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Attitude of Hearing Impaired Students Towards Assistive Technology Utilization in Oyo State Adopting the Survey Method

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ABSTRACT

This study examined attitude of hearing-impaired students towards assistive technology utilization for learning and its gender' influence. The study adopted the descriptive research type. mean and t-test were used for the research. The findings established that Students with hearing impairments were enthusiastic about using hearing assistive equipment in the classroom. This implies that positive attitude of students towards the use of the assistive technologies will influence their utilization of such technologies for learning. As a result, it was however recommended that schools hire Educational Technologists who can help with the appropriate use of assistive technology tools to enhance classroom instruction.

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1. INTRODUCTION

This local study which was conducted in Nigeria is of global importance because the data from it could be used to predict the attitude of Students with hearing impairments to use assistive technologies for learning. in other countries of the world. Although, there are studies conducted on the hearing impaired students none known to the authors was on the attitude of hearing impaired students towards the utilization of assistive technology for learning in Oyo State which is the gap that this study address in the body of knowledge on this study. It should also be noted that the special students sampled in this study are similar to others on a more global level. This study thus addressing a significant problem on the attitude of students with hearing impairment towards the application of assistive technology for learning.

Education may be a systematic process which yields encouraging changes within the behaviour and lifetime of human. According to [Yu et al., \(2015\)](#), education refers to the acquisition or development of knowledge or skills through a learning process. It entails the passing down of information, skills, attitudes, culture, and other values from one generation to the next. Education also can be defined as a progression of obtaining knowledge through training or conveying knowledge by way of instructions or another applied procedures. Specifically, education helps and guides individuals to rework from one class to other. The necessity for technological innovation has brought a revolution in development of technological application in education. This has contributed to the event of educational systems. Educators are fast realizing that the utilization of computer assisted teaching and learning might be convenient for the users ([Ebrahimi & Jiar, 2018](#)). Students with disabilities accept impairments which will be cognitive, developmental, intellectual, mental, physical, and sensory or some combination of those. Disabilities substantially affects a person's life activities and should be present from birth or occur during a person's lifetime.

Computer-related apps are increasingly used to support and assist children with unique educational requirements. Information and communication technologies have taken the area of assistive technology to new heights, opening new doors, extending perspectives, and enabling autonomy for a number of people with disabilities. ICT turned the planet to a worldwide village, with an ever-increasing possibility of accessing a good array of data and knowledge, equally making it possible for sharing of written, audio and visual information at real time in many parts of the planet ([Usang et al., 2018](#)). It is essential to think about that this spread and development of technologies for learning is most fundamental when computers are not any longer the exclusive domains of the few privileged people only because it is additionally helpful to the special students. The utilization of ICT in education is increasing in Nigeria and is constant to switch strategies which are employed by both teachers and students in teaching and learning ([Hanapiah, 2017](#)).

Assistive technologies are technologies employed by persons with disabilities so as to perform functions which may rather be hard or impossible. Assistive technology can include mobility devices like walkers and wheelchairs, also as hardware, software, and peripherals that assist people with disabilities in accessing computers or other information technologies. As an example, people with limited hand function may use a keyboard with large keys or a special mouse to work a computer, people that are blind may use software that reads text on the screen during a computer-generated voice, people with low vision may use software that enlarges screen content, people that are deaf may use a TTY (text telephone), or people with speech impairments may use a tool that speaks aloud as they enter text via a keyboard. Assistive Technology is frequently promoted by schools, parents, and educators as a means

of assisting kids with special needs by offering a compensating value, resolving learning issues, and promoting personal freedom. Simple spellcheckers to more complicated speech recognition systems and academic software are among these technologies. [Soetan et al., \(2020\)](#) opined that assistive technology promotes greater students' liberation by enabling people to perform tasks that they might not have achieved without its adoption or formerly unable to accomplish or had great difficulty in accomplishing by providing enhancements to or changing methods of interacting with the technology needed to accomplish such tasks. [Radabaugh et al. \(2014\)](#) established that for many people, technology makes things easier, and technology makes things possible for people with disabilities.

