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Roles of Simulation-Based Learning in Preparing Students for Technological Careers in Technical Colleges in Rivers State

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ABSTRACT
This paper designed to find how the role of simulation-based learning can be used in training students towards technological careers in Technical Colleges in River's State. Among the specific purpose of the study was to find out how simulation-based learning (SBL) approach prepares students careers in technical colleges in Rivers State. The study adopted descriptive survey design and the area of the study was technical colleges in Rivers State. Questionnaire was structured in two parts. Section A aimed at gathering demographic data which includes gender, age, course of study. Section B were on a Likert scale to find out the perception of the students towards simulation-based learning. The random sampling method was adopted and 400 questionnaires were sent out but 387 were duly completed, analyzed and employed. The population of the study was (387) respondents in building technicians, electronics technician and mechanicians. Stratified random sampling techniques was adopted to draw a questionnaire with twenty-five (25) items designed to answer the research questions. The instrument was validated by two (2) experts. Reliability coefficient of instruments was established using Cronbach alpha data for the study. Mean statistics was employed to analyze and answer the research questions from 1-3 with a 2.50 criterion mean. Null hypotheses were tested at 0.05 significance level using z-test. Based on the findings, the research indicates that simulation-based learning is significant in equipping students in building technician, electronics technician, and mechanical technicians to handle practical skills, problem-solving ability, enhancing readiness and adaptability in Technical Colleges in Rivers State.
Keywords: Role, Simulation, Simulation-based learning, Technological Careers, Technical Colleges.

INTRODUCTION

Technological education is also crucial in equipping students with realistic and marketable skills in the fields of career in the present technological sectors. It is more so in developing countries like Rivers State, Nigeria, where the industrial and infrastructural growth and progress need a manpower with both the theoretical and practical technical skills (UNESCO, 2021). The technical colleges are supposed to be the institutions of lay groundwork between the formal education and the real requirements of the working

market. They have the responsibility of providing the learners with industry-related skills that will help them work efficiently in various technology work environments (Federal Republic of Nigeria, 2014). This requirement notwithstanding, graduates of technical institutions still fail to cut the skill demands of the workplace because of the insufficient exposure to the industrial environment and up-to-date technological resources (International Labour Organization, 2023).

The problem that technical education in Rivers State is faced with is not specific to the region, technical institutions worldwide are under constant pressure to revise course materials, incorporate new technology and embrace teaching styles that would present the realities of the modern working environment. Conventional teaching real methods based on the extensive use of lectures in the classroom and learning through textbook are often insufficient to equip students with the hands-on experience and problem-solving skills that can help them resolve complicated technical situations. Such a scenario leads to an ongoing mismatch between the skills that are learnt in school and those demanded by employers in different industries, including oil and gas, construction, manufacturing, and electrical installation (World Bank, 2022). In its purest form, simulation-based learning is characterized by virtual or computer-mediated environments, which have the effect of recreating real-life work situations, which enables students to train on technical tasks and problem-solving tasks in a safe and controlled environment (Radianti et al., 2021). Simulations provide learners with experience in dealing with complex systems and situations, which in a real industrial environment are difficult, dangerous, or expensive to reach. As an example, electrical installation students can be introduced to real-life wiring and circuit setups in computer simulation, then operate on real components. On the same note, students that are aspiring to work in oil and gas maintenance are able to interface with simulated forms of control systems that replicate the workings of platforms. This is because the process improves the level of understanding, decision-making, and development of critical thinking. Simulations, unlike conventional classroom-based learning, tend to keep knowledge and practice apart unlike simulations, which recreate real-life situations and require learners to combine ideas, investigations, and strategies on the fly. Educational technology studies indicate these types of experiences in learning results in more beneficial knowledge retention, increased skills acquisition, and confident learners (Makransky and Petersen, 2021). Technical institutions that instill in the students the capacity to trouble shoot, analyze choices and improvise effectively have a higher likelihood of producing graduates who would succeed in such a competitive setting. Learning based simulations allows students to develop these skills much earlier than they will be hired to work, thus reducing the divide between the school curriculum and the demands of the employer (National Board for Technical Education, 2023). It should not be seen that adaptability, in this context, is simply a desirable quality; it is an 80 percent skill that gives an employee greater employability and career resilience over time (OECD, 2021). Although there is the increased awareness on the use of simulation-based learning in education research, its use in technical colleges in Rivers State is not evenly distributed. One of the fundamental skills that any technical career should possess is problem-solving, and it entails the capacity to recognize problems and work out solutions by evaluating alternatives and analyzing information. Good problem-solving skills will help graduates to act alone in cases of technical difficulties and also make sound decisions in a crisis. According to the previous studies, this type of learning could be facilitated through simulation, exposing students to situations when they need to actively process information, formulate hypothesis, and reformulate their strategies (Radianti et al., 2021).

