

# ACCESSIBILITY AND UTILISATION OF ASSISTIVE TECHNOLOGY AMONG PUBLIC PRIMARY SCHOOL TEACHERS IN EDUCATIONAL DISTRICT II, LAGOS STATE

<sup>1</sup>SOPEKAN, Oludola Sarah, Ph. D

<sup>1,2</sup>Social Sciences Education Department, Faculty of Education, University of Lagos

Email: [osopekan@unilag.edu.ng](mailto:osopekan@unilag.edu.ng)

Tel: 08030771828

&

<sup>2</sup>AJAYI, Oluwatosin Motunrayo

E-mail: [matosings@gmail.com](mailto:matosings@gmail.com)

Tel: 08033563667

## Abstract

*Students in a variety of educational settings rely on assistive technology, which is a dynamic resource that extends far beyond the confines of specialised educational settings. All schools are expected to utilise assistive technology since the implementation of inclusive education. This study investigated the accessibility and utilisation of assistive technology among public primary school teachers in Educational District II, Lagos State. A descriptive survey research design was used in the study. Forty-eight respondents, including six teachers purposefully selected from each of the eight randomly selected schools within the eight partitioned communities in Shomolu LGA, Educational District II, participated in the study, which was guided by four hypotheses. For data collection, experts validated a self-designed questionnaire and checklist. The Pearson Product-Moment Correlation test with a significance level of .05 was used to examine the relationships between variables, and descriptive statistics were used by the researchers to analyse the collected data. The findings demonstrated a significant correlation between the availability and ease of use of assistive technology by public primary school teachers in Education District II. However, it was determined that while assistive technology is widely used in public primary schools in Education District II, its availability is low. To improve the learning of children, particularly those who require it, it was suggested, among other things, that sufficient assistive technology be made available in public schools by the government, non-governmental organisations, and others.*

**Keywords:** Accessibility, Utilisation, Assistive Technology, Public Primary School

## Introduction

To encourage inclusive education, education policies in many nations align with international frameworks and conventions, particularly in Nigeria. This policy framework is designed to ensure that every child, regardless of the obstacles they face, can receive a quality education in an inclusive environment. The Salamanca Declaration of 1994 promotes an inclusive society, with the primary objective of constructing a society free from any artificial barriers that divide its members according to disability or ability. Education for All (EFA), the Millennium Development Goals (MDGs), and the Sustainable Development Goals (SDGs) are examples of inclusion policies that were started and put into action to improve access to high-quality education and develop the potential of all citizens, including those with learning disabilities, so that they can make a living and positively impact society.

UNICEF uses an approach called inclusive education to make sure that every child gets a good education. Inclusive education, as defined in the Salamanca Statement, promotes the “recognition of the need to work towards 'schools for all', in other words, institutions which celebrate differences, support learning and respond to individual needs”. Utilising assistive technology is one means of achieving this. Therefore, inclusive education is a process that places a value on the welfare of all students, but it is not an end in and of itself (UNICEF, 2022). Ozoji (2019) defines inclusive education as an educational program that provides appropriate support to all children and adolescents, regardless of their special educational needs, so that they can learn together in a regular school setting. This means that every student is a part of the school community where they learn together,

regardless of their strengths or weaknesses in any area. Because every student is a central and inseparable stakeholder in the educational experience, this is distinct from mainstreaming or integration. Ozoji (2019) also made the observation that inclusive education is about an acceptance philosophy and providing a framework within which all students, regardless of their demonstrated difficulties in the technical learning process and school, can be valued equally, treated with respect, and given equal opportunities.

According to UNICEF, there are approximately 10 million disabled children in Nigeria, out of an estimated 240 million worldwide. According to Obani (2006), very few classrooms or schools in Nigeria do not contain at least one child with a learning disability. A developmental disorder that affects a person's ability to receive, understand, process, or use verbal or written language, perform mathematical calculations, coordinate movement, or direct attention is known as a learning disability, one of the many types of disabilities. People who otherwise have skills that are at least average and necessary for human reasoning and thought are unable to learn because of these conditions. These children deviate from the usual pattern of growth and development that society expects of all children. In order to learn or participate in other human activities in the community or at school, the impairment must be severe enough to necessitate the use of specialized staff, facilities, techniques, and modifications to the curriculum. Additionally, it has been estimated that more than one billion individuals require one or more assistive technologies to support them, and that by 2030, more than two billion individuals will require assistance from one or more assistive technologies (WHO, 2023).