Assistive technology devices include both devices and services which assist a toddler with special needs in his/her educational pursuits. A good range of products are developed for the training disabled that are mentioned as adaptive or assistive technology. Assistive technology devices can help improve physical and mental weakness functioning, overcome a disorder or impairment, prevent a disorder or impairment, prevent a condition from worsening, strengthen a physical or mental weakness, and help improve a person's capacity to locate or possibly replace a missing limb. Assistive technology could even be described as a tool that helps an individual with deafness or a voice, speech or language disorder to speak. Assistive technology often refers to devices that help an individual to listen to and understand what's being said more clearly or to precise thought more easily.

Teachers' use of assistive technologies broadens the range of options and opportunities for students by facilitating greater access to their educational development, exposes students and teachers to equal opportunities, and helps to level the sector by increasing students' participation in economic and human development activities ([Amesi & Yellowe, 2018](#)). The initial goal of incorporating assistive technology into the teaching and learning process for special needs children is to make teaching easier and learning more efficient. It should be noted, however, that incorporating assistive technology into the teaching and learning process is not an aim in itself. Technology cannot replace teachers but teachers who use technologies will soon outshine teachers who do not adopt technologies within the teaching process. There are several abilities and opportunities in disabilities and people in these categories can still do exploit in their endeavours including education. The power within the disabled people also can be felt if there are adequate provisions for them within the area of sports too. An increasing number of individuals with disabilities are participating in sports, resulting in the event of latest assistive technology among which are prosthetics device. Prosthetics devices are available for people with lower limbs or no leg in the least. South African athlete, Oscar Pistorius used this sort of technological device to compete with able bodies (people without disabilities) in 2008 Olympic. The effective utilization of assistive technologies in students' activities could boost their learning activities and facilitates their learning process. Technology innovation has the power and capability to supply adequate, current and timely services to information seekers wherever they are ([Uloaku, 2017](#)).

Attitude is that the strongest force affecting the status of outstanding persons (persons with disabilities). Students' knowledge and attitude are essential for effective use of assistive technology within the education of scholars with education needs. Assistive technology helps to extend students' participation in their education activities. [Sanchal and Sharma \(2017\)](#) stated that attitudes contain cognitive, effective and behavioural reactions that individuals display towards an object or by the encompassing supported their feeling. Student specific attitude towards a specific technology whether favourable or unfavourable, such expression of attitude could depend upon whether the student's perception toward such technologies

facilitates or blocks some cherished values held by the scholars. Lack of adequate internet bandwidth, insufficient number of computers, procurement of hardware and software is dear in developing countries, lack of technical support, lack of suitable administrative support, lack of re-training on ICT facilities and lack of data and skills for utilizing ICTs for research, lecturers' attitudes were identified as obstacles to the use of ICT facilities (Kunda et al., 2018).

Positive attitudes towards the utilization of assistive technology by students with disabilities can stimulate teachers to find out the specified skills which are essential for applying technology-based exercises and activities in school (Chapelle, 2010). Positive attitude will boost and attract students to the use of such technologies and negative attitudes will within the same vein discouraged students from the utilization or adoption of such technologies. Edmunds et al., (2012) investigated student attitudes towards and use of ICT in course study, work and group action and thus established that usefulness and simple use are key dimensions of students' attitudes towards technology altogether three contexts but that ICT is perceived most positively within the context of labor and technology use at work is a crucial driver for technology use in other areas.

Gender is that the range of characteristics concerning, and differentiating between masculinity (male) and femininity (female). Soetan et al., (2020) established differences between male and feminine students' efficacy within the adoption of assistive technology for learning. Amosa and Obielodan (2019) deduced differences between the scholars taught using interactive-video instructional package and their counterparts taught using expository method as their analysis established that the scholars taught using interactive-video instructional package performed better than those students taught using expository. Van Deursen (2012) reported that boys perform better than girls on ICT-related assessments. Girls, however, report spending longer on social networking sites, taking note of music, and online reading than boys. Although it might be perceived by more folks that males adopt technologies more than the females in their learning because the previous were generally slow in adapting to technologies but this cannot be established unless investigated. Onojah et al., (2019) established no significant difference between male and feminine undergraduate students' readiness towards the adoption of study technology for learning.

