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DONATION OF SCIENCE EQUIPMENT BY NIGERIA'S NIGER DELTA DEVELOPMENT COMMISSION TO SECONDARY SCHOOLS IN THE REGION: A HELP OR DAUNTING HUDDLE FOR TEACHERS

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ABSTRACT

This study utilized the opportunity offered by the donation of science equipment to secondary schools in the Niger Delta Region of Nigeria by the Niger Delta Development Commission (NDDC) to examine the experiences and observations of the end users of such equipment; science students, science teachers as well as the school administrators, on whether or not the science teachers faced challenges putting the equipment to use in laboratory settings while teaching the students. The study involved 42 out of the 50 befitting secondary schools spread across the nine states of the federation that constitute the Niger Delta Region. The respondents were randomly selected from sampled schools according to the proportions of male and males in the sub-groups (students, teachers and principals) this gave a sample size of 1,050 made up of 592 males and 458 females. The design was a survey. Literature review of wide coverage was undertaking. The instrument was a Liker scale with items specific to the research questions. Three research questions guided the study and three null hypotheses were tested at 0.05 level of significance. Rigorous data analysis was carried out using percentages and arithmetic means to address the research questions. To test the hypotheses, t-test statistics was employed. The findings of this study show that there is an overall positive acknowledgement by students, teachers and school principals, irrespective of gender, that science teachers in the Niger Delta Region of Nigeria faced identifiable challenges with using the NDDC-donated science equipment to teach science in their secondary schools and gender was of no significant effect on the opinions expressed. In conclusion therefore, Science teachers in Niger Delta Region of Nigeria whose schools benefited from the donation of science equipment by Niger Delta Development Commission, NDDC, were having challenges in putting the equipment to use in teaching science subjects. Appropriate mitigation strategies were recommended to ameliorate the perceived challenges, including training of teachers in readiness prior to supplying new science equipment to schools, on instrument calibration after the supplies. Deployment of supportive laboratory technical staff to all science schools were also recommended among others.

KEYWORDS: Education, Science Education, Laboratory, Niger Delta Development Commission and Science Teachers

INTRODUCTION

In response to the mandate of the Henry Willink's Commission, the Niger Delta Development Commission (NDDC) was established with the goal of developing the Niger Delta region of Nigeria. The NDDC envisions offering sustainable solutions to the socio-economic challenges of the region, aiming to transform it into an economically prosperous, socially stable, ecologically regenerative, and politically peaceful area. Among its mandates is the conception, planning, and implementation of educational projects and programs for sustainable development. The educational programs aim, among other things, at empowering the youths of the area by inculcating in them skills, knowledge, and attitudes that will make them both creators of employment opportunities and employable. This is why educational development, including increasing youth access to education, is also a key focus of the Commission.

Recognizing the deficiency of science equipment and laboratories in many secondary schools in the Niger Delta region, the NDDC undertook intervention efforts and the most recent of such interventions was in May, 2021. On May 6, 2021, the Commission donated essential science equipment to fifty secondary schools across the region. These included sixty four (64), thirty eight (38), forty eight (48), thirty three (33) and seventy nine (79) different types of Chemistry, Agricultural science, Biology and Physics apparatus as well as reagents and other secondary schools laboratory grade Chemicals. This intervention aims to enhance the teaching and learning of science subjects, stimulating and nurturing the interest of young minds in scientific study. However, donating science equipment to schools is one thing and using it effectively by teachers is another.

The general purpose of this study, therefore is to find out how teachers in secondary schools in Niger Delta Region of Nigeria, who benefited from the supply of science equipment by NDDC, are grappling with their enhanced work environment. Specifically, the study aims at providing answers to the following questions:

1. What are the mean scores of male and female science students on the challenges science teachers encounter in using the donated science equipment to teach science subjects?

2. What are the mean scores of male and female science teachers on the challenges science teachers encounter in using the donated science equipment to teach science subjects?

3. What are the mean scores of male and female school principals on the challenges science teachers encounter in using the donated science equipment to teach science subjects?

The following hypotheses were tested in the study:

HO$_1$: There is no significant difference between male science students and their female counterparts in rating of the challenges encountered by science teachers in using the donated science equipment to teach science subjects.

H0$_2$: There is no significant difference between male science teachers and their female counterparts in rating of the challenges encountered by science teachers in using the donated science equipment to teach science subjects.

H0$_3$: There is no significant difference between male principals and their female counterparts in rating of the challenges encountered by science teachers in using the donated science equipment to teach science subjects.

