Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE).

The face and content validities of the instrument were established by two experts in the field of Measurement and Evaluation who read through and made necessary corrections and comments. Their corrections and comments were incorporated into the work. To ascertain the reliability of the instrument, test re-test method was adopted. The researcher administered the questionnaire to a group of twenty (20) respondents outside the sample size of the study. After two weeks, the questionnaire was re-administered to the same respondents, Thereafter, the pre-test and post- test scores were correlated using Pearson's Product Moment Correlation Coefficient Formula (Raw Score Method) to calculate the reliability index which was obtained at (r) 0.84. This result confirmed that the instrument was reliable for the study. The researcher adopted direct method to administer the questionnaire with three trained research assistants. This was aimed at ensuring high return rate and accuracy of the instruments by the respondents. Thereafter, the retrieved questionnaire which was six hundred and sixty-eight (668) made up of one hundred and twenty-seven (127) lecturers and five hundred and forty-one (541) postgraduates were statistically analyzed using mean and standard deviation.

Mean and standard deviation were used to answer the research questions. The criterion mean 2.5 was used to take decision about the research questions and the decision taken determined the extent of the rating item. The criteria for the decision was as follows: 0.01-1.24 (VLE), 1.25-2.49 (LE), 2.50-3.74 (HE) and 3.75-5.00 (VHE) respectively. The hypotheses were tested using t-test. A t-test is a statistical analysis/test that is used to compare the means of two groups. Also, it is often used in hypothesis testing to determine whether a process or treatment actually has an effect on the population of interest or whether two groups are different from one another (Bevans, 2020).

**Research Question One:** To what extent are the problem-solving skills used in contemporary teaching-learning processes in public tertiary institutions in Rivers State?

**Table 1: Mean Ratings and Standard Deviation of Lecturers and Post Graduates Responses on the problem-solving skills used in contemporary teaching-learning processes in public tertiary institutions in Rivers State.**

| S/N | Decision Items                                                                                                                                                                  | Lecturers    |             | Post Graduates |             | Weighted    |             |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------|----------------|-------------|-------------|-------------|
|     |                                                                                                                                                                                 | (N=127)      |             | (N=541)        |             | Mean        |             |
|     |                                                                                                                                                                                 | Mean (X)     | SD          | Mean (X)       | SD          |             |             |
| 1.  | The usage of problem-solving skills enable both lecturers and learners to increase their quest for further research in contemporary teaching-learning processes.                | 3.09         | 1.76        | 3.07           | 1.75        | 3.08        | High Extent |
| 2.  | The usage of problem-solving skills in contemporary teaching-learning processes increases learners' ability to handle academic challenges analytically in their field of study. | 3.11         | 1.76        | 2.45           | 1.56        | 2.78        | High Extent |
| 3.  | The usage of problem-solving skills enhances team work and creativity among lecturers and learners in contemporary teaching-learning processes.                                 | 2.84         | 1.67        | 2.89           | 1.70        | 2.87        | High Extent |
| 4.  | using problem-solving skills by lecturers and learners enhance their communication skills in contemporary teaching - learning processes.                                        | 2.80         | 1.67        | 2.84           | 1.69        | 2.82        | High Extent |
|     | <b>Cluster Total</b>                                                                                                                                                            | <b>11.84</b> | <b>6.86</b> | <b>11.25</b>   | <b>6.70</b> | <b>11.5</b> |             |
|     | <b>Cluster Mean</b>                                                                                                                                                             | <b>2.96</b>  | <b>1.72</b> | <b>2.81</b>    | <b>1.68</b> | <b>2.89</b> |             |

From Table 1 above, lecturers and post graduates responded to the fact that 21<sup>st</sup> century problem-solving skill increases the quest for further research during the contemporary teaching-learning processes. This is supported by the weighted mean score of 3.08. Again, lecturers and post graduates attested to the fact that 21<sup>st</sup> century problem-solving skills increases learners ability to handle academic challenges analytically in their field of study. This is supported by the weighted mean score of 2.78. Also, lecturers and post graduates attested to the fact that 21<sup>st</sup> century problem-solving skills

enhance team-work and creativity during the contemporary teaching-learning processes. This is supported by the weighted mean score of 2.87. Finally, lecturers and post graduates tested to the fact that adopting 21<sup>st</sup> century problem-solving skills enhances their communication skills in contemporary teaching-learning processes. This is supported by the weighted mean score of 2.82. Since the weighted cluster mean of 2.89 is above the criterion mean of 2.50, we therefore conclude that 21<sup>st</sup> century problem-solving skills are adopted in contemporary teaching-learning processes in public tertiary institutions in Rivers State.

