AVAILABILITY, ACCESSIBILITY AND ACCEPTANCE OF ADVANCED DIGITAL TECHNOLOGIES AMONG HIGHER EDUCATION STUDENTS WITH SPECIAL NEEDS IN OYO STATE, NIGERIA

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Introduction

- In general, digital technologies are important as they:
- influence educational opportunities for all learners
- make life a bit interesting for everyone in this information age including those with special needs
- change the way students work, communicate, learn and live.

For students with special needs, digital technologies:

- Provide flexible ways of learning to them
- Ensure easy access to quality education of students with special needs

3 categories of digital technologies according to Atkinson and Castro (2008)

- assistive technology (technology designed specifically to improve a disabled person's functional capabilities)
- adaptive technology (technology that allows people with disabilities to use devices that would otherwise be inaccessible to them)
- accessible technology (technology that has many broad applications that helps to remove barriers and that makes the world more accessible for people with disabilities).

Examples of digital technologies for students with special needs

- Include both hardware and software products such as:
- Perkin's Braillers
- white/mobility cane
- brailled textbooks
- talking watch
- hearing aids
- speech trainers
- computer technology and
- accessory Internet facilities and
- special classroom boards
- (The Federal Republic of Nigeria,2013) through its National Policy on Education

HAVE LITTLE USE FOR VOICE TELEPHONE FEATURES ON CELL PHONES CAN:

- Send instant text messages
- Use e-mail features on these devices
- Bypass traditional media that rely on voice communication and
- Instead use videoconferencing services to communicate through sign language or lip reading.

Students with visual impairment can access computer output by using

- Computer screen readers such as Job Access with Speech (JAWS)
- Screen magnifiers
- Overlay keyboards that can provide students with visual impairment with a combination of overlays, which can enhance access when used with speech feedback or visual representation,
- scanners that scan text into a computer for enlargement on the screen etc

Literature Review

- Studies reviewed include:
- Dobransky & Hargittai (2006)
- Atkinson & Castro (2008)
- Sultan & Hayhoe (2013)
- Hayes (2013)
- Ogunwale & Oyewumi (2015)
- Georgeson, Mamas & Swain (2015)
- Komolafe (2015)
- Opara, Okoro & Iheme (2016)
- Pudaruth, Gunputh & Singh (2017) and others

Literature review

- To a large extent findings on digital technologies and students with special needs seem to be inconsistent
- Thus, there is need to provide more insight into the availability, accessibility and acceptance of digital technologies among students with special needs in higher education institutions.
- This assertion is the focus of the present study.

Higher institutions in Nigeria practise some kind of inclusion because they accommodate all students notwithstanding their disability status.

STATEMENT OF THE PROBLEM

- Higher educational institutions in Nigeria practise some kind of inclusion because they accommodate all students notwithstanding their disability status.
- Have an educational policy that supports social and cultural equality for all categories of students.
- However, despite these laudable goals, one important issue that is yet to be addressed is the extent to which they cater for the needs of students with special needs in terms of the provision of digital technologies for teaching and learning.

Purpose of the study

- The study set out to:
- Identify available digital technologies for teaching and learning among higher education students with hearing and visual impairments in Oyo State, Nigeria.
- Examine the extent of accessibility of these tools and
- Ascertain the level of acceptance of digital technologies among the participants.

Research Questions

- 8 Research questions were raised and answered:

1. What types of digital technologies are available for students with hearing impairment?
2. How accessible are the digital technologies to students with hearing impairment?
3. What is the level of acceptance of digital technologies by students with hearing impairment?
4. What types of digital technologies are available for students with visual impairment?

Research Questions

5. How accessible are the digital technologies to students with visual impairment?
6. What is the level of acceptance of digital technologies by students with visual impairments?
7. Will male and female students with hearing and visual impairments significantly differ in digital technologies acceptance?
8. Will there be any difference in digital technologies acceptance based on age?