2. LITERATURE REVIEW

Science education is a field of study that promotes scientific literacy and an understanding of scientific processes. According to the National Policy on Education, the goal of science education in Nigeria is to prepare students for careers in science, technology, engineering, and mathematics (STEM). It aims to provide a solid foundation for further education, research, and the development of practical skills necessary for scientific careers (FGN, 2014). It is, therefore, good that we clarify the concept of 'practical work' as it relates to secondary school science teaching. This will give us an idea of what is expected of the science teachers in secondary schools in the Niger Delta region of Nigeria, recently flooded with science equipment by NDDC. While the role of practical work has been accepted as the landmark of science instructions in schools since 1960s and that since then, science teaching has advanced beyond pure lectures and rote learning to a "strong emphasis on fostering inquiry-based instruction and practical work" (Shivolo & Mokiwa, 2024) the term itself has not been properly defined ever since (Hugo & Jorge, 2023, Bing & Chen, 2018). It is expected that for a teacher to do well in practical work with students, he or she should possess the basic knowledge of that field of science education. Bing and Chen (2024) tried to provide a general frame work when they opined that 'practical work' in literature is also referred to as 'laboratory work'. Some believe that it involves among other things, hands-on activities in a laboratory setting or even as compassing partaking in teacher-led demonstrations in a laboratory setting. However, lack of consensus in literature of the full definition of "practical work" not with standing, scholars have tried to give guidelines and overviews. Some scholars interchange the term 'practical work' with 'Hands-on' skill development as involving "a direct interaction with equipment or materials, individually or in small groups…'(Hugo & Jeorge, 2023). Rabitual and Punnithan (2024) rather chose to identify roles a science teacher with practical work orientation has to play in his/her day to day work: The practical work science teacher should be seen as an assessor, a promoter of inquiry, resource provider, facilitator, demonstrator, contextual explorer and an organizer among other roles.

To achieve the goals of practical work orientation in science education, science learning should extend beyond textbook memorization by emphasizing hands-on experimentation, critical thinking, and the practical application of scientific principles. Through practical work, learners can better comprehend scientific principles, develop a deeper understanding of abstract and complex concepts, and apply them effectively in real-world contexts. Adequate science equipment plays a vital role in facilitating practical work. Nwachukwu (2014) argued that a properly equipped and functional science laboratory can significantly enhance science learning.

As already referenced by Onwukwe, Ofoegbu and Ukogo (2023:72) “science education has much to offer in helping to facilitate knowledge and skills required for development in the global economy”. With the provision of science equipment which promises laboratory exercises, theoretical presentation will acquire new meanings and challenges that can be tried in real life situations. According to the reference above, “An important goal of science education is for learners to be able to create a link between science education and the real world… so that both teachers and learners’ engagement will be to identify possibilities and use their imagination in

problem-solving and decision-making within their immediate environment. (P.72) Practical orientations in science education enhanced by well-articulated and deployed human and material resources will definitely lead to achievement of set objectives (Omebe and Akani 2015) Failing to pursue science education in that trajectory will lead science students to perceive science as impracticable school endeavour and hence too abstract (Akpan, 2015). Experiments provide hands-on engagements for both teachers and students (Nbina, Viko and Birabil, 2010, Jerick, Aquino, Romiro, et al 2022).

Deployment of science equipment to school laboratories is useless if the competences of science teachers in those schools are too low to use the equipment to their fullest capacities and regular time on task for maximum benefits to students. Untrained and ill-prepared science teachers may encounter significant challenges when attempting to put the equipment in their school to use. Science equipment may therefore, be available in schools, its effective utilization may be hampered by numerous challenges, including but not limited to lack of in-service training in equipment usage, limited knowledge of the equipment, safety concerns, obsolete or malfunctioning equipment, poor infrastructure and maintenance, lack of electricity, inadequate technical support, time constraints, and negative attitudes toward practical work (Mangarin & Macayana, 2024; Al-Mehsen, 2018; Tahraoui et al., 2018; Keskin-Geçer & Zengin, 2015). Such challenges not only affect the quality of practical lessons but may also hinder students’ overall academic performance in science (Shana & Abulibdeh, 2020).