Students with disabilities have the same right to a basic education as their active classmates. Within the Nigerian educational system, these pupils are entitled to the same rights as their active counterparts. Pupils with impairments often have a comparable degree of mental competence as normal hearing students in terms of learning, but they lack other capabilities rather than intellect. However, issues might arise for such pupils if the teachers apply the same teaching methodology for them as they do for active hearing students. As a result, utilizing assistive technology, students may have access to all they need to learn in their own time and at their own speed.

Lavanya and Santharooban (2018) reported that, slow Internet connectivity, a lack of time, a lack of awareness of online information resources, virus and other malware pop-ups, information overload, inaccessibility to large online resources, unreliable information on the web, a lack of searching/browsing skills, and a lack of English proficiency were all barriers to accessing and using online resources. Also, the study of Mahmood et al., (2014) reported that teachers' lack of exposure and expertise, their being forced to use technology without adequate time to learn, acquire, and apply the technology appropriately, and teachers' lack of confidence, which can be attributed to a lack of professional training, are all barriers to the use of Internet facilities. Thus, if students have negative attitude towards the utilization of those technologies it's going to not yield the apt result albeit coerced. This study is therefore

seeking to work out attitudes of Federal College of Education (Special) Oyo students about the usage of assistive technologies.

2. RESEARCH QUESTIONS

Answers to the following research questions were found in the study:

- i. What sorts of hearing assistive technologies are available to hearing impaired students?
- ii. What is the attitude of hearing-impaired pupils about the use of hearing aid technology?
- iii. What effect does gender have on hearing-impaired students' attitudes about the use of hearing assistive technology?

3. RESEARCH HYPOTHESIS

H₁: The attitudes of male and female hearing-impaired students on the use of hearing assistive technology for learning are not significantly different.

4. THEORETICAL FRAMEWORK

Sabzian and Gilakjani (2013) stated that attitude is a relatively enduring organization of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events or symbols. Although there are numerous assistive technological tools that special students can use to assist their learning process and methods. Parent of scholars with learning disorder must know what sort of disability their child has, in order that they can get accommodations like therapy, physical therapy and adaptive education. For education to be worthwhile, it must be ready to produce a refined mind, body and soul for both the so called normal (students without disabilities) and special students. Through small, hands-on interactive classes and lots of practicums in local classrooms, the programme enables teacher candidates to style then uphold constructive behaviour provisions for scholars with disabilities. Education is additionally defined as a proper special educational training given to people (children and adult) with special needs, who fall under the categories of the incapacitated, the underprivileged and therefore the exceptional.

Islam (2017) reported that was no significant differences between lecturers of Rajshahi University from different area of specialisation on attitude towards the use of search engines and the lecturers have positive attitudes. Assistive technology could even be described as a tool that supports an individual with deafness or a voice, speech or language disorder to speak. Assistive technology often refers to devices that help an individual to listen to and understand what's being said more clearly or to precise thought more easily. the planet Health Organization revealed that an environment with barriers and without enablers restricts a child's potentials. Adekunle (2017) reported that there were no significant differences between male and female special students on attitudes towards use ICT tools.

Society may hinder a child's potential because it creates barrier (for example, negative attitude or inaccessible building) or it does not provide enablers (for example, unavailability of assistive technology). for instance, students with disabilities face numerous obstacles to attending and receiving an education. People with impairments can utilize assistive technology equipment to not just utilize computers, but also to complete things that were previously impossible for them. Assistive technology (AT) is frequently divided into three categories. In terms of technical complexity, the categories of low, medium, and high AT are frequently obliterated. Low-tech devices are tools that are less complex and less costly. They're simple to use, and many individuals are unaware that these adjustments fall under

the category of assistive technology. Book holder, braille text, colour filters, markers, pencil grip, key guard, and weighted pen are just a few examples. Second, Mid-Tech gadgets are similar to battery-operated gadgets or simple electrical gadgets. Simple mechanical devices such as books on tape, an electronic spell checker, a portable keyboard, and a word processing system are among the others. Finally, High-Tech gadgets are made up of complicated electronics and usually include microcomputer components for data storage and retrieval. They're pricey, and they require ongoing maintenance as well as intensive training. Word prediction software and talking calendars and hearing aids or listening device are examples of this. It has been noticed that the construction and operation of hearing aids are always complicated and prone to damage or infections, which might render impaired people's hearing acuity ineffective (Ologe, 2014). Hearing disorder, according to Bakare (2013), is defined as the absence of normal hearing.