Methodology

- **Research Design**
- A descriptive research design was adopted in this study.
- **Population**
- The population of this study was all students with hearing and visual impairments in two higher education institutions in Oyo State, Nigeria namely: University of Ibadan, a pioneer higher education institution in the field of special education in Nigeria and the Federal College of Education (Special), Oyo, Oyo State, the college with the largest number of students with special needs in Nigeria.

Sample and Sampling technique

- Purposive sampling technique was used to select two higher educational institutions for the study
- While random sampling technique was used to select 140 participants comprising 125 students with hearing impairment and 15 students with visual impairment

Research instruments

- Two self-structured questionnaires were used in this study to elicit information from the participants.
- One was titled availability, accessibility and acceptance of digital technologies among higher education students with hearing impairment (AAADTHESHI)
- While the second was titled availability, accessibility and acceptance of digital technologies among higher education students with visual impairment (AAADTHESVI).

Procedure for data collection and analysis

- The instruments were administered by the researcher with the assistance of four sign language interpreters for students with hearing impairment and three tutors of the blind students.
- The data were analysed using percentages, mean, t-test and analysis of variance (ANOVA).

Results

Visual Impairment Student			Hearing Impairment Students	
Demographic factors	**N=15**	**%**	**N=125**	**%**
Gender Male	7	46.7	61	48.8
Female	8	53.3	64	51.2
Age Group 16 to 20 yrs	3	20.0	31	24.8
21 to 25 yrs	3	20.0	24	19.2
26 yrs and above	9	60.0	70	56.0
Class/Level Final year	2	13.3	19	15.2
Fourth year	2	13.3	18	14.4
Third year	9	60.0	71	56.8
Second year	2	13.3	17	13.6
Mode of study: Full time	15	100.0	123	98.4
Part time	0	0.0	2	1.6
Degree of Disability: Mild	1	6.7	11	8.8
Moderate	8	53.3	66	52.8
Severe	4	26.7	32	25.6
Profound	2	13.3	16	12.8

TECHNOLOGIES FOR STUDENTS WITH HEARING IMPAIRMENT

S/N	Item	A& F (%)	ABNF(%)	NAA(%)	Mean	Rank
1	Signalling Devices	17(13.6)	15(12.0)	93(7.7)	2.61	
2	Electronic Hearing Aids	17(13.6)	36(28.8)	72(57.6)	2.44	
3	Telecommunication Device for the Deaf	22(17.6)	24(19.2)	79(63.2)	2.46	
4	Adapted Door Bell	19(15.2)	24(19.2)	82(65.6)	2.50	
5	Video Conferencing Technologies	24(19.2)	8(6.4)	93(74.4)	2.55	
6	Computer Systems	24(19.2)	17(13.6)	84(67.2)	2.48	
7	Subtitles for Video	23(18.4)	19(15.2)	83(66.4)	2.48	
8	Mobile Telephones	21(16.8)	36(28.8)	68(54.4)	2.38	
9	Smartphones	20(16.0)	18(14.4)	87(69.6)	2.54	
10	Short Message Service (SMS)	23(18.4)	20(16.0)	82(65.6)	2.47	
11	Text Telephone	28(22.4)	25(20.0)	72(57.6)	2.35	
12	Telecommunication relay services	23(18.4)	16(12.8)	86(68.8)	2.50	
13	Closed and open captioning applications	20(16.0)	26(20.8)	79(63.2)	2.47	
14	Audiometer	26(20.8)	12(9.6)	87(69.6)	2.49	
15	Typanometer	23(18.4)	20(16.0)	82(65.6)	2.47	
16	Motion Film	27(21.6)	30(24.0)	68(54.4)	2.33	
17	Alerting Devices	32(25.6)	16(12.8)	77(61.6)	2.36	
18	Interactive White Board	24(19.2)	20(16.0)	81(64.8)	2.46	
19	Sound Amplifiers	21(16.8)	10(8.0)	94(75.2)	2.58	
20	Video Relay service	23(18.4)	10(8.0)	92(73.6)	2.55	
21	Telecoil	21(16.8)	7(5.6)	97(77.6)	2.61	

RQ_1: What types of digital technologies are available for students with hearing impairment?