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Addressing these issues could empower science teachers to enhance the quality of science education, potentially leading to improved academic performance among students. In-service training for teachers is essential to keep them updated with the rapid advancements in technology and the evolving science curriculum. Many teachers face challenges due to inadequate training and limited knowledge of laboratory equipment, which hinders their ability to effectively handle and operate science practical teaching tools. To address this issue, a well-structured training program is necessary to raise awareness about the proper applications and usage of available science equipment. Such programs will enhance the quality of science practical work by equipping teachers with the necessary skills to facilitate hands-on learning experiences for students. Despite the availability of laboratory equipment, the absence of protective gadgets presents significant safety risks for teachers. Also, insufficient safety measures and training can pose risks during practical sessions. This highlights the importance of safety training and strict adherence to equipment manuals to ensure a secure working environment. Additionally, negative attitudes toward practical work among teachers can further impede effective science instruction. Addressing these issues through professional development and motivation strategies is essential for promoting a positive approach to practical science teaching (Tahraoui et al., 2018; Keskin-Geçer & Zengin, 2015).

Due to a lack of equipment upgrades, some of the existing equipment may have become obsolete or malfunctioning and may not be replaced due to insufficient funds. This poses significant challenges for science teachers. Additionally, many of these tools require electricity to function. However, in developing countries like Nigeria, where public power supply is often unreliable, teachers may struggle to utilize the available equipment effectively for practical demonstrations. Furthermore, the absence of technicians who are supposed to operate and set up the equipment may further complicate the situation, making it even more difficult for teachers to conduct practical lessons efficiently (Mangarin & Macayana, 2024; Al-Mehsen, 2018). Alternative sources of energy for secondary school laboratories as well employment and deployment of science laboratory technologists and equipment experts are additional measures to be adequately addressed even before science equipment is provided.

Shivolo (2024), discussing science education in Namibia in a practical inquiry frame work in secondary schools, opined that in African nations, which includes the Niger Delta Region of Nigeria, educational context is shaped by cultural, social, and economic factors as well as other intricacies in educational practices. To this end, the responsibility of educational supervisors, the author argues, should include, among other things, strategic planning, training and retraining of teachers, providing resources, giving feedback, fostering collaboration, monitoring progress, evaluating outcomes, providing on-going support, promoting a positive school culture, addressing learner diversity, and even engaging the community. In a similar study, Mansfielf (2022) in looking into supporting the development of pre-science teachers' pedagogical knowledge about planning for practical work, discovers that intentional training helped teachers to focus on key issues about practical work including recognition of the complexity of planning for practical exercises as well as the need to link

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what students do with materials and equipment to teachers' learning objectives. This discovery underscores the importance of training teachers on how to engage with practical exercises for the best outcomes to avoid teachers being scared of approaching practical work with students and wastage of increasingly lean resources available for providing schools with science equipment as NDDC magnanimously did in Nigeria.

3. METHODOLOGY

This study utilized a descriptive correlational research design. This design involves studying the population by collecting and analyzing data from a representative sample of the entire group. The findings from this sample will then be generalized on the entire population.

The study involved all the 50 benefiting secondary schools from the Niger Delta Development Commission's (NDDC) intervention that involved donation of science equipment. However, four schools each were sampled from Abia, Cross River, Edo, Imo, and Ondo States; five schools from Akwa Ibom and Rivers States while six schools were sampled from Bayelsa and Delta States, totalling forty-two (42) secondary schools. Twenty science students, four science teachers, and one principal were selected from each of the schools giving a total of 840(Male=484, Female=356) science students, 168 (Male=89, Female=79) science teachers, and 42 (Male=19, Female=23) school principals.

The questionnaire gathered information on the issues raised about challenges science teachers might be facing in using the newly donated science equipment. It comprised eighteen (10) items for both the principals and science teachers while twenty-five (8) items for the science students. These were structured to address the major research questions. The structured questionnaires which were of the Likert scale type had four rating options: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD), with corresponding nominal values of 4, 3, 2, and 1 respectively. Scores from 2.5 and above are accepted as Agreed while scores below 2.5 are rejected and termed as Disagreed.

After validation, the final instrument was subjected to pilot testing to assess its reliability. The reliability of the instrument was determined as 0.89 using Cronbach's Alpha statistics, ensuring that the instrument consistently measures what it intends to measure.

To ensure a high response rate, the researcher and research assistants collected filled questionnaires on the spot. This approach achieved a 100% retrieval of the questionnaires.

The collected data was analyzed and interpreted using percentages and arithmetic mean to address the research questions. To test the hypotheses, t-test statistics was employed.