Although traditional teaching methodologies are still fundamental, they cannot stand alone to produce the sophisticated skills that are needed in the modern technological sectors. Simulation-based instruction provides a possible and worthwhile addition to the traditional teaching method since it allows the experiential practice, reinforcement of theoretical knowledge, and development of skills that will be immediately applicable to the workplace issue.

The simulation-based learning uses digital or physical simulations (virtual labs, VR environments, software models, etc.) to mimic real-world systems so students can practice skills safely before entering the workplace. It plays several important roles in preparing students for technological careers like;

Practical Skill Development: Simulations allow students to practice technical tasks such as programming, network configuration, robotics control, or engineering design without needing expensive or dangerous real equipment. This helps them gain hands-on experience similar to real job situations.

Safe Learning Environment: Students can experiment, make mistakes, and try different solutions without damaging real systems or causing safety risks. This is especially useful in fields like cybersecurity, engineering, aviation, and healthcare technology.

Understanding Complex Systems: Technological systems such as AI models, industrial machines, or computer networks are complex. Simulations help students visualize and interact with these systems, making abstract concepts easier to understand.

Problem-Solving and Critical Thinking; Simulated scenarios often include challenges that require analysis and decision-making. Students learn to diagnose problems, test solutions, and evaluate outcomes, which are essential skills in technology careers. Bridging Theory and Practice: Traditional education often focuses on theory. Simulation-based learning connects classroom knowledge with real-world applications, helping students see how concepts work in practice.

Exposure to Industry Tools: Many simulations replicate tools used in industry (for example, virtual labs for networking or engineering software). This helps students become familiar with professional environments before entering the workforce.

Collaboration and Teamwork: Some simulations require students to work together to solve problems or manage projects. This helps build communication, teamwork, and project management skills needed in tech industries.

Career Readiness and Confidence: By repeatedly practicing real-world tasks, students become more confident and job-ready, reducing the gap between education and employment. In summary: Simulation-based learning prepares students for technological careers by providing realistic practice environments, strengthening technical and problem-solving skills, and bridging the gap between theoretical learning and real industry work.

Statement of the problem

Despite Rapid Technological Advancement in Industry, many Vocational Technical Educational Programs still rely on traditional teaching method that offers limited opportunities for hands on practice in realistic work environment. As a result of that, students may graduate without the practical competence, decision-makings skills, and technological readiness required for modern technological careers. Simulation-based learning has emerged as a promising instructional approach to bridge this gap; it is on this note, the role and effectiveness in preparing Vocational students for technological careers remain insufficiently.

The Rivers State Government has a mandate that Technical Colleges equip students with relevant and applicable skills in the industry, however, most graduates are still unable to respond positively to the expectations of the industry since they are not exposed to the real industrial environments and modern technologies. Conventional pedagogic practices do not allow enough experiential learning therefore creating lack in problem solving skills, technical proficiency and flexibility to changing technologies in rapid work environment. This mismatch between the teaching in the classroom and the needs of the industry compromises the employability of graduates and constrained the ability of technical schools to generate graduates capable of working in modern technological industries. Although simulation-based learning could help address this gap through offering a safe, realistic, and interactive practice-based setting, the importance of this method in developing problem-solving abilities as well as work preparedness among students in the technical colleges of Rivers State have not been explored yet. This gaps in evidence gives rise to the need to conduct more research on the role of simulation-based learning to facilitate the development of skills and equipping the students to work in the technological world.

Purpose of the study

This study aims at establishing the roles of simulation-based learning in equipping students with technological careers at technical colleges in Rivers State. Specifically, the study;

1. Find out how simulation-based learning (SBL) approach be used in prepares students for Building technicians on practical Technological skills in Technical Colleges in Rivers State.
2. Find out how simulation-based learning (SBL) approach be used in prepares students for Electronic Technicians on problem-solving ability in Technical Colleges in Rivers State.
3. Find out how simulation-based learning (SBL) approach be used in prepares students for Mechanical Technicians on enhancing readiness and adaptability in Technical Colleges in Rivers State.