Hearing impairment is a condition that affects a person's auditory system and can be congenital adventitious injury or acquired. The fact that everyone with a hearing problem has a point of residual hearing that may be amplified in a manner similar to how a loud speaker enhances sounds to make them loud enough for hearing persons to listen to correctly supports the invention and usage of assistive technology (Soetan et al., 2020). Also, besides devices that facilitate hearing, speaking and learning, there are several others made to supply other relevant functions for people with hearing disorder. Vekiri (2010) findings in comparison to males, girls report less support and encouragement from their parents for computer activities. In addition, computers are perceived as a male-dominated realm rather than a female-dominated area. These tend to provide unmistakable proof that women have a lesser interest in and skill with computers and assistive technology in general than their male counterparts. An individual's attitude is determined by their values; thus, if a student has a specific attitude toward deafness, the favorable or unfavorable expression of that attitude will be determined by whether the student's perception of deafness facilitates or hinders some of the scholars' cherished values.

Positive attitudes towards the utilization of assistive technology by students with disabilities can stimulate teachers to find out the specified skills which are essential for applying technology-based exercises and activities in school (Chapelle, 2010). From the literature reviewed, it had been observed that researchers had worked on the students' attitude and self-efficacy on the use of assistive technology. Also, the review done thus far had acknowledged other researches on assistive technology as an independent body. It is of paramount to seek out how of including people with disabilities into the tutorial sector by providing necessary technological devices which will make them stand out among their peers. Yusuf et al., (2012) supported the study which revealed that students have positive attitude regardless of their gender towards assistive technology in schools implies that students are going to be able to perceive the specified assistive technology if provided by the institution.

5. METHOD

This section describes the methods and procedures that the researchers used to carry out the study. This was discussed under the following sub-headings: research design, site, and sample, Data collection and analysis. The purpose, content and usage of data collection tools were also explained and justified.

5.1. Research Design, Site, and Sample

This study used a quantitative survey-type descriptive research approach. This allowed the researcher to collect data because it already exists without any alteration. For the study, 250

hearing challenged students from the institution were chosen at random from Nigerian Certificate in Education (NCE) 1, 2, and 3. Hearing-impaired male and female students from all levels of the Federal College of Education (Special) Oyo were evaluated. To get the essential information from respondents, a researcher-designed questionnaire was used. Three (3) components make up the questionnaire titled "Hearing Impaired Students' Attitude Towards the Use of Assistive Technology for Learning. Section A inquired about the respondents' demographic characteristics, such as gender, level, and department. Section B gathered information on the many types of hearing assistive equipment accessible to Hearing Impaired (HI) students, hence the desired answer mode was a Likert-type answer-style of attainable and Not Available. Section C included items that seek information concerning hearing-impaired students' attitudes toward the use of assistive technology for learning, and the desired answer method was a Likert-type answer mode of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) (SD).

To ensure the validity and reliability of the research instrument, it had been validated by four experts for face and content validity. Their suggestions, corrections and critics were corrected and used to produce the ultimate draft of the research instrument. Concerning the reliability, the instrument was subjected to reliability process. This was achieved through a pilot testing by administering the research instrument on 10 special undergraduate students at the University of Ilorin which are not a part of the sampled respondents for the important study. All the copies of questionnaire were properly filled and returned and was thus subjected to reliability using the Crombach' alpha statistical tool. The result was 0.77 on the supply of Assistive technologies and 0.81 on the attitude of special students on the utilization of the available technologies for learning. Thus, the instruments were reliable.