- Table 2 revealed that:
- 32(25.6%), 27(21.6%) and 28(22.4%) respectively pointed out that alerting devices, motion film and text telephone are available and functioning
- while a significant number of participants 97(77.6%), 94(75.2%) 93(74.4) and 92(73.6%) indicated that telecoil, sound amplifiers, video conferencing technologies and video relay services are not available at all.
- It implies that for students with hearing impairment, digital technologies are poorly available or not available.

TECHNOLOGIES TO STUDENTS WITH HEARING IMPAIRMENT

S/N	Item	YES	NO	Mean	Rank
1	Signalling Devices	21(16.8)	104(83.2)	1.83	
2	Electronic Hearing Aids	25(20.0)	100(80.0)	1.80	
3	Telecommunication Device for the Deaf	26(20.8)	99(79.2)	1.79	
4	Adapted Door Bell	21(16.8)	104(83.2)	1.83	
5	Video Conferencing Technologies	21(16.8)	104(83.2)	1.83	
6	Computer Systems	22(17.6)	103(82.4)	1.82	
7	Subtitles for Video	22(17.6)	103(82.4)	1.82	
8	Mobile Telephones	26(20.8)	99(79.2)	1.79	
9	Smartphones	35(28.0)	90(72.0)	1.72	
10	Short Message Service (SMS)	22(17.6)	103(82.4)	1.82	
11	Text Telephone	18(14.4)	107(85.6)	1.86	
12	Telecommunication relay services	26(20.8)	99(79.2)	1.79	
13	Closed and open captioning applications	24(19.2)	101(80.8)	1.81	
14	Audiometer	19(15.2)	106(84.8)	1.85	
15	Typanometer	21(16.8)	104(83.2)	1.83	
16	Motion Film	25(20.0)	100(80.0)	1.80	
17	Alerting Devices	19(15.2)	106(84.8)	1.85	
18	Interactive White Board	30(24.0)	95(76.0)	1.76	
19	Sound Amplifiers	35(28.0)	90(72.0)	1.72	
20	Video Relay service	34(27.2)	91(72.8)	1.73	
21	Telecoil	21(16.8)	104(83.2)	1.83	

RQ_2: HOW ACCESSIBLE ARE THE DIGITAL TECHNOLOGIES TO STUDENTS WITH HEARING IMPAIRMENT?

- Table 3 revealed that:
- 35(28.0%) and 35(28.0%) participants agreed that sound amplifiers, smartphones are accessible to students with hearing impairment
- while participants 107(85.6%), 106(84.8%) and 106(84.8%) indicated that text telephone, audiometer, and alerting devices are not accessible to them.
- It implies that accessibility of digital technologies for students with hearing impairment is low or not accessible.