Tools, software, and other pieces of equipment called "assistive technology" (AT) are designed to help people with disabilities become more competent. By fostering a sense of self-reliance, independence, and success in academic endeavours, AT can be of great assistance to children with learning difficulties. It gives parents, teachers, and therapists tools and resources to help them better understand and support the needs of children with disabilities, which improves caregiving and educational outcomes overall (Karki *et. al.*, 2023). Educators who are familiar with assistive technology have a better chance of meeting every student's needs, creating inclusive classrooms, and advancing equity. In spite of the fact that inclusive education is no longer in the news all over the world, the question of how inclusive our educational system is in Nigeria persists. In the classroom, many children, learning disabled or not, face unique obstacles. By providing individualised support, assistive technology can significantly enhance their learning experience. Primary school teachers in Educational District II are unaware of the current accessibility and utilisation of assistive technology, despite its potential advantages and positive impact on inclusive education. To make inclusive education a reality, this gap may hinder the effective integration of assistive technology, which, of course, can lead to poor educational opportunities for the district's students. As a result, the goal of this study is to investigate the availability and use of assistive technology by public primary school teachers in Educational District II to encourage inclusion.

### **Purpose of the Study**

The main purpose of this study was to investigate the accessibility and utilisation of assistive technology among public primary school teachers in Educational District II. The study's specific objectives are to:

1. Assess the awareness levels of public primary school teachers regarding assistive technology in Educational District II.
2. Examine the level of availability of assistive technology in public primary schools in Educational District II.
3. ascertain the level of accessibility of assistive technology devices among public primary school teachers in Educational District II.
4. Examine the level of utilisation of assistive technology by public primary school teachers in Educational District II.

### **Hypotheses**

The investigation was guided by the following hypotheses.

H01: There is no significant difference in the level of awareness of assistive technology among

Public primary school male and female teachers in Education District II.

H02: There is no significant relationship between the level of availability of assistive technology and the level of accessibility of assistive technology devices by the public primary school teachers in Education District II.

H03: There is no significant relationship between the level of availability of assistive technology and level of usability of assistive technology by public primary school teachers in Education District II.

H04: There is no significant relationship between the level of accessibility and usability of assistive technology devices by public primary school teachers in Education District II.

### Methodology

The methodology of this study was a survey research design. The entire population for the study consists of primary school teachers in Shomolu, District II, Lagos State. This includes 351 teachers in public primary schools (Education Ministry of Lagos State). Simple random and purposeful sampling methods were used in the study. Participants from District II's public primary schools were selected using these methods. Six teachers from each of the eight partitioned communities in the Shomolu Local Government Area (LGA) were selected to make up the final sample of 48 participants. Accessibility and Utilisation of Assistive Technology among Public Primary School Teachers' Questionnaire (AUATPPSTQ) and Checklist Guide on Availability of Assistive Technology in Public Primary Schools (CGAATPPS) were the two instruments used to collect the study's data. Experts from the University of Lagos' Measurement and Evaluation Department validated the instruments. The researcher informed the authorities of the study's purpose before visiting the selected schools to collect data. Simple percentages, descriptive statistics, and Pearson Product-Moment Correlation Analysis were used to analyse the research's data.

### Results

#### Analysis of Respondents' Bio Data

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**Table 1: Teachers' Bio Data**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>		
Male	23	24.0
Female	73	76.0
<b>Total</b>	<b>96</b>	<b>100.0</b>
<b>Highest Education Qualification</b>		
NCE	37	38.5
HND	1	1.0
B.Sc.	3	3.1
B.Ed.	28	29.2
B.Sc./Ed.	18	18.8
B.A	2	2.1

PGDE	0	0.0
M.Sc.	0	0.0
M.Ed.	1	1.0
M.A	4	4.2
Ph.D.	0	0.0
Others (OND)	2	2.1
<b>Total</b>	<b>96</b>	<b>100.0</b>
<b>Years of Teaching Experience</b>		
1-5years	22	22.9
6-10years	13	13.5
11-15years	13	13.5
16-20years	33	34.4
Above 20years	15	15.6
<b>Total</b>	<b>96</b>	<b>100.0</b>

**Source:** Field survey, 2024

Table 1 reveals that 23(24.0%) of the teachers were male; and 73(76.0%) were female. This indicates that majority of the teachers sampled in this study were female. The analysis of highest education qualification of respondents shows that 37(38.5%) of the teachers were NCE holders; 1(1.0%) was HND holder; 3(3.1%) were B.Sc. holders; 28(29.2%) were B.Ed. holders; 18(18.8%) were B.Sc./Ed. holders; 2(2.1%) were B.A holders; 1(1.0%) was M.Ed. holder; 4 (4.2%) were M.A holders; 2(2.1%) were OND holders; while none of the teachers had PGDE, M.Sc. and Ph.D. certificates. Thus, the majority of the sampled teachers in this study are NCE holders.