5.2 Data Collection and Analyses

A letter introducing the researchers to the varsity authorities was acquired and delivered to the school officials in order to acquire authorization to perform the study in their institutions. The questionnaire was administered by the researchers in person at the school of education. Permission was obtained from the administration of the involved school of education. For data analysis, the researcher personally collected the questionnaire from the scholars. Moral considerations were taken into account. No pupils were compelled to complete the survey. Participation in the study was entirely optional, and all information provided by respondents was kept completely secret. The data from the survey was coded and submitted to inferential and descriptive tests. To answer and analyze the research questions, percentage, frequency count, and mean were used, while independent t-test statistics were used to assess research hypotheses. Statistical Package for Social Sciences (SPSS) version 25.0 windows was used to code the data. All hypotheses were tested at a significance level of 0.05.

6. FINDINGS

The findings of a questionnaire completed at the Federal College of Education (Special) Oyo, Oyo State, are presented in this chapter. The primary goal of this study was to examine students' attitudes regarding using hearing assistive technology for learning at the Federal College of Education (Special) Oyo in Oyo State.

6.1. Demographic Data

Table 1 shows that female students had the highest frequency and percentage of 129 (48.4%), while male students had the lowest frequency and percentage (121). (51.6 percent).

The educational level of the pupils was shown in **Table 2**. It was discovered that 80 (32%) of the respondents were in NCE 1, 110 (44%) of the respondents were in NCE 2, and 60 (24%) of the respondents were in NCE 3.

Research Question 1: i. What sorts of hearing assistive technologies are available to hearing impaired students?

Table 3 summarized the findings for various types of hearing aids. 41.6 percent of 104 respondents stated Alert / Signal systems are available, while 58.4 percent of 146 respondents stated the item is not. Item 2 revealed that 67.2 percent of 168 respondents indicated the item was available, while 32.8 percent of 82 respondents indicated the item was not accessible. Item 3: demonstrated that Item 3 revealed that 78.4 percent of 196 respondents stated the item was available, while 21.6 percent of 22 respondents claimed the item was not accessible. Item 4 revealed that 78.6 percent of 192 respondents indicated the item was available, while 22.4 percent of 58 respondents indicated the item could not be located. Item 5 revealed that 80.8 percent of 202 respondents stated the item was available, while 19.2 percent of 48 respondents claimed it was still unavailable. Item 6: revealed that 80.4 percent of 201 respondents indicated the item was available, while 19.6 percent of 49 respondents indicated the item was not accessible. Item 7 revealed that 75.6 percent of 189 respondents indicated the item was available, while 24.4 percent of 61 respondents indicated the item was not accessible. Item 8 revealed that 72 percent of 180 respondents claimed the item was available, while 28 percent stated it was not available.

Item 9 revealed that 60.8 percent of 152 respondents indicated the item is available, while 39.2 percent of 98 respondents indicated it is unavailable. Item 10 revealed that 87.2 percent of 218 respondents indicated the item was available, while 12.8 percent of 32 respondents claimed the item was not accessible. Item 11: 79.6 percent of 199 respondents indicated the item was available, while 20.4 percent of 51 respondents indicated it was not. Item 12 revealed that 75.6 percent of 189 respondents stated the item was available, while 24.4 percent of 61 respondents stated the item was not accessible. Telephone adaptations, TV decoders, TV amplifiers, computers, personal amplification, FM amplification systems, infrared amplification systems, induction loop systems, Telecommunication Device for the Deaf (TDD), hearing aids, and audiometers are all commonly available to respondents, according to the findings.

Table 1. Percentage distribution of respondents by gender.

Gender	Frequency Count	Proportion
Male	121	48.4%
Female	129	51.6%
Total	250	100.0%

Table 2. Distribution of percentages by level.

Level	N	Proportion
NCE Year 1	80	32.0
NCE Year 2	110	44.0
NCE Year 3	60	24.0
Total	250	100.0

Table 3. Types of hearing assistive technology checklist.