**Research Question Two:** To what extent are the collaboration skills used in contemporary teaching-learning processes in public tertiary institutions in Rivers State?

**Table 2: Mean Ratings and Standard Deviation of Lectures and Post Graduates Responses on the collaboration skills used in contemporary teaching-learning processes in public tertiary institutions in Rivers State.**

| S/N | Weighted<br>Items                                                                                                                                                                                                                    | Decision | Lecturers    |             | Post Graduates |             | Mean         |             |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|-------------|----------------|-------------|--------------|-------------|
|     |                                                                                                                                                                                                                                      |          | (N= 127)     |             | (N= 541)       |             |              |             |
|     |                                                                                                                                                                                                                                      |          | Mean (X)     | SD          | Mean (X)       | SD          |              |             |
| 1.  | The usage of collaboration skills by lecturers and learners enhances self-confidence, self-initiative and attainment of educational goals in contemporary teaching - learning processes.                                             |          | 2.91         | 1.70        | 2.55           | 1.60        | 2.73         | High Extent |
| 2.  | Collaborating with lecturers and learners in contemporary teaching - learning processes, enhances learners' positive social relationship skills thereby reducing or eliminating stress within and outside the learner's environment. |          | 2.98         | 1.73        | 2.74           | 1.66        | 2.86         | High Extent |
| 3.  | Collaborating with lecturers and learners in contemporary teaching- learning processes enhances active participation and development of positive communication skills.                                                               |          | 2.87         | 1.69        | 2.60           | 1.61        | 2.74         | High Extent |
| 4.  | The usage of collaboration skills by lecturers and leaners in contemporary teaching-learning processes has enhanced productivity, developed empathetic skills and enhanced lecturers pedagogical management..                        |          | 2.96         | 1.72        | 2.78           | 1.67        | 2.87         | High Extent |
|     | <b>Cluster Total</b>                                                                                                                                                                                                                 |          | <b>11.72</b> | <b>6.84</b> | <b>10.67</b>   | <b>6.54</b> | <b>11.20</b> |             |
|     | <b>Cluster Mean</b>                                                                                                                                                                                                                  |          | <b>2.93</b>  | <b>1.71</b> | <b>2.67</b>    | <b>1.64</b> | <b>2.80</b>  |             |

From Table 2 above, lecturers and post graduates attested to the fact that the adoption of 21<sup>st</sup> century collaboration skills in contemporary teaching-learning processes enhance self-confidence, self-initiative and attainment of educational goals. This is supported by the weighted mean score of 2.73. Again, lecturers and post graduates attested to the fact that adopting the 21<sup>st</sup> century collaboration skills in contemporary teaching-learning processes enhance learners positive social relationship skills thereby reducing or eliminating stress within and outside the learning environment. This is supported by the weighted mean score of 2.86. Moreover, lecturers and post graduates attested to the fact that the usage of the 21<sup>st</sup> century collaboration skills in contemporary teaching-learning

processes enhance active participation and development of positive communication skills. This is supported by the weighted mean score of 2.74. Finally, lecturers and post graduates responded to the fact that the usage of the 21<sup>st</sup> century collaboration skills by lecturers and learners in contemporary teaching-learning processes has enhanced productivity, developed empathetic skills and enhanced lecturer's pedagogical management. This is supported by the weighted mean score of 2.87. since the cluster weighted mean of 2.80 is greater than the criterion mean of 2.50, we therefore conclude that 21<sup>st</sup> century collaboration skills are used in contemporary teaching-learning processes in public tertiary institutions in Rivers State.