Still in Table 1, analysis of the teachers' years of teaching experience shows that 22(22.9%) had between 1-5years of teaching experience; 13(13.5%) had between 6-10years; 13(13.5%) had between 11-15years of teaching experience; 33(34.4%) had between 16-20years of teaching experience, while 15(15.6%) had above 20years of teaching experience. This shows that majority of the sampled teachers had between 16-20years of teaching experience.

### **Research Question One**

To what extent are public primary school teachers aware of the existence of different assistive technology devices in Education District II?

**Table 2: Extent of the Public Primary School Teachers' Awareness of the Existence of Different Assistive Technology Devices in Education District II**

Items	HA	MA	FA	NA	Total	Mean	S.D	Remarks
Technological devices aid the functional capabilities of children with special needs	59 61.5 %	23 24.0 %	12 12.5 %	2 2.1%	96 100 %	3.45	0.79	Moderately Aware
A technology that aids learning by people with disabilities exists.	55 57.3 %	21 21.9 %	15 15.6 %	5 5.2%	96 100 %	3.31	0.92	Moderately Aware
Simple calculations can be performed by people with disabilities using assistive technology.	51 53.1 %	27 28.1 %	13 13.5 %	5 5.2%	96 100 %	3.29	0.89	Moderately Aware
There is a device that aids speaking among children with speech impairment.	34 35.4 %	33 34.4 %	15 15.6 %	14 14.6 %	96 100 %	2.91	1.05	Moderately Aware
Assistive technology can be used in inclusive classrooms.	52 54.2 %	31 32.3 %	11 11.5 %	2 2.1%	96 100 %	3.39	0.77	Moderately Aware
There is a technology that serves as hearing aid for persons with hearing difficulty.	51 53.1 %	24 25.0 %	14 14.6 %	7 7.3%	96 100 %	3.24	0.96	Moderately Aware
A technology that can help children with learning disabilities read exists.	42 43.8 %	33 34.4 %	12 12.5 %	9 9.4%	96 100 %	3.13	0.79	Moderately Aware
There is a pointing device for persons with special needs.	40 41.7 %	26 27.1 %	19 19.8 %	11 11.5 %	96 100 %	2.99	1.04	Moderately Aware
Slant boards are examples of assistive technology.	24 25.0 %	31 32.3 %	26 27.1 %	15 15.6 %	96 100 %	2.67	1.02	Moderately Aware
There is a technology that can	28	37	21	10	96	2.86	0.9	Moderately

**Source:** Field survey, 2024**Keys:** HA= Highly Aware( $\leq 4$ ), MA= Moderately Aware( $\leq 3$ ), FA= Fairly Aware( $\leq 2$ ), NA= Not Aware( $\leq 1$ )

Table 2 reveals that the grand mean of the items 1 to 10 is **3.12** with a standard deviation of 0.92. This mean is approximately 3. This indicates that public primary school teachers are moderately aware of the various assistive technology tools available in Education District II. *Therefore, the answer to research question one is that the public primary school teachers are moderately aware of the varieties of assistive technology tools in Education District II.*

### Research Question Two

What is the level of availability of assistive technology in public primary schools in Education District II?

The research question two is answered with the checklist analysis presented in Table 3.