TECHNOLOGIES BY STUDENTS WITH HEARING IMPAIRMENT

S/N	Item	H A(%)	MA(%)	LA(%)	Mean	Rank
1	Signalling Devices	28(22.4)	14(11.2)	83(66.4)	2.44	
2	Electronic Hearing Aids	26(20.8)	23(18.4)	76(60.8)	2.40	
3	Telecommunication Device for the Deaf	21(16.8)	12(9.6)	92(73.6)	2.57	
4	Adapted Door Bell	21(16.8)	20(16.0)	84(67.2)	2.50	
5	Video Conferencing Technologies	27(21.6)	18(14.4)	80(64.0)	2.42	
6	Computer Systems	42(33.6)	29(23.2)	54(43.2)	2.10	
7	Subtitles for Video	33(26.4)	22(17.6)	70(56.0)	2.30	
8	Mobile Telephones	24(19.2)	8(6.4)	93(74.4)	2.55	
9	Smartphones	23(18.4)	10(8.0)	92(73.6)	2.55	
10	Short Message Service (SMS)	24(19.2)	12(9.6)	89(71.2)	2.52	
11	Text Telephone	34(27.2)	22(17.6)	69(55.2)	2.28	
12	Telecommunication relay services	35(28.0)	27(21.6)	63(50.4)	2.22	
13	Closed and open captioning applications	29(23.2)	16(12.8)	80(64.0)	2.41	
14	Audiometer	35(28.0)	23(18.4)	67(53.6)	2.26	
15	Typanometer	25(20.0)	10(8.0)	90(72.0)	2.52	
16	Motion Film	28(22.4)	12(9.8)	85(68.0)	2.46	
17	Alerting Devices	24(19.2)	17(13.6)	84(67.2)	2.48	
18	Interactive White Board	30(24.0)	18(14.4)	77(61.6)	2.38	
19	Sound Amplifiers	35(28.0)	24(19.2)	66(52.8)	2.25	
20	Video Relay service	27(21.6)	20(16.0)	78(62.4)	2.41	
21	Telecoil	25(20.0)	26(20.8)	74(59.2)	2.39	

RQ_3: What is the level of acceptance of digital technologies by students with hearing impairment?

- Table 4 revealed that:
- 42(33.6%), 35(28.0%), and 35(28.0%) pointed out that they have high acceptance for computer systems, telecommunication relay services and sound amplifiers
- while a 93(74.4%), 92(73.6%) and 90(72.0%) indicated that telecommunication device for the deaf, mobile telephones and smartphones are not acceptable to them.
- It implies that the level of digital technologies acceptance by students with hearing impairment is low.

S/N	Item	A&F (%)	ANF(%)	NAA(%)	Mean	Rank
1	Perkin's Brailler	11(73.3)	2(13.3)	2(13.3)	1.40	
2	Braille Display Strip	5(33.3)	1(6.7)	9(60.0)	2.27	
3	Braille note taking devices	3(20.0)	6(40.0)	6(40.0)	2.20	
4	Paperless Braille equipment	1(6.7)	0(0.0)	14(93.3)	2.93	
5	JAWS software	13(86.7)	0(0.0)	2(13.3)	1.27	
6	Computer Systems	13(86.7)	2(13.3)	0(0.0)	1.13	
7	Screen Reading software	7(46.6)	4(26.7)	4(26.7)	1.80	
8	Mobile Telephones	9(60.0)	1(6.7)	5(33.3)	1.73	
9	Smartphones	7(46.7)	2(13.3)	6(40.0)	1.93	
10	Optical Character Recognition Devices	4(26.7)	5(33.3)	6(40.0)	2.13	
11	Stylus	11(73.3)	0(0.0)	4(26.7)	1.53	
12	Synthetic Speech Device	9(60.0)	3(20.0)	3(20.0)	1.60	
13	Smartpens (for capturing spoken word)	0(0.0)	1(6.7)	14(93.3)	2.93	
14	Headphones	10(66.7)	2(13.3)	3(20.0)	1.53	
15	Overlay Keyboard	3(20.0)	1(6.7)	11(73.3)	2.53	
16	Alternative mouse	4(26.7)	2(13.3)	9(60.0)	2.33	
17	Screen Magnification device	4(26.7)	7(46.6)	4(26.7)	2.00	
18	Tape Recorder	9(60.0)	3(20.0)	3(20.0)	1.60	
19	Adjustable Table	2(13.3)	1(6.7)	12(80.0)	2.67	
20	Wrist rests	3(20.0)	1(6.7)	11(73.3)	2.53	
21	Talking Computer	11(73.3)	3(20.0)	1(6.7)	1.33	
22	Scanner	10(66.7)	2(13.3)	3(20.0)	1.53	
23	Writing tool/Computer companion	2(13.3)	2(13.3)	11(73.4)	2.60	
24	Mouth and Chin Sticks	0(0.0)	3(20.0)	12(80.0)	2.80	
25	Tablets (iPad, iPhone or iPod)	3(20.0)	2(13.3)	10(66.7)	2.47	
26	MP3 Players and Recorders	6(40.0)	1(6.7)	8(53.3)	2.13	
27	Adapted and Virtual Keyboards	9(60.0)	1(6.7)	5(33.3)	1.73	
28	Guiding cane	12(80.0)	1(6.7)	2(13.3)	1.33	