S/N	Hearing Assistive Technologies	Available (%)	Not Available (%)
1	Alert/ signal systems	104 (41.6%)	146(58.4%)
2	Telephone adaptations	168(67.2%)	82(32.8%)
3	TV decoder	196(78.4%)	22(21.6%)
4	TV amplifier	192(76.8%)	58(23.2%)
5	Computer	202(80.8%)	48(19.2%)
6	Personal amplification	201(80.4%)	49(19.6%)
7	FM Amplification system	189(75.6%)	61(24.4%)
8	Infrared amplification system	180(72%)	70(28%)
9	Induction loop systems	152(60.8%)	98(39.2%)
10	Telecommunication Device for the Deaf (TDD)	218(87.2%)	32(12.8%)
11	Hearing Aid	199(79.6%)	51(20.4%)
12	Audiometer	189(75.6%)	61(24.4%)

Research Question 2: What is the attitude of hearing-impaired pupils about the use of hearing aid technology?

Table 4 shows that Item 1: 221 respondents (88.4%) agreed that studying using hearing assistive technology is enjoyable, whereas 29 respondents (11.6%) disagreed. Item 2 reveals that 230 respondents (92%) agreed that adopting hearing assistive technology for learning will improve their performance, whereas 20 respondents (8%) disagreed with this statement. Item 3 revealed that 192 respondents (76.8%) agreed that they wish to know the material whenever they learn using hearing assistive technology, whereas 58 respondents (23.2%) disagreed. Item 4 revealed that 74.8 percent of the 187 respondents felt that using hearing aid technology would make someone less reliant on personal help when driving while 25.2% disagreed with the statement.

Item 5 revealed that 187 respondents (74.8%) agreed that the use of hearing assistive equipment fosters loneliness, whereas 63 respondents (25.2%) disagreed. Item 6 revealed that 179 respondents (71.6 percent) agreed that if they need hearing assistive equipment, they will do things their own way, while 71 respondents (28.4%) disagreed with the statement.

Item 7 showed that 164 respondents representing 65.6 percent agreed that Hearing assistive technology are an honest solution to certain problems while 86 respondents (34.4 percent) disagreed with the statement. Item 8 showed that 158 respondents representing 63.2 percent agreed that they might dare to rely totally on hearing assistive technology while 92 respondents representing (36.8 percent) disagreed with the statement. Item 9 showed that 158 respondents representing 63.2 percent agreed that they feel handicap when using certain hearing assistive technology while 92 respondents representing (36.8 percent) disagreed with the statement.

Table 4. Respondents' responses on students' attitudes toward the use of hearing assistive technology for learning.

S/N	ITEMS	SA (%)	A (%)	D (%)	SD (%)	Mean
1.	I enjoy learning with hearing assistive technology	130 (52)	91(36.4)	24(9.6)	5(2)	3.38
2.	I can perform better while using hearing assistive technology for learning	202(80.8)	28(11.2)	4(1.6)	16(6.4)	3.66
3.	I am eager to know the content every time I learn using hearing assistive technology	122(48.8)	70(28)	12(4.8)	46(18.4)	3.07
4.	The use of hearing assistive technology would make someone less dependent on personal assistance	111(44.4)	76(30.4)	13(5.2)	50(20)	2.99
5.	The use of hearing assistive technology foster loneliness	111(44.4)	76(30.4)	17(6.8)	46(18.4)	3.01
6.	If I had a hearing assistive technology, I could do things on my own way	107(42.8)	72(28.8)	28(11.2)	43(17.2)	2.97
7.	Hearing assistive technology are a good solution to certain problems	103(41.2)	61(24.4)	41(16.4)	45(18)	2.89
8.	I would dare to rely totally on hearing assistive technology	101(40.4)	57(22.8)	49(19.6)	43(17.2)	2.86
9.	I feel handicap when using certain hearing assistive technology	94(37.6)	64(25.6)	46(18.4)	46(18.4)	2.82
10.	I would like to have a hearing assistive technology, provided I do not have to pay myself	99(39.6)	61(24.4)	39(15.6)	51(20.4)	2.83
11.	The use of hearing assistive technology for learning will improve my mental health	97(38.8)	53(21.2)	38(15.2)	62(24.8)	2.74
12.	Using hearing assistive technology will enhance my effective communication with family and friends	98(39.2)	56(22.4)	38(15.2)	58(23.2)	2.78
13.	My listening abilities might be improved with the usage of hearing aid technology.	105(42)	68(27.2)	33(13.2)	44(17.6)	2.94
14.	Using hearing assistive technology for learning will help me in discriminating sounds effectively	96(38.4)	76(30.4)	34(13.6)	44(17.6)	2.90
15.	The use of hearing assistive technology will improve my physical well being	78(31.2)	81(32.4)	52(20.8)	39(15.6)	2.79
	GRAND MEAN					2.96