**Table 3: Level of Availability of Assistive Technology in Public Primary Schools in Education District II**

S/ N	Assistive Technology Devices/Tools	Total number of Items in the sampled schools (N=16)	Average number of items per school (For a class use at a time)	Average number of items per student s per class	Mean	Remarks
1.	Abacus/Math line	0	0	8*	0.0	Not Available
2.	Graph paper/ book	32	2	8	0.25	Low
3.	Narrating Audiobook	24	1.5	8	0.19	Low
4.	Calculator with large keys	40	2.5	8	0.31	Low
5.	Talking clock	37	2.3	8	0.29	Low
6.	Computerized pen	0	0	8	0.0	Not Available
7.	Talking calculator	32	2	8	0.25	Low
8.	Audio recorder	36	3	8	0.38	Low
9.	Electronic portable dictionary	0	0	8	0.0	Not Available
10	Communication board/book with pictures/objects/ letters/words	86	5.4	8	0.68	High
11	Marker pen	129	8.1	8	1.01	High



12.	Process aid (Step pad or voice cue)	0	0	8	0.0	Not Available
13	Portable word processor to keyboard instead of writing	0	0	8	0.0	Not Available
14	Pencil grip	28	1.8	8	0.23	Low
15	Pen scanners	0	0	8	0.0	Not Available
<b>Average</b>		<b>1.91</b>	<b>8*</b>	<b>0.24</b>	<b>Low</b>	

*Source: Field survey, 2024*

**Scales:** High = ( $x \geq 0.5$ ); Low = ( $x \leq 0.5$ ), Not Available = ( $x = 0$ )

**Notes:** \*Each of the sampled primary schools has an average class size of 8 students.

The mean ratings of the 15 items shown in Table 3 are 0.0, 0.25, 0.19, 0.31, 0.29, 0.0, 0.25, 0.38, 0.0, 0.68, 1.01, 0.0, 0.0, 0.23, and 0.0 respectively. These data show that only communication boards/books with pictures/objects/ letters/words and marker pens are available in high quantity in most of the sampled schools; graph paper/ book, narrating audiobook, calculator with large keys, talking clock, talking calculator, audio recorder and pencil grip are available in low quantity; while Abacus/Math line, computerized pen, electronic portable dictionary, process aid (step pad or voice cue), portable word processor to keyboard instead of writing, and pen scanners are not available in the sampled schools. Also, the average of the mean data for all the fifteen (15) items is 0.24. Based on this analysis, the answer to research question two is that the level of availability of assistive technology in public primary schools in Education District II is low.

### Research Question Three

To what extent are the assistive technology devices accessible to public primary school teachers in Education District II?

**Table 4: Extent to which the Assistive Technology Devices are Accessible to Public Primary School Teachers in Education District II**

S/N	Items	HA	MA	FA	NA	Total	Mean	S.D	Remarks
1.	Abacus/Math line	26 27.1%	28 29.2%	18 18.8%	24 25.0%	96 100%	2.58	1.14	Moderately Accessible
2.	Graph paper/ book	51 53.1%	25 26.0%	8 8.3%	12 12.5%	96 100%	3.20	1.04	Moderately Accessible
3.	Narrating Audio book	16 16.7%	23 24.0%	26 27.1%	31 32.3%	96 100%	2.25	1.09	Fairly Accessible

4.	Calculator with large keys	43 44.8%	12 12.5%	15 15.6%	26 27.1%	96 100%	2.75	1.28	Moderately Accessible
5.	Talking clock	18 18.8%	28 29.2%	19 19.8%	31 32.3%	96 100%	2.34	1.12	Fairly Accessible
6.	Computerized pen	13 13.5%	11 11.5%	27 28.1%	45 46.9%	96 100%	1.92	1.06	Fairly Accessible
7.	Talking calculator	17 17.7%	27 28.1%	17 17.7%	35 36.5%	96 100%	2.27	1.14	Fairly Accessible
8.	Audio recorder	42 43.8%	22 22.9%	11 11.5%	21 21.9%	96 100%	2.89	1.20	Moderately Accessible
9.	Electronic portable dictionary	22 22.9%	22 22.9%	21 21.9%	31 32.3%	96 100%	2.36	1.16	Fairly Accessible
10	Communication board/book with pictures/objects/ letters/words	47 49.0%	24 25.0%	17 17.7%	8 8.3%	96 100%	3.15	0.99	Moderately Accessible
11	Marker pen	62 64.6%	22 22.9%	5 5.2%	7 7.3%	96 100%	3.45	0.89	Moderately Accessible
12.	Process aid (Step pad or voice cue)	14 14.6%	28 29.2%	24 25.0%	30 31.3%	96 100%	2.27	1.06	Fairly Accessible
13	Portable word processor to keyboard instead	19 19.8%	22 22.9%	15 15.6%	40 41.7%	96 100%	2.21	1.19	Fairly Accessible