TECHNOLOGIES ARE AVAILABLE FOR STUDENTS WITH VISUAL IMPAIRMENT?

- Table 5 revealed that: 13(86.7%), 13(86.7%), 12 (80.0%), 11 (73.3%) and 11(73.3%) pointed out that screen reading software, JAWS software, guiding cane, talking computer and Perkin's Brailler are available and functioning
- while 14(93.3%), 12(80.0%), and 11(73.4%) indicated that paperless Braille equipment, smartpens, mouth and chin sticks and writing tool/computer companion are not available at all.
- It implies that availability of digital technologies for students with visual impairment is moderate.

S/N	Item	YES	NO	Mean	Rank
1	Perkin's Brailler	15(100.0)	0(0.0)	1.00	
2	Braille Display Strip	5(33.3)	10(66.7)	1.67	
3	Braille note taking devices	5(33.3)	10(66.7)	1.67	
4	Paperless Braille equipment	3(20.0)	12(80.0)	1.80	
5	JAWS software	15(100.0)	0(0.0)	1.00	
6	Computer Systems	15(100.0)	0(0.0)	1.00	
7	Screen Reading software	10(66.7)	5(33.3)	1.33	
8	Mobile Telephones	9(60.0)	6(40.0)	1.40	
9	Smartphones	6(40.0)	9(60.0)	1.60	
10	Optical Character Recognition Devices	5(33.3)	10(66.7)	1.67	
11	Stylus	13(86.7)	2(13.3)	1.13	
12	Synthetic Speech Device	9(60.0)	6(40.0)	1.40	
13	Smartpens (for capturing spoken word)	4(26.7)	11(73.3)	1.73	
14	Headphones	10(66.7)	5(33.3)	1.33	
15	Overlay Keyboard	1(6.7)	14(93.3)	1.93	
16	Alternative mouse	1(6.7)	14(93.3)	1.93	
17	Screen Magnification device	9(60.0)	6(40.0)	1.40	
18	Tape Recorder	10(66.7)	5(33.3)	1.33	
19	Adjustable Table	3(20.0)	12(80.0)	1.80	
20	Wrist rests	4(26.7)	11(73.3)	1.73	
21	Talking Computer	10(66.7)	5(33.3)	1.33	
22	Scanner	10(66.7)	5(33.3)	1.33	
23	Writing tool/Computer companion	5(33.3)	10(66.7)	1.67	
24	Mouth and Chin Sticks	5(33.3)	10(66.7)	1.67	
25	Tablets (iPad, iPhone or iPod)	9(60.0)	6(40.0)	1.40	
26	MP3 Players and Recorders	9(60.0)	6(40.0)	1.40	
27	Adapted and Virtual Keyboards	10(66.7)	5(33.3)	1.33	
28	Guided cane	13(86.7)	2(13.3)	1.13	

TECHNOLOGIES TO STUDENTS WITH VISUAL IMPAIRMENT?

- Table 6 revealed that: 15(100.0%), 13(86.7%), and 13(86.7%) pointed out that Perkin's Brailler, JAWS software, computer systems, stylus, guided cane and headphones are accessible to students with visual impairment
- while 14(93.3%), 12 (80.0%), 11 (73.3) and 10 (66.7%) indicated that alternative mouse, overlay keyboard, smartpens, adjustable table, wrist rests, writing tool/computer companion and mouth and chin sticks are not accessible to them.
- It implies that accessibility of digital technologies for students with visual impairment is moderate.