### Testing of Hypotheses

**Ho<sub>1</sub>:** There is no significant difference between the usage of 21<sup>st</sup> century problem-solving skills and the contemporary teaching-learning processes in public tertiary institutions in Rivers State.

**Table 3: t-test analysis on the difference between the usage of 21<sup>st</sup> century problem-solving skills and contemporary teaching-learning processes in public tertiary institutions in Rivers State.**

| <i>Respondents</i> | <i>N</i> | <i><math>\bar{X}</math></i> | <i>SD</i> | <i>Level of Sig.</i> | <i>Df</i> | <i>t-calculated</i> | <i>t-critical</i> | <i>Decision</i>        |
|--------------------|----------|-----------------------------|-----------|----------------------|-----------|---------------------|-------------------|------------------------|
| Lecturers          | 127      | 2.96                        | 1.72      | 0.05                 | 666       | 16                  | 2.120             | Significant            |
| Post-Graduates     | 541      | 2.281                       | 1.68      |                      |           |                     |                   | Reject Ho <sub>1</sub> |

Data in Table 3 showed that lecturers respondents (127 in number) had a mean rating of 2.96 and standard deviation of 1.72 while post graduate respondents (541 in number) had a mean rating of 2.81 and standard deviation of 1.68. These yielded a calculated t-value of 16 which is greater than the critical t-value of 2.120 at 666 degrees of freedom. The value was considered to be significant. Therefore, the null hypothesis was rejected. It was considered that there is a significant difference between the usage of 21<sup>st</sup> century problem-solving skills and the contemporary teaching-learning processes in public tertiary institutions in Rivers State.

**Ho<sub>2</sub>:** There is no significant difference between the usage of 21<sup>st</sup> century collaboration skills and the contemporary teaching-learning processes in public tertiary institutions in Rivers State.

**Table 4: t-test analysis on the difference between the usage of 21<sup>st</sup> century collaboration skills and the contemporary teaching-learning processes in public tertiary institutions in Rivers State.**

| <i>Respondents</i> | <i>N</i> | <i><math>\bar{X}</math></i> | <i>SD</i> | <i>Level of Sig.</i> | <i>Df</i> | <i>t-calculated</i> | <i>t-critical</i> | <i>Decision</i>        |
|--------------------|----------|-----------------------------|-----------|----------------------|-----------|---------------------|-------------------|------------------------|
| Lecturers          | 127      | 2.93                        | 1.71      | 0.05                 | 666       | 29                  | 2.045             | Significant            |
| Postgraduates      | 541      | 2.67                        | 1.64      |                      |           |                     |                   | Reject Ho <sub>2</sub> |

Data in Table 4 above showed that lecturers respondents (127 in number) had a mean rating of 2.93 and standard deviation of 1.71 while the postgraduates' respondents (541 in number) had a mean rating of 2.67 and standard deviation of 1.64. These yielded a calculated t-value of 29 which is greater than the critical t-value of 2.045 at 666 degrees of freedom. The value was considered to be significant. Therefore, the null hypothesis was rejected. It was then concluded that there is a significant difference between the usage of 21<sup>st</sup> century collaboration skills and the contemporary teaching-learning processes in public tertiary institutions in Rivers State.

## Discussion of Findings

The result of the study revealed that the usage of problem-solving skills enable lecturers and learners to increase their quest for further research in contemporary teaching-learning processes. This is supported by Pacific Policy Research Centre (2010) which asserted that 21<sup>st</sup> century education demands a culture of innovation powered by research, critical and creative thinking. These skills set, promotes creative thinking and the ability to actively work with others.

The study also revealed that the usage of 21<sup>st</sup> century problem-solving skills in contemporary teaching-learning processes increases learner's ability to handle academic challenges analytically in their field of study. This is supported by Kaplan (2023) who stated that problem-solving skills are the ability to identify problems, brainstorm and analyze answers and implement the best solutions. He further stated that some related keys to problem-solving skills are analysis, research, creativity, communication, decision-making and team-building. Similarly, Pinkerton (2023) supported this assertion by stating that project-based learning is one of the strategies for integrating 21<sup>st</sup> century skills which encourages students to regularly work on projects that require them to collaborate, think critically and communicate with one another. This allows students to develop their problem-solving skills.