*Source: Field survey, 2024*

**Keys:** HA= Highly Accessible( $\leq 4$ ), MA= Moderately Accessible ( $\leq 3$ ), FA= Fairly Accessible ( $\leq 2$ ), NA= Not Accessible ( $\leq 1$ )

Table 4 reveals that Abacus/Math line, graph paper/ book, calculator with large keys, audio recorder, communication board/book with pictures/objects/ letters/words, and marker pen are moderately accessible; while items such as narrating audio book, talking clock, computerized pen, talking calculator, electronic portable dictionary, process aid (step pad or voice cue), portable word processor to keyboard instead of writing, pencil grip and pen scanners are fairly accessible. Also, Table 4 shows that the grand mean of the items 1 to 15 is **2.51** with a standard deviation of 1.09. This shows that the mean is approximately 3. Therefore, the answer to research question three is that assistive technology devices are moderately accessible to public primary school teachers in Education District II.



### Research Question Four

To what extent do public primary school teachers utilize assistive technology tools in Education District II?

**Table 5: Extent to which the Public Primary School Teachers Utilize Assistive Technology Tools in Education District II**

S/N	Items	HU	MU	FU	NU	Total	Mean	S.D	Remarks
1.	Abacus/Math line	19 19.8%	28 29.2%	21 21.9%	28 29.2%	96 100%	2.40	1.11	Fairly Utilised
2.	Graph paper/ book	47 49.0%	17 17.7%	16 16.7%	16 16.7%	96 100%	2.99	1.16	Moderately Utilised
3.	Narrating Audiobook	14 14.6%	14 14.6%	28 29.2%	40 41.7%	96 100%	2.02	1.08	Fairly Utilised
4.	Calculator with large keys	29 30.2%	21 21.9%	16 16.7%	30 31.3%	96 100%	2.51	1.22	Moderately Utilised
5.	Talking clock	12 12.5%	24 25.0%	21 21.9%	39 40.6%	96 100%	2.09	1.08	Fairly Utilised
6.	Computerized pen	7 7.3%	19 19.8%	18 18.8%	52 54.2%	96 100%	1.80	1.00	Fairly Utilised
7.	Talking calculator	10 10.4%	14 14.6%	22 22.9%	50 52.1%	96 100%	1.83	1.03	Fairly Utilised
8.	Audio recorder	29 30.2%	19 19.8%	19 19.8%	29 30.2%	96 100%	2.50	1.21	Moderately Utilised
9.	Electronic portable dictionary	11 11.5%	16 16.7%	23 24.0%	46 47.9%	96 100%	1.92	1.05	Fairly Utilised
10	Communication board/book with pictures/objects/ letters/words	39 40.6%	20 20.8%	19 19.8%	18 18.8%	96 100%	2.83	1.16	Moderately Utilised
11	Marker pen	56 58.3%	18 18.8%	11 11.5%	11 11.5%	96 100%	3.24	1.05	Moderately Utilised
12.	Process aid (Step pad or voice cue)	7 7.3%	23 24.0%	29 30.2%	37 38.5%	96 100%	2.00	0.96	Fairly Utilised
13	Portable word processor to keyboard instead	13 13.5%	21 21.9%	18 18.8%	44 45.8%	96 100%	2.03	1.11	Fairly Utilised

**Source:** Field survey, 2024

**Keys:** HU= Highly Utilised( $\leq 4$ ), MU= Moderately Utilised ( $\leq 3$ ), FU= Fairly Utilised ( $\leq 2$ ), NU= Not Utilised ( $\leq 1$ )

Table 5 reveals that graph paper/ book, calculator with large keys, audio recorder, communication board/book with pictures/objects/ letters/words, and marker pen are moderately utilised; while items such as Abacus/Math line, narrating audio book, talking clock, computerized pen, talking calculator, electronic portable dictionary, process aid (step pad or voice cue), portable word processor to keyboard instead of writing, pencil grip and pen scanners are fairly utilised. Also, Table 5 shows that the grand mean of the fifteen (15) items is **2.27** with a standard deviation of 1.08. This shows that the mean is approximately 2. Therefore, the answer to research question four is that the public primary school teachers fairly utilised assistive technology tools in Education District II.

### Testing of Hypotheses

**H<sub>01</sub>:** There is no significant difference in the level of awareness of assistive technology among public primary school male and female teachers in Education District II.