IMPAIRMENT

S/N	Item	HA(%)	MA	LA	Mean	Rank
1	Perkin's Brailler	11(73.3)	4(26.7)	0(0.0)	1.27	
2	Braille Display Strip	2(13.3)	5(33.3)	8(53.3)	2.40	
3	Braille note taking devices	4(26.7)	5(33.3)	6(40.0)	2.13	
4	Paperless Braille equipment	3(20.0)	5(33.3)	7(46.7)	2.27	
5	JAWS software	11(73.4)	2(13.3)	2(13.3)	1.40	
6	Computer Systems	13(86.7)	2(13.3)	0(0.0)	1.13	
7	Screen Reading software	6(40.0)	6(40.0)	3(20.0)	1.80	
8	Mobile Telephones	9(60.0)	3(20.0)	3(20.0)	1.60	
9	Smartphones	10(66.7)	2(13.3)	3(20.0)	1.53	
10	Optical Character Recognition Devices	3(20.0)	7(46.7)	5(33.3)	2.13	
11	Stylus	10(66.7)	5(33.3)	0(0.0)	1.33	
12	Synthetic Speech Device	6(40.0)	7(46.7)	2(13.3)	1.73	
13	Smartpens (for capturing spoken word)	2(13.3)	3(20.0)	10(66.7)	2.53	
14	Headphones	6(40.0)	8(53.3)	1(6.7)	1.67	
15	Overlay Keyboard	2(13.3)	10(66.7)	3(20.0)	2.07	
16	Alternative mouse	3(20.0)	6(40.0)	6(40.0)	2.20	
17	Screen Magnification device	8(53.3)	4(26.7)	3(20.0)	1.67	
18	Tape Recorder	9(60.0)	6(40.0)	0(0.0)	1.40	
19	Adjustable Table	3(20.0)	6(40.0)	6(40.0)	2.20	
20	Wrist rests	2(13.3)	8(53.3)	5(33.3)	2.20	
21	Talking Computer	10(66.7)	3(20.0)	2(13.3)	1.47	
22	Scanner	10(66.7)	5(33.3)	0(0.0)	1.33	
23	Writing tool/Computer companion	4(26.7)	6(40.0)	5(33.3)	2.07	
24	Mouth and Chin Sticks	2(13.3)	4(26.7)	9(60.0)	2.47	

OF DIGITAL TECHNOLOGIES BY STUDENTS WITH VISUAL IMPAIRMENTS?

- Table 7 revealed that:
- 13(86.7%), 11(73.3%), and 10(66.7%) respectively pointed out that they have high acceptance for computer systems, Perkin's Brailler and scanner
- while 10(66.7%), 9(60.0%) and 8(53.3%) indicated that smartpens, mouth and chin sticks and Braille Display strip are not acceptable to them.
- It implies that digital technologies acceptance by students with hearing impairment is moderate.

TABLE 8: T-TEST SHOWING DIFFERENCE IN MALES AND FEMALES ON ACCEPTANCE OF DIGITAL TECHNOLOGIES

Variable	Gender	N	Mean	SD	df.	t-Cal	t-Crit	P
Acceptance of digital technologies	Male	68	49.53	12.882	138	20.847	1.960	0.024 ($p<0.05$) Significant
	Female	72	51.19	10.288				
	Total	140						

SIGNIFICANTLY DIFFER IN DIGITAL TECHNOLOGIES ACCEPTANCE?

- Table 8 revealed that there was a significant difference between male and females on acceptance of digital technologies.
- It was observed that the t-Calculated value was greater than t-Critical values (t-Cal=20.847> t-Crit =1.960), (P<0.05).
- The mean difference shows that females obtained higher mean (51.19) than males(49.53).
- Therefore, there is a significant difference between males and females on acceptance of digital technologies.