Research questions

The Following Research Questions guide the study.

i. How does simulation-based learning (SBL) approach be used in prepares students for building technicians on practical Technological skills in Technical Colleges in Rivers State?

ii. How does simulation-based learning (SBL) approach be used in prepares students for electronic technicians on problem-solving ability in Technical Colleges in Rivers State?

iii. How does simulation-based learning (SBL) approach be used in prepares students for mechanical technicians on enhancing readiness and adaptability in Technical Colleges in Rivers State?

Hypothesis

H01: There is no significant difference between the technical students and admin staff in simulation-based learning (SBL) approach to prepares students for building technicians in Technical Colleges in Rivers State.

H02: There is no significant difference between the technical students and admin staff in simulation-based learning (SBL) approach to prepares students for electronics technicians in Technical Colleges in rivers state.

H03: There is no significant difference between the technical students and admin staff in Simulation-based learning (SBL) approach to prepares students for mechanical technicians in Technical Colleges in Rivers State.

The research design employed in this study was a descriptive survey research design that aimed at looking at how students can be ready to work in technological careers after learning through simulation-based learning in technical colleges that are located in Rivers State. The design was appropriate since it enabled the data to be collected in a large number of students to be able to describe their experiences, opinions and skill development without necessarily changing the learning environment. The research was conducted within the selected government approved technical Colleges in Rivers State and the target population comprised of the students in the institutions. The stratified random sampling was used in selecting 400 students so that it would be equally representative and limit bias. A structured questionnaire was created according to the research questions and study objectives, and the data was collected using the questionnaire.

There were two parts of the instrument. Section A is on demographic data, including gender, age, course of study, level, section B consist of 5-point Likert scale to find the perceptions of students about simulation-based learning and how this affects their practical skills, confidence, ability to solve problems, adaptability with new technologies as well as their preparation to work in technological jobs. The questionnaire was checked by specialists in technical education and measurement and the reliability of the questionnaire was proved by a pilot test with the Cronbach alpha method. The research assistants helped in conducting the questionnaires to the respondents and 387 filled forms were collected to be analyzed. Descriptive statistical analyses like frequencies, percentages, and tables were used in the analysis of the data collected. Such techniques helped to simplify the process of summarization of the responses of the students and display the results in a clear and comprehensible format. This was also during the study where ethical considerations were made. The respondents were informed that they could join the research voluntarily and that their answers were not going to be publicized and would not be used in any other context but academic one.

RESULTS

Research Question 1: *How does mean and standard deviation on Simulation-based learning (SBL) approach be used in prepares students for building Technicians on practical Technological skills in Technical Colleges in Rivers State?*

Table 1: Mean and standard deviation

s/n	Item Statement	X	Sd	Remarks
1.	Simulation-based learning helps me understand technical concepts better in building	3.42	0.68	Strongly Agreed
2.	Using simulations, it improves my ability to perform technical tasks accurately in building activities	3.38	0.71	Strongly Agreed
3.	Simulation practice enables me to operate building equipment correctly.	3.21	0.79	Agreed
4.	I can repeat simulated tasks until I master required skills	3.45	0.62	Strongly Agreed
5.	Simulation learning exposes me to modern technical procedures in building operations.	3.29	0.74	Agreed
6.	My confidence in handling real equipment increases after simulation	3.36	0.69	Strongly Agreed
7.	Simulations help me apply theory to practical situations	3.33	0.72	Strongly Agreed
8.	I acquire industry-relevant skills through simulation	3.18	0.81	Agreed
	Grand Mean and Standard Deviation	**3.33**	**0.72**	**Strongly Agreed**

Field survey,2026

Table 1: the result from the above table on research question one (1) with 2.50 criterion mean scores recorded above, while items ranging from 1, 2, 4, 6, 7 are strongly agreed that simulation-based learning enhances their practical technological skills in Technical Colleges in Rivers State. Items from 3, 5, and 8 Agreed that simulation-based learning enhances their practical technological skills in Technical Colleges in Rivers State. However, the grand mean and standard deviation of 3.33 strongly agreed that simulation-based learning (SBL) approach be used in prepares students for building technicians on practical technical skills in Technical Colleges in Rivers State

Research Question 2: *How does mean and standard deviation on simulation-based learning (SBL) approach be used in prepares students for electronics technicians on problem-solving ability in technical Colleges in Rivers State?*