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4. Data Analysis and Discussion of Findings

4.1. Data Analysis.

Table 1: Mean Response of Science Students on the Challenges Encounter by Science Teachers while Teaching with the Donated Science Equipment

S/N	ITEMS	SA		A		D		SD		χ		REMARK	
		M	F	M	F	M	F	M	F	M	F	M	F
1	Technical Proficiency- Technical skills in understanding the functions of different instruments and data collection technics.	280	185	139	127	43	26	22	18	3.40	3.35	Ac	Ac
2	Safety Protocols – Adhering to safety protocols to prevent accidents and injuries.	197	177	230	135	36	23	21	21	3.25	3.31	Ac	Ac
3	Interpreting Data- Ability to interpreting collected data.	234	164	172	155	55	23	23	14	3.27	3.32	Ac	Ac
4	Integration of Theory and Practice – Ability to bridge the gap between classroom learning and hands-on experimentation.	195	185	213	137	52	16	24	18	3.20	3.37	Ac	Ac
5	Technical Troubleshooting – Ability to troubleshoot technical issues or malfunctions during lessons.	87	64	84	40	172	154	141	98	2.24	2.20	R	R
6	Data Management – Ability to organize, analyze and present findings effectively.	96	62	75	43	211	170	102	81	2.34	2.24	R	R
7	Assessment – Assessing students understanding and proficiency in using science equipment.	99	64	95	43	168	147	122	102	2.35	2.19	R	R
8	Collaboration – Communication and teamwork skills while working in groups.	107	52	66	54	213	144	98	106	2.38	2.15	R	R
	Grand mean score									2.80	2.77	Ac	Ac
	Number of respondents									484	356		

Note: χ = Mean score; M = Males; F= Females; SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly disagree. Critical mean score = 2.50

Ac = Accepted; R = Rejected

The grand mean scores of 2.80 for males and 2.77 for females fall within the "Accepted" range, exceeding the critical threshold of 2.50. This reflects an overall positive acknowledgment of the challenges faced by science teachers.

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Table 2: Mean Response of Science Teachers on the Challenges Encounter by Science Teachers while Teaching with the Donated Science Equipment

S/N	ITEMS	SA		A		D		SD		χ		REMARK	
		M	F	M	F	M	F	M	F	M	F	M	F
1	Equipment Familiarity- There is need for proficiency by science teachers.	42	35	30	36	9	6	8	2	3.19	3.32	Ac	Ac
2	Resource Constraints – Limited budgets for maintaining scientific equipment.	47	41	26	23	10	12	6	3	3.28	3.29	Ac	Ac
3	Safety Protocols – Ensuring students safety as they use scientific equipment.	43	31	25	38	14	9	7	1	3.17	3.25	Ac	Ac
4	Integration with curriculum – Incorporating science equipment into lesson plan to align with curriculum standard.	11	8	11	8	39	34	28	29	2.06	1.94	R	R
5	Differentiation – Accommodating students of diverse learning abilities.	44	31	28	32	11	10	6	6	3.24	3.11	Ac	Ac
6	Technical Troubleshooting – Ability to troubleshoot technical issues or malfunctions during lessons.	29	29	43	39	8	6	9	5	3.03	3.16	Ac	Ac
7	Time Management – Ability to plan and execute hands-on experiments with scientific equipment.	11	11	10	8	44	36	24	24	2.09	2.08	R	R
8	Assessment – Assessing students understanding and proficiency in using science equipment.	41	33	29	30	10	11	9	5	3.15	3.15	Ac	Ac
9	Professional Advancement – Staying current with advancements in scientific equipment and instructional methods.	39	37	38	28	11	8	1	6	3.29	3.22	Ac	Ac
10	Infrastructure Support – Inadequate infrastructure such as laboratory space and utilities.	45	44	32	20	5	10	7	5	3.29	3.30	Ac	Ac
	Grand mean score									**2.98**	**2.98**	**Ac**	**Ac**
	Number of respondents									89	79		

Note: χ = mean score; M = Males; F= Females; SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly disagree. **Critical mean score = 2.50**

Ac = Accepted; R = Rejected

The grand mean scores of 2.98 for both male and female teachers fall within the "Accepted" range, exceeding the critical threshold of 2.50. This reflects an overall acknowledgment of the challenges associated with teaching using the donated science equipment.