**Table 6: Difference in the level of awareness of assistive technology among public primary school male and female teachers in Education District II**

Gender	N	$\bar{X}$	SD	Df	T	Sig.
Male Teachers	23	3.11	0.94	94	.087**	.085
Female Teachers	73	3.13	0.90			

\*\*Not Significant

Table 6 indicated that  $t(94) = 0.087$ ,  $p = 0.05$ . That is, the result of the t-value of 0.087 resulting in 0.085 significance value was higher than the alpha level of 0.05. Accordingly, the null hypothesis which stated that there is no significant difference in the level of awareness of assistive technology among public primary school male and female teachers in Education District II was accepted. Thus, there is no significant difference in the level of awareness of assistive technology among public primary school male and female teachers in Education District II.

**H<sub>02</sub>:** There is no significant relationship between the level of availability of assistive technology and level of accessibility of assistive technology devices by public primary school teachers in Education District II.

**Table 7: Relationship between the Level of Availability of Assistive Technology and Level of Accessibility of Assistive Technology Devices by Public Primary School Teachers in Education District II**

Variables	Mean	S.D	N	df	R	p-value	Remark
Level of availability of assistive technology	1.23	1.14	96	94	.381*	.002	Sig.
Level of accessibility of assistive technology devices by public primary school teachers	2.51	1.09					

\*Significant,  $p < 0.05$ ;

Table 7 revealed that there is significant relationship between the level of availability of assistive technology and level of accessibility of assistive technology devices by public primary school teachers in Education District II ( $r(96) = 0.381$ ;  $df=94$ ;  $p < 0.05$ ). Thus, the null hypothesis which stated that there is no significant relationship between the level of availability of assistive technology and level of accessibility of assistive technology devices by public primary school teachers in Education District II was rejected. Hence, there is significant relationship between the level of availability of assistive technology and level of accessibility of assistive technology devices by public primary school teachers in Education District II.

**H<sub>03</sub>:** There is no significant relationship between the level of availability of assistive technology and level of usability of assistive technology by public primary school teachers in Education District II.

**Table 8: Relationship between the Level of Availability of Assistive Technology and Level of Usability of Assistive Technology by Public primary School Teachers in Education District II**

		Level of availability of assistive technology	Level of usability of assistive technology by public primary school teachers
Level of availability of assistive technology	Pearson Correlation	1	.442**
	Sig. (2-tailed)		.003
	N	96	96
Level of usability of assistive technology by public primary school teachers	Pearson Correlation	.442**	1
	Sig. (2-tailed)	.003	
	N	96	96

\*\* . Correlation is significant at the 0.05 level (2 -tailed).

Information on Table 8 revealed that there is significant relationship between the level of availability of assistive technology and level of usability of assistive technology by public primary school teachers in Education District II ( $r(96) = 0.442$ ;  $df=94$ ;  $p < 0.05$ ). Therefore, the null hypothesis, which claimed that there is no significant relationship between the level of availability of assistive technology and the level of usability of assistive technology by public primary school teachers in Education District II, was rejected. Hence, there is significant relationship between the level of availability of assistive technology and level of usability of assistive technology by public primary school teachers in Education District II.

**H<sub>04</sub>:** There is no significant relationship between the level of accessibility and usability of assistive technology devices by public primary school teachers in Education District II.

**Table 9: Relationship between the Level of Accessibility and Usability of Assistive Technology by Public Primary School Teachers in Education District II**

		Level of accessibility of assistive technology devices by public primary school teachers	Level of usability of assistive technology by public primary school teachers
Level of accessibility of assistive technology devices by public primary school teachers	Pearson Correlation	1	.832**
	Sig. (2-tailed)		.000
	N	96	96
Level of usability of assistive technology by public primary school teachers	Pearson Correlation	.832**	1
	Sig. (2-tailed)	.000	
	N	96	96

\*\* . Correlation is significant at the 0.05 level (2 -tailed).

Information on Table 9 revealed that there is significant relationship between the level of accessibility and usability of assistive technology devices by public primary school teachers in Education District II ( $r(96) = 0.832$ ;  $df=94$ ;  $p < 0.05$ ). Therefore, the null hypothesis which claimed that there is no significant relationship between the level of accessibility and usability of assistive technology devices by public primary school teachers in Education District II was rejected. Hence, significant relationship existed between the level of accessibility and usability of assistive technology devices by public primary school teachers in Education District II.