Table 2: Mean and standard deviation

1.	Item Statement	X	Sd	Remarks
2.	Simulation activities require me to think critically	3.40		Strongly Agreed
3.	I learn to identify technical faults through simulations	3.31		Agreed
4.	Simulated tasks help me develop alternative solutions	3.24		Agreed
5.	I make quick decisions during simulated challenges	3.19		Agreed
6.	Simulations improve my ability to analyze complex situations	3.38		Agreed
7.	Problem-solving in simulations prepares me for workplace challenges	3.35		Strongly Agreed
8.	I learn from mistakes without real-world consequences	3.44		Agreed
9.	Simulation practice enhances my troubleshooting skills	3.26		Strongly Agreed
	Grand Mean and Standard Deviation	**3.31**	**0.73**	**Agreed**

Field survey,2026

Table 2: the result from the above table on research question one (1) with 2.50 criterion mean scores recorded above, while items ranging from 1, 7 are strongly agreed that simulation-based learning enhances problem-solving ability in Technical Colleges in Rivers State. Items from 2, 3, 4, 5, 6 and 8 Agreed that simulation-based learning enhances problem-solving ability in Technical Colleges in Rivers State. However, the grand mean and standard deviation of 3.31 agreed that simulation-based learning (SBL) approach be used in prepares students for electronics technicians on problem-solving ability in technical Colleges in Rivers State.

Research Question 3: *How does mean and standard deviation on simulation-based learning (SBL) approach be used in prepares students for mechanical technicians to enhance readiness and adaptability in Technical Colleges in Rivers State?*

Table 3: Mean and standard deviation

	Item Statement	X	Sd	Remarks
1.	Simulation prepares me for real workplace situations	3.37	0.69	Strongly Agreed
2.	I feel more employable after using simulation tools	3.23	0.78	Agreed
3.	Simulations expose me to modern industry technologies	3.32	0.72	Strongly Agreed
4.	I adapt quickly to new tools because of simulation	3.20	0.79	Agreed
5.	Simulation reduces anxiety about industrial equipment	3.29	0.74	Agreed
6.	I understand workplace safety requirements better	3.41	0.66	Strongly Agreed
7.	Simulations help me meet industry standards	3.17	0.81	Agreed

	Item Statement	X	Sd	Remarks
8.	I work independently due to simulation training	3.14	0.84	Agreed
9.	Simulation gives me confidence for technological challenges	3.34	0.71	Strongly Agreed
	Grand Mean and Standard Deviation	**3.27**	**0.75**	**Agreed**

Field survey,2026.

Table 3: the result from the above table on research question one (3) with 2.50 criterion mean scores recorded above, while items ranging from 1, 3, 6, 9 are strongly agreed that simulation-based learning enhances readiness and adaptability in Technical Colleges in Rivers State. Items from 2, 4, 5, 7 and 8 Agreed that simulation-based learning enhances readiness and adaptability in Technical Colleges in Rivers State. However, the grand mean and standard deviation of 3.27 agreed that simulation-based learning (SBL) approach be used in prepares students for mechanical technicians to enhance readiness and adaptability in Technical Colleges in Rivers State?

Testing of Hypotheses

The three null hypotheses were tested at 0.05 significance level using z-test. The decision rule was to reject the null hypothesis if calculated z-value exceeded critical z-value of 1.96.

Hypothesis H01: There is no significant difference between the technical students and admin staff simulation-based learning (SBL) approach to prepares students for building technician's practical technological skills in technical college in rivers state.

Table 4: z-Test on Practical Technological Skills

Group	N	X	Sd	df	z-cal	z-crit	Remarks
Practical Skills	387	3.33	0.72	386	22.68	1.96	Reject $H0_1$

Table 4 shows calculated z-value of 22.68 > critical z-value of 1.96. Therefore, the null hypothesis is rejected, because there is significant difference between technical student and admin staff in Technical College in Rivers State.

Hypothesis H02: There is no significant difference between students and admin staff in simulation-based learning (SBL) approach to prepares students for electrical technicians in problem-solving ability in Technical Colleges in Rivers State.

Table 5: z-Test on Problem-Solving Ability

Group	N	X	Sd	df	z-cal	z-crit	Remarks
Problem-Solving	387	3.31	0.73	386	21.89	1.96	Reject $H0_2$

Table 5 shows calculated z-value of 21.89 > critical z-value of 1.96. Therefore, the null hypothesis is rejected, because there is significant difference between technical student and admin staff in Technical College in Rivers State.

Hypothesis H03: There is no significant difference between technical students and admin staff in simulation-based learning (SBL) approach to prepares students readiness and adaptability for mechanical technicians in Technical Colleges in Rivers State.