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Table 3: Mean Response of School Principals on the Challenges Encounter by Science Teachers while Teaching with the Donated Science Equipment

S/N	ITEMS	SA		A		D		SD		χ		REMARK	
		M	F	M	F	M	F	M	F	M	F	M	F
1	Resource Allocation- Allocation of funds for maintenance and replacement of scientific equipment.	14	15	4	7	1	1	-	-	3.68	3.61	Ac	Ac
2	Professional Development – Organizing training sessions, workshops and collaborative learning experiences for science teachers.	14	16	5	6	-	1	-	-	3.74	3.65	Ac	Ac
3	Safety Protocols – Ensuring Students and staff safety as they use scientific equipment.	14	14	3	6	2	1	-	2	3.63	3.39	Ac	Ac
4	Curriculum Alignment – Aligning the curriculum standards with the hands-on activities using the science equipment.	1	-	-	-	14	11	4	12	1.89	1.48	R	R
5	Infrastructure Maintenance – Maintaining laboratory facilities and infrastructure.	16	14	3	9	-	-	-	-	3.84	3.61	Ac	Ac
6	Equity and Access- Ensuring equitable access to scientific equipment and laboratory facilities by science teachers and students.	13	16	4	6	2	1	-	-	3.58	3.65	Ac	Ac
7	Community Engagement – Engaging parents, community members and other stake holders in the importance and use of scientific equipment.	13	15	6	8	-	-	-	-	3.68	3.65	Ac	Ac
8	Assessment and Accountability – Assessing the effectiveness of science instruction and ensuring accountability for students learning outcomes.	2	3	1	-	12	12	4	8	2.05	1.91	R	R
9	Staffing and Recruitment – Hiring qualified science teachers who are proficient in using scientific equipment.	11	14	7	7	1	2	-	-	3.53	3.52	Ac	Ac
10	Continuous Improvement – Support for science teachers in implementing innovative teaching practices, integrating technology into instruction and staying updated on advancements in scientific research and equipment.	14	12	4	10	1	1	-	-	3.68	3.48	Ac	Ac
	Grand mean score									**3.33**	**3.20**	**Ac**	**Ac**
	Number of respondents									19	23		

Note: χ = mean score; M = Males; F= Females; SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly disagree. **Critical mean score = 2.50 Ac** = Accepted; R = Rejected.

The grand mean scores were 3.33 for male school principals and 3.20 for female school principals, with both falling within the "Accepted" range, as they exceeded the critical threshold of 2.50. This reflects an overall positive acknowledgement of the challenges faced by science teachers.

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Test of Hypotheses

The null hypotheses of the study were tested using paired samples t-test. The null hypotheses were tested at 0.05 level of significance.

Table 4: Test of significant difference between female science students and their male counterparts in rating the challenges encountered by science teachers in using the donated science equipment to teach science subjects

Groups	Number	Mean	S.D	D.F	t.Cal	t.tab	Level of Sig.	Decision (H_0)
Male students	484	2.804	0.51	838	0.133	1.963	0.896	Not Reject
Female students	356	2.766	0.61					

Source(s): Author Construction from SPSS version 27 computation, 2024.

P > 0.05

Levene's test for equality of variances (F = 0.576; P = 0.381; Decision: Variances of the two groups are equal)

S. D = Standard Deviation; D. F = Degree of freedom; t.Cal = Computed t-ratio; t.tab = Critical t-ratio; Sig. = Significance.

Table 4 shows that male students had a mean score of 2.804 with a standard deviation of 0.51, while female students had a mean score of 2.766 with a standard deviation of 0.61. The calculated t-value was 0.133 (df = 838), and the observed p-value was 0.896. This p-value is greater than the acceptable significance level of 0.05 ($P \leq 0.05$). Therefore, the null hypothesis was not rejected, indicating that there is no significant difference between female science students and their male counterparts in their ratings of the challenges encountered by science teachers in using the donated science equipment to teach science subjects.

The Levene's test for equality of variances (F = 0.576; P = 0.381) confirmed that the variances of the two groups were equal as the p-value was greater than the 0.05 significance level. This suggests that despite the slight difference in mean scores, both male and female students shared similar views on the challenges faced by science teachers in using the NDDC-donated science equipment to teach science subjects in secondary schools in the Niger Delta region.

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Table 5: Test of significant difference between female science teachers and their male counterparts in rating of the challenges encountered by science teachers in using the donated science equipment to teach science subjects

Groups	Number	Mean	S.D	D.F	t.Cal	t.tab	Level of Sig.	Decision (H_0)
Male teachers	89	2.979	0.48					
				166	-0.013	1.974	0.989	Not Reject
Female teachers	79	2.982	0.52					

Source(s): Author Construction from SPSS version 27 computation, 2024. **P > 0.05**

Levene's test for equality of variances (F = 0.039; P = 0.845; Decision: Variances of the two groups are equal)

S. D = Standard Deviation; D. F = Degree of freedom; t.Cal = Computed t-ratio; t.tab = Critical t-ratio; Sig. = Significance.