Item 10 showed that 160 respondents representing 64 percent agreed that they might wish to have a hearing assistive technology, provided they are doing not need to pay themselves while 90 respondents representing (36 percent) disagreed with the statement. Item 11

revealed that 150 respondents (60%) agreed that using hearing assistive technology for studying will improve my psychological condition, whereas 100 respondents (40%) disagreed. Item 12 reveals that 154 respondents (61.6%) agreed that using hearing assistive technology will improve my effective communication with family and friends, while 96 respondents (38.4%) disagreed with this statement. Item 13 revealed that 173 respondents (69.2%) agreed that using hearing assistive equipment may help me improve my listening abilities while 77 respondents representing 30.8% disagreed with the statement.

Item 14 revealed that 68.8% of the 172 respondents agreed with the statement "Using hearing assistive technology for learning will help me discriminate sounds efficiently," while 31.2 percent disagreed. Item 15 revealed that 159 respondents (63.6 percent) agreed that using hearing assistive technology will improve my physical well-being, while 91 respondents (36.4 percent) disagreed with the statement. The Grand Mean Score on Scholars' Attitudes Toward Using Assistive Technology for Learning was 2.96, which was higher than 2.50 benchmark (since the response mode was for Likert scale). As a result, hearing impaired students have a positive attitude about using assistive technology for learning.

6.2. Research Question Three

What role does gender play in hearing-impaired students' attitudes regarding the use of hearing assistive technology?

The mean was used to answer this study question in order to determine if gender influences the attitude of hearing-impaired students regarding the use of hearing assistive technology, as indicated in **Table 5**.

As shown in **Table 5**, the effect of gender on hearing-impaired students' attitudes regarding the use of hearing assistive equipment. The average score for male hearing-impaired students' attitudes toward the use of hearing assistive technology was 2.67, whereas the average score for female hearing-impaired students' attitudes toward the use of hearing assistive technology was 2.87. The mean gain of 0.20 indicates that female hearing-impaired students had a more positive attitude about the use of hearing aids than their male counterparts.

6.3. Hypothesis Testing

H_{01} : The attitudes of male and female hearing-impaired students on the use of hearing assistive technology for learning are not significantly different.

The null hypothesis was tested using an independent t-test, as indicated in **Table 6**, to see if there was any significant difference in attitudes about the use of hearing assistive technology for learning between male and female hearing impaired students.

Degree of freedom (df) = 248, $t = -0.744$, and $p = 0.458$ were found in **Table 6**. This indicates that the theory is correct. This was due to a significant p value of 0.458, which is larger than the 0.05 alpha threshold, as a result of a t-value of -0.744. This revealed that there was no significant difference in attitudes about the use of hearing assistive technology for studying in Federal College of Education (Special) Oyo, Oyo State, between male and female hearing impaired students.

Table 5. Difference between male and female attitude.

Gender	N	Mean	SD	Mean Gain
Male	121	2.6694	1.00323	0.20
Female	129	2.8682	2.77370	

Table 6. The attitudes of male and female hearing impaired students about the use of hearing assistive technology for learning were compared using a t-test.