### Discussions of Findings

The study's findings revealed no significant difference in the level of awareness of assistive technology among male and female public primary school teachers in Education District II. The findings of this study are in agreement with the report of Bhaskar and Vanitha (2023), who investigated the awareness level of Assistive Technology among preservice teachers in the context of promoting inclusive education. According to their research, preservice teachers had a moderate level of awareness about assistive technology, with no discernible differences according to gender, pedagogy subject, or location.

There is no significant relationship between the level of availability of assistive technology and the level of accessibility of assistive technology devices by public primary school teachers in Education District II. This finding supported the view of Yusuf et al. (2012), whose study on assistive technologies for students with mental retardation & learning disabilities, their survey of specialised institutions revealed a significant gap between the presence of technology and its application in the classroom. While a majority of schools possessed computer systems, these tools were primarily utilised for administrative tasks rather than for active instructional support. In addition, the findings of Dominic *et. al.* (2020) corroborates the finding of this study. Their findings showed that a good number of the high-tech assistive resources necessary for quality teaching and learning in special education schools were unavailable. Similarly, Olugu (2020), who assessed the availability and utilisation of assistive technology devices for improved teaching and learning among students with learning disabilities in

Ohafia, Abia state, revealed that a good number of assistive technology devices are not available for student with learning disabilities in Ohafia in Abia State.

Conversely, some studies have revealed the availability of assistive technology, especially in special schools. Alimi *et. al.*, (2021) who conducted a study in Nigeria to assess the availability and utilization of ATs for learners with special needs observed that 52.1% of braille and braille embossers, 45.2% of the stylus, 74% of eyeglasses, 53.4% of optical aids, 57.5% of talking computers, 52.1 % of note takers and screen readers for only 52.1% were available and used in schools. An empirical study conducted by Eliuteri and Lema (2022) in Tanzania, which focused on examining the access to assistive devices for special education needs in Morogoro municipal, also revealed that some of these assistive technologies were available and accessible to learners.

There is no significant relationship between the level of availability of assistive technology and the level of usability of assistive technology by public primary school teachers in Education District II. The results of the analyses revealed that assistive technology devices are moderately accessible to public primary school teachers in Education District II, and there is a significant relationship between the level of availability of assistive technology and the level of usability of assistive technology devices by public primary school teachers in Education District II. Thus, we reject the null hypothesis. One of the primary challenges in the accessibility of assistive technology is the lack of adequate training for teachers. Many educators express the need for comprehensive professional development to understand and implement these tools effectively. Without proper training, the full potential of assistive technology remains untapped, and students may not receive the support they need. Moreover, limited funding and resources often pose a significant barrier. Schools may struggle to afford the necessary devices or software, leading to disparities in technology availability. This economic constraint can prevent teachers from providing all students with the appropriate tools, thereby hindering an equitable learning environment.

The accessibility of assistive technology for primary school teachers is essential for creating an inclusive educational environment. By addressing the challenges, we can ensure that all students, regardless of their abilities, have the opportunity to succeed in their educational journey. Teachers, as the frontline facilitators of learning, play a vital role in this transformative process, shaping the future of education for all.

There is no significant relationship between the level of accessibility and usability of assistive technology devices by public primary school teachers in Education District II. The results of this investigation are consistent with Isiaku *et. al.* (2021), whose findings not only revealed underutilization of assistive technology in schools but went further to give reasons for the underutilisation of assistive technology in schools. According to them effective utilization of assistive technologies is constraint by many challenges like inadequate availability of assistive technologies, inadequate trained instructors to teach students with disabilities how to utilize assistive technologies, lack of adequate planning and collaboration time for instructors, lack of technical assistance from the vendor or manufacturers, lack of cooperation between the school and the family of students with disabilities, inadequate availability of ICT specialists to instruct students with learning difficulties and restricted possibilities for their training.

## Conclusion

Considering the findings of the analysis of the data collected, it was concluded that the level of availability of assistive technology among public primary school teachers in Education District II is low and fairly utilised, which may result in poor academic outcomes among the pupils. Nonetheless, the level of awareness and accessibility of the assistive technology is moderate.

## Recommendations

The following suggestions were deemed essential in light of the study's findings.

1. Adequate assistive technology should be made available by the Government, NGOs, etc, in public schools to enhance the learning of the children.
2. More awareness and sensitisation programs about assistive technology should be organised for public primary school teachers.

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