TABLE 9: SUMMARY OF ANOVA SHOWING DIGITAL TECHNOLOGIES ACCEPTANCE BASED ON AGE

Age range	N	Mean	Std Dev	Sum of Square	df.	Mean Square	F	p.(Sig)
16 to 20yrs	34	52.18	8.92	445.619	2	222.809	1.668	0.192
21 to 25 yrs	27	46.93	12.77	18301.553	137	133.588		
26 years above	79	50.80	12.10	18747.171	139			
Total	140							

DIGITAL TECHNOLOGIES ACCEPTANCE BASED ON AGE?

- Table 9 showed that participants did not significantly differ in their acceptance of digital technologies on the basis of age. The mean scores of participants aged 16 to 20 years is(mean= 52.18), followed by those aged 26 years and above with (mean=50.80), and those aged 21-25 years with (mean=46.93).
- Therefore, there was no significant influence of age on acceptance of digital technologies($F=(_{2,137})=1.668$, $P=0.192 >0.05$).

Discussion of findings

A. Students with hearing impairment revealed that

- In higher educational institutions in Oyo State, Nigeria, digital technologies are:
- unavailable and
- Inaccessible to them
- There is low acceptance of digital technologies among higher education students with hearing impairment.

- These findings agree with the findings of Ogunwale and Oyewumi (2015) that technological devices are unavailable and inaccessible to students with hearing impairment in secondary schools in Oyo State, Nigeria.
- The findings also support that of Georgeeson et al (2015) that higher education students do not have the correct digital capital to succeed in their studies.
- Therefore, stakeholders should address these shortfall as a matter of urgency.

Discussion of Findings

A. Students with visual impairment agreed that

- Digital technologies are moderately available in higher educational institutions in Oyo State, Nigeria,
- Digital technologies are moderately accessible to them
- They have moderate acceptance for digital technologies

- The present findings corroborate the findings of Opara, Okoro and Iheme(2016) on availability of devices to students with visual impairment in secondary schools in Imo State, Nigeria
- But contradict the finding of Komolafe (2015) that very few devices are available to secondary school students with visual impairment in Lagos State, Nigeria.

Students with visual impairment further identified that

- Devices such as paperless Braille equipment, smart pens are not available
- Alternative mouse, overlay keyboards, smart pens, adjustable tables, wrist rests, writing tool/ computers companion are not accessible to them.
- These findings again suggest the need for urgent intervention by stakeholders.

Gender and digital technologies acceptance

- There is a significant difference between male and female participants in digital technologies acceptance.
- Female students with special needs agreed that they have higher level of digital technologies acceptance than males.

Gender and digital technologies acceptance

- Finding agrees with findings of Smeeth et al., (2002) and Parettes and Scherer (2004) that females tend to use digital technologies more than males

- Finding negates Malcolm and Roll's (2017) submission that there is no gender difference in the use of assistive technologies by persons with special needs

Participants' age and digital technologies acceptance

- The study found no significant difference in the acceptance of digital technologies by participants on the basis of age.

Conclusion

- Digital technologies provides educational opportunities for students with special needs.
- However, issues surrounding the availability, accessibility, and acceptance of digital technologies among higher education students with special needs should be addressed by stakeholders such as:
- government,
- administrators,
- lecturers,
- technologists and
- students with special needs themselves

Recommendation

- Provision of digital technologies for students with special needs should be the collective responsibility:
- The Nigerian government should brace up to its responsibilities in this regard. They should do more(invest on it).
- Non-governmental organisations
- Religious bodies
- Parents
- Philanthropists

Recommendation

- Higher educational institutions should organize regular sensitization programmes in form of:
- Workshops
- Seminars
- Digital technology fairs and exhibitions for students with special needs
- These will help to raise the level of digital technologies acceptance among students with special needs, especially students with hearing impairment.

Recommendation

- Administrators and technologists should:

- put in place proper maintenance system to ensure the durability of available digital technologies in higher educational institutions in Nigeria.

- Thank you for listening.