Gender	N	Mean	SD	df	t	Sig. (2-tailed)	Remarks
Male	121	2.6694	1.00323	248	-0.744	.458	Accepted
Female	129	2.8682	2.77370				

7. DISCUSSION

Telephone adaptations, TV decoders, TV amplifiers, computers, personal amplification, FM amplification systems, infrared amplification systems, induction loop systems, Telecommunication Device for the Deaf (TDD), hearing aids, and audiometers are all readily available to respondents, according to the findings. This viewpoint stated that as digital and wireless technology advance, more and more gadgets will be accessible to help persons with deafness or a voice, speech, or language impairment communicate more meaningfully and completely engage in their everyday activities. It also backs up the results of [Abedalaziz et al., \(2013\)](#), who determined that hearing assistive technology is an assistive technology that improves hearing by making sound perceptible to a deaf person. It aids the reception of hearing-impaired students and teachers.

The findings revealed that hearing-impaired pupils have a positive attitude toward the use of assistive technology in the classroom. This is consistent with [Chapelle's \(2010\)](#) assertion that favorable attitudes regarding the use of assistive technology by students with disabilities can motivate students to master the specific skills required for implementing technology-based exercises and activities in the classroom. To make the most efficient use of technology, it's crucial to fully comprehend the technology, its many functions, applications, and limitations, as well as why certain technologies succeed while others fail. Edmunds, Thorpe, and [Conole \(2012\)](#) investigated students' views about and usage of ICT in class, work, and group activities. The findings showed that while utility and ease of use are important aspects of students' views toward technology in all three settings, ICT is most favourably seen in the context of labor and technology. According to [Oladimeji et al., \(2017\)](#), education lecturers have good views about the use of ICTs in their respective disciplines.

The hypothesis one was accepted, indicating that there was no significant difference in the attitudes of male and female hearing-impaired students in Federal College of Education (Special) Oyo, Oyo State, toward the use of hearing assistive technology for learning. The findings contradicted [Ariga's \(2021\)](#) claim that females have a more negative attitude toward computers, thus they are often less computer literate than males. Furthermore, the findings contradicted [Van Deursen \(2012\)](#), who claimed that boys outperform girls in ICT-related assessments. However, the use of electronic media in the teaching and learning process varies by gender. According to [Anyira \(2013\)](#), there was a significant difference in preference and

utilization between male and female lecturers. During the Google program, male lecturers preferred and used Google more than female lecturers.

The study's limitations include the study's location in Nigeria and the fact that the findings may not be applicable to other countries. Because the study only included hearing-impaired students, the findings may not apply to other special students.

8. CONCLUSION

The study concluded that students with hearing disorder had positive attitude towards the use of hearing assistive technology for learning. Additionally, assistive technology for learning could benefit students with disabilities, particularly those with hearing impairments, at the Federal College of Education (Special) Oyo. Students with disabilities can now enjoy the same benefits as their peers in the classroom and at the reception desk thanks to the use of assistive technology and software. Technology integration has the potential to be a powerful tool for delivering effective learning instruction. Series of research within the field of education and education as an entire have shown that assistive technology devices are tools that if properly utilized would help within the improvement of learning among students with disabilities. Assistive technology is one among the key elements to advancing inclusion of individuals with disabilities together with other supports like personal assistance, signing interpreters and barrier removal; meaning that, access to assistive technology and accessible technology for people with disabilities is critical for several to access and enjoy education. Implication of the Findings Base on the findings of this study, the subsequent implication is often generated. The results showed that students with disabilities had positive attitude towards the use of hearing assistive technology for learning. It will enhance students' self-efficacy and interaction with people around them efficiently. It could motivate students with disabilities learnings, give them sense of belonging in order that they might also partake in things around their vicinity effectively.

The following limitations are often observed regarding the study: The study is centered on Students' Attitude towards the use of Hearing Assistive Technology for Learning in Federal College of Education (Special) Oyo. The Findings might not be generalized to other Colleges of Education within Oyo State or the whole nation at large. The study solely focused on only one College of Education in Oyo State. this suggests that, it did not extend beyond one College of Education and therefore the study might not be generalised to other tertiary institutions in Oyo state. Following are the recommendations based on the findings of this study: The government should develop educational resource centers where students may use accessible assistive technology solutions to facilitate self-study. Educational technologists should be employed by schools in order to support the efficient use of assistive technology tools to augment classroom instruction.

9. DISCLOSURE STATEMENT

No Potential conflict of interest was reported by the authors.

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11. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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