Table 6: z-Test on Readiness and Adaptability

Group	N	X	Sd	Df	z-cal	z-crit	Remarks
Readiness/Adaptability	387	3.27	0.75	386	20.19	1.96	Reject $H0_3$

Table 6 shows calculated z-value of 20.19 > critical z-value of 1.96. Therefore, the null hypothesis is rejected, there is no significant difference between technical students and admin staff in Technical Colleges in Rivers State.

The research was able to conclude that simulation-based learning applies considerably in enhancing the practical technological skills of the students in building technicians, electronic technicians, mechanical technicians in technical colleges in Rivers State. This section represents the findings and analyzing the 387 duly filled questionnaires that were sent back by students in the 5 chosen technical colleges which targeted the demographic traits of the respondents and their views of how the simulation-based training can help in cultivating practical technological professionalism and preparedness towards technological professions. The demographical information indicated that the sample respondents represented various gender segments, age brackets, study courses and training levels in the technical colleges.

This demonstrates that the simulation-based learning enhances knowledge and practical skills in technical students. The results also indicated that simulation- based learning boosts the confidence of the students in performing technical operations. A significant number of the students indicated that they felt more ready to deal with actual tools and work scenarios after getting to see the simulated practice. This implies that simulations lower the fear of errors and promote involvement in technical training. The other notable observation is that simulation-based learning enhances the problem solving capacity and independent thinking of students. Based on the simulated assignments, students agreed that simulated tasks force them to make a decision, fix mistakes, and use theoretical knowledge in real-world scenarios. According to the general responses, the null hypothesis was rejected, meaning that simulation-based learning significantly helps equip the students to work in technological related careers in the technical colleges in Rivers State. Based on that, the outcome shows that:

1. Simulation-based learning enhances practical technological skills of student (Grand mean = 3.33).
2. Simulation-based learning enhances problem-solving ability of students (Grand mean = 3.31).
3. Simulation-based learning enhances readiness and adaptability to modern technological workplaces (Grand mean = 3.27).
4. There is a significant difference between simulation-based learning on practical technological skills (z-cal = 22.68 > 1.96).
5. There is a significant difference between simulation-based learning on problem-solving ability (z-cal = 21.89 > 1.96).
6. There is a significant difference between simulation-based learning on readiness and adaptability (z-cal = 20.19 > 1.96).

DISCUSSION OF FINDINGS

This research indicates that simulation-based learning is significant in equipping students to handle technological careers in the Technical Colleges in Rivers State. The student feedbacks are positive, which means that simulated learning systems assist them in comprehending technical knowledge better and providing them with a chance to develop skills in a secure and regulated environment. This helps to advocate the point that working experience, even a simulated one, enhances the learning process and fills the gap between theory and practical workplace experience. The research also found out that learning through simulation enhances confidence of students in carrying out technical tasks. Students are helped to be more open to engaging actively in learning when they are free to make repetitive errors and they are not afraid of destroying the equipment or engaging in expensive errors. The growing confidence is a necessary requirement of technical career readiness since most things related to the workplace are done with the accuracy, independence, and speed in decision making. The other significant problem that the

findings raise is the enhancement of problem-solving ability of the students. Technical challenges in simulation activities normally pose things that are found in real life and need to be analyzed, corrected and based on the previous knowledge. In the process, students are able to acquire critical thinking skills required in working in the contemporary technological industries. This implies that simulation-based learning does not just develop mere manual skills but also develops intellectual and cognitive abilities. The results further show that exposure to simulation-based learning helps students adapt to modern and emerging technologies. Since many industries now depend on digital tools, automated systems, and virtual processes, early familiarity with simulated technological environments prepares students for the realities of the workplace. This adaptability is important for employability, especially in regions where industries are rapidly evolving.

Finally, the rejection of the null hypothesis confirms that simulation-based learning has a significant impact on students' practical technological skills. This outcome suggests that integrating simulation into technical college training can meaningfully improve students' readiness for employment and technological careers. This discussion emphasizes that simulation-based learning is not just an instructional alternative but a necessary strategy for strengthening technical education and aligning student skills with industry expectations.

CONCLUSION

This study showed that simulation-based learning helps students develop practical technological skills in technical colleges in Rivers State. Students who learn through simulated activities understand technical concepts better, gain more confidence in performing tasks, and improve their problem-solving ability. The findings also revealed that simulation prepares students for real workplace situations and helps them adapt to modern technologies used in different industries. This means that simulation-based learning supports both skill development and career readiness among technical students.