The result of the study further revealed that the usage of 21<sup>st</sup> century problem-solving skills enhances team work and creativity among lecturers and learners in contemporary teaching-learning processes. This is corroborated by Kaplan (2023) who stated that some related keys to problem-solving skills are analysis, research, creativity, communication, decision-making and team-building. Also, Pinkerton (2023) supported this assertion by stating that team-work can help students develop communication skills, leadership abilities and a sense of empathy for others. By collaborating with others, students can learn how to listen to different perspectives, compromise and come up with creative solutions to problems.

Finally, the result of the study also revealed that using 21<sup>st</sup> century problem-solving skills by lecturers and learners enhance their communication skills in contemporary teaching-learning processes. This is supported by Pinkerton (2023) who stated that by developing these skills, students will be better equipped to navigate the digital world and communicate effectively with others.

The result of the study revealed that 21<sup>st</sup> century collaboration skill enhances self-confidence, self-initiative and attainment of educational goals thereby enhancing contemporary teaching-learning processes. This is supported by Grilles in Jibola & Adebayo (2019) who asserted that collaboration is a skill that enable individuals to help each other in a direction of a common goal by increasing self-confidence, communication skills and active participation, be it in a classroom or a workplace.

Also, the result of the study revealed that collaborating with lecturers and learners in contemporary teaching-learning processes enhances learner's positive social relationship skills thereby reducing or eliminating stress within and outside the learner's environment. This is supported by He (2023) who states that a collaborative workforce fosters knowledge exchange and constructive discussions because they contribute to a climate that enhances creativity and productivity.

The result of the study further revealed that collaborating with lecturers and learners in contemporary teaching-learning processes enhance active participation and development of positive communication skills. This is supported by He (2023) who opined that collaboration skills are competences required when working with other team members on a joint objective. He (2023)

further states that examples of collaboration skills include communication, open mindedness and conflict resolution; these skills are essential to work successfully with others, get more goals accomplished, move up the corporate ladder and achieve better outcomes.

Furthermore, the result of the study revealed that the adoption of collaboration skills by lecturers and learners in contemporary teaching-learning processes have enhanced productivity, developed empathetic skills and enhanced lecturers pedagogical management. This is supported by Nilufu in Jibola & Adebayo (2019) who stated that collaboration within the classroom enable teachers to encourage learners' self-initiative and confidence as well as create opportunities for them to develop communication skills such as language, interaction, empathetic skills and social skills as this could also be a strategy that would help teachers to achieve laudable results in their pedagogical management. Similarly, He (2023) asserted that a collaborative workforce foster knowledge exchange and constructive discussion as this contribute to a climate that enhances creativity and productivity which in turn boost earnings and profitability.

### Conclusion

Both 21<sup>st</sup> century problem-solving skills and collaboration skills are adopted in the contemporary teaching-learning processes in Rivers State schools.

The 21<sup>st</sup> century problem-solving skills increases the quest for further research. It increases one's ability to handle academic challenges analytically, create room for team-work and creativity.

The 21<sup>st</sup> century collaboration skill enhances self-confidence, self-initiative, attainment of educational goals, active participation, productivity, development of positive communication skills such as language, interaction, empathetic skills and social skills as this enhances lecturers pedagogical management. It promotes learners' ability to think positively, productively, creatively and open to change.

### Recommendations

The following recommendations are made based on the findings:

- i. Government at all levels should endeavour to provide adequate infrastructural facilities, procure 21<sup>st</sup> century technological tools and an enabling teaching and learning environment.
- ii. Government at all levels should stop paying lip service to the educational sector, they should borrow a new leaf from the Western nations who match their words with actions by fully adopting and implementing the 21<sup>st</sup> century skills in the educational sector. This will help in repositioning our educational sector for the better.
- iii. Stakeholders such as ministry of education, school administrators and policy makers should ensure a conducive environment for contemporary teaching-learning processes to thrive.
- iv. Teachers should rebrand and upgrade themselves intellectually for greater responsibility and service delivery.
- v. Learners should be highly focused, internalize and practice the 21<sup>st</sup> century skills in their daily lives.

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