Table 5 shows that male teachers had a mean score of 2.979 with a standard deviation of 0.48, while female teachers had a mean score of 2.982 with a standard deviation of 0.52. The calculated t-value was -0.013 (df = 166), and the observed p-value was 0.989. This p-value is greater than the acceptable significance level of 0.05 ($P \leq 0.05$). Therefore, the null hypothesis was not rejected, indicating that there is no significant difference between female and male science teachers in their ratings of the challenges encountered in using the donated science equipment to teach science subjects.

Levene's test for equality of variances (F = 0.039; P = 0.845) confirmed that the variances of the two groups were equal as the p-value was greater than the 0.05 significance level. This suggests that despite the slight difference in mean scores, both male and female science teachers shared similar views on the challenges they face when using the NDDC-donated science equipment to teach science subjects in secondary schools in the Niger Delta region.

Table 6: Test of significant difference between female principals and their male counterparts in rating of the challenges encountered by science teachers in using the donated science equipment to teach science subjects

Groups	Number	Mean	S.D	D.F	t.Cal	t.tab	Level of Sig.	Decision (H_0)
Male principals	19	3.330	0.72					
				40	0.396	2.021	0.697	Not Reject
Female principals	23	3.195	0.80					

Source(s): Author Construction from SPSS version 27 computation, 2024. **P > 0.05**

Levene's test for equality of variances (F = 0.072; P = 0.792; Decision: Variances of the two groups are equal)

S. D = Standard Deviation; D. F = Degree of freedom; t.Cal = Computed t-ratio; t.tab = Critical t-ratio; Sig. = Significance.

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Table 6 shows that male principals had a mean score of 3.330 with a standard deviation of 0.72, while female principals had a mean score of 3.195 with a standard deviation of 0.80. The calculated t-value was 0.396 (df = 40), and the observed p-value was 0.697. This p-value is greater than the acceptable significance level of 0.05 ($P \leq 0.05$). Therefore, the null hypothesis was not rejected, indicating that there is no significant difference between female and male principals in their ratings of the challenges encountered by science teachers in using the donated science equipment.

The Levene's test for equality of variances (F = 0.072; P = 0.792) confirmed that the variances of the two groups were equal as the p-value was greater than the 0.05 significance level. This suggests that despite the slight difference in mean scores, both male and female school principals shared similar views on the challenges faced by science teachers in utilizing the NDDC-donated science equipment to teach science subjects in secondary schools in the Niger Delta region.

4.2. Discussion of Findings

The findings of this study show that there is an overall positive acknowledgement by students, teachers and school principals, irrespective of gender, that science teachers in the Niger Delta Region of Nigeria faced identifiable daunting challenges with using the NDDC-donated science equipment to teach science in their secondary schools.

These findings agree with literature that deploying science equipment to school laboratories is useless if the competences of science teachers in those schools are too low to use the equipment to their fullest capacities and regular time on task for maximum benefits to students. Untrained and ill-prepared science teachers may encounter significant challenges when attempting to put the equipment in their school to use. Science equipment may therefore, be available in schools, its effective utilization may be hampered by numerous challenges, including but not limited to lack of in-service training in equipment usage, limited knowledge of the equipment, safety concerns, obsolete or malfunctioning equipment, poor infrastructure and maintenance, lack of electricity, inadequate technical support, time constraints, and negative attitudes toward practical work (Mangarin & Macayana, 2024; Al-Mehsen, 2018; Tahraoui et al., 2018; Keskin-Geçer & Zengin, 2015). Such challenges not only affect the quality of practical lessons but may also hinder students' overall academic performance in science (Shana & Abulibdeh, 2020).

5. CONCLUSION AND RECOMMENDATION.

Donating science equipment to secondary schools in Niger Delta Region of Nigeria by Niger Delta Development Commission was a well thought out initiative, however, this study has revealed that the intervention presented remediable challenges for science teachers in the benefiting schools. These challenges were more of implementation strategies than of a wrong mitigation. From literature review, the following recommendations are given:

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1. Science teachers in secondary schools should be trained and retrained regularly on use of science equipment to teach science subjects, especially on calibration, assembling, identifying faulty and damaged equipment as well as in planning science practical exercises for students.
2. Alternative electric and water supply channels should be established in secondary schools.
3. Science laboratory technologists should be employed and deployed to secondary schools to work with science teachers for the best student-learning outcomes.

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