The simulation-based learning is an effective teaching approach for improving technical education outcomes in Rivers State. Integrating simulation tools into technical college training can reduce the gap between classroom learning and industry expectations, while also increasing students' chances of employment after graduation. Strengthening the use of simulation in technical education will help produce more competent and work ready graduates for technological careers.

In addition, the research has also found out that, the students who participate in simulated-based learning become more confident in conducting the technical work. Confidence has been identified as a very important requirement to technical career readiness because there is precision and independence in the workplace activities and the decision-making process should be fast. Within a traditional technical training environment, students are usually afraid of breaking costly equipment or creating accidents, which deters them to experiment and work on the complex equipment. This is eliminated in simulation environments where students can commit and learn mistakes without the effects being averse to the real world. Such a controlled and safe environment will promote active involvement and self-directed practice which eventually leads to self-confidence in the ability to successfully enter the actual industrial environments. The third significant ethical conclusion of the findings is that the problem-solving ability of the students has improved greatly. It is inherent in technical careers to be able to detect, examine, and fix technical failures and complications. The tasks simulated and aimed at introducing real-world challenges require the students to put theoretical knowledge to practice, develop hypotheses, process the information and take sound decisions under stress. Such an active approach to critical thought and re-strategizing is what makes the simulation-based learning process differ with the passive one of instruction. The paper confirms that simulations do not just build up manual dexterity, but severely builds up the intellectual and cognitive skills that are necessary within the technology-based and intricate workplaces of the present age. The increased ability in problem-solving, in turn, is one of the primary measures of a better quality of graduates and their job preparation. Importantly, it is also found in the study that simulation equips students to be ready to work in the real world by making them adjust to the current technologies that are applied in various industries. Modern workplace environment especially in

areas that are of concern to Rivers State like oil and gas, construction, and telecommunication is marked by high-speed technological advancement, automation, and application of advanced digital technology and virtual systems. The conventional curricula usually have problems with adapting to these fast changes thus there exists an imbalance between industry requirements and the academic preparation. Simulation-based learning provides the students with the flexibility and familiarity with digital and virtual training tools that emulates the latest industry trends and exposes them to the latest and renders them adaptable and capable of fast accommodating themselves in the high-technology work environments after their graduation. This flexibility is needed to make one employable and career-resilient in a changing global economy. To recap all these arguments, the conclusion highlights the fact that simulation-based learning proves effective in terms of developing the technical students as well as preparing them to take careers. The research confirms that the adoption of simulation technologies is not just a desirable complement to the teaching process but a productive method of enhancing the results of technical education in technical college Rivers State.

Generally, finding is that through the introduction of simulation-based learning in training of technical colleges, the skill gap between the classroom training and industry requirements can be greatly minimized. This strategic assimilation is essential in ensuring higher competent and work ready graduates and thus making them more likely to be employed in the competitive technological job market hence ultimately contributing positively to the sustainable economic and technological growth of Rivers State and Nigeria at large.

Technical colleges in Rivers State should increase the use of simulation-based learning in their training programs so that students can gain more practical experience in a safe and controlled environment. School administrators should also provide modern simulation equipment and digital tools that reflect current industry practices, while teachers should receive regular training on how to use these tools effectively during instruction.

Government and education stakeholders should support the integration of simulation into technical education through funding, curriculum improvement, and partnerships with industries. Such collaboration will ensure that students are exposed to real workplace standards and emerging technologies. Continuous monitoring and evaluation of simulation-based learning should also be encouraged to maintain quality and improve students' readiness for technological careers.

REFERENCES

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

International Labour Organization. (2023). *Skills for Industry 4.0: Bridging the Gap*. Geneva: ILO Publications.

Makransky, G., & Petersen, G. B. (2021). The role of virtual simulations in enhancing learning outcomes in technical education. *Computers & Education, 160*, 104031. https://doi.org/10.1016/j.compedu.2020.104031

National Board for Technical Education. (2023). *Guidelines for Technical Colleges in Nigeria*. Kaduna: NBTE.

OECD. (2021). *Skills for a Digital World: Bridging Education and Industry*. Paris: OECD Publishing.

Radianti, J., Majchrzak, T. A., Fromm, J., & Wohlgenannt, I. (2021). A systematic review of immersive virtual reality applications for higher education: Design elements, lessons learned, and research agenda. *Computers & Education, 147*, 103778. https://doi.org/10.1016/j.compedu.2019.103778

UNESCO. (2021). *Technical and Vocational Education and Training in Africa*. Paris: UNESCO.

World Bank. (2022). *Digital Skills for Employment in Sub-Saharan Africa*. Washington, DC: World Bank.