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Perception of Special Needs Undergraduates on The Use of Assistive Technology for Academic Purposes

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ABSTRACTS

There have been several efforts to ensure special needs students are not been left disadvantaged in their classroom activities. However, if students have a negative perception of the use of these technologies, they will be discouraged from using such technologies. This study, therefore, investigates the perception of special needs undergraduates on the use of assistive technology for academic purposes. Also, the influence of gender on their perception of the use of assistive technology for academic purposes was investigated. The research design adopted for this study is descriptive survey research. The target population for this study comprised of two hundred (200) special needs undergraduate students from special needs institutions in Nigeria. The study adopted a multi-stage sampling technique in selecting the sampled schools and the respondents. Data were analyzed using mean, standard deviation, and t-test. The findings established that Undergraduate Students acquire a strong Perception towards the ease of use and usefulness of Assistive technology. And gender does not influence the Undergraduate Students Perception of the ease of use and usefulness of Assistive technology. It was however recommended that effort should be made to continue to encourage special needs students to utilize assistive technologies for their academic purposes.

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1. INTRODUCTION

Education is a goal-oriented endeavor. Education aims to make specific positive changes in students. Education is a deliberate endeavor with well-defined goals and objectives. The curriculum is developed and the student's academic performance is judged in light of these goals. Education without a purpose is like a ship without a rudder. Documenting student learning, providing extra student support via several media, and enhancing student creation capabilities are all excellent ways for technology to improve the teaching and learning process. The direction of activities is determined by the goals. Education becomes a blind alley when it lacks a goal. Every stage of human evolution has a life goal. The objectives of life dictate the objectives of education. Education's goals have evolved, making it dynamic in the same way that life's goals have changed.

In Nigerian tertiary institutions, information and communication technology (ICT) is a driving force for educational changes in the twenty-first century and an integral element of national education programs and goals. ICT is a group of related technologies characterized by their functional use in information access and communication, with the internet as one manifestation. When technology is placed in the hands of children, you can expect that some will get distracted. This can make it difficult for students to transition from one activity to the next. Radio, television, cellular phones, PowerPoint, slides, computer networks, hardware, software, and electronic mail, fax, and satellite systems, as well as the myriad services and applications linked with them, are all covered under this umbrella term.

Technology can help students by making learning more engaging and collaborative. Rather than memorizing facts, students learn by doing and through critical thinking. Textbooks are a great source of reliable information and ready-made activities, but the content they provide can be generic and not particularly engaging for students. From dropping a pin into online texts, to teaching students the art of checklists, here's how teachers are upping their tech game. By leveraging the instructional potential of technologies, it can increase student engagement, expose them to authentic content, and engage them in collaborative activities that trigger critical thinking and creativity. In the last decade, the use of information and communication technology (ICT) has been playing an important role in education.

Technology has also become part of the educational process, but it is often being separated and not integrated into the learning experience. The technology applies to all spheres of life (Ogunlade *et al.*, 2019). Adopting technology into the curriculum should be educators' priority if not mandatory in schools today. Most educational technology experts agree that technology should be adopted, not as a separate subject or as a once-in-a-while project, but as a tool to promote and extend student learning daily (Jordaan, 2014). The educational value is the intellectual and social partnership created by the technology of the virtual classroom. Students in their use of technological equipment cultivate the habit of a leadership role about other students. The implication is that the technology used increases group cohesion and mutual support, especially in remote classrooms. Besides assistive technology enables the students to develop a range of communicative skills that enable them to perform creditably in class. Technology utilization is the use of technological devices such as computers, mobile devices like smartphones and tablets, and digital cameras to enhance and improve teaching and learning.

With an Internet connection, students have access to information at their fingertips 24 hours a day. Almost anything people need can be found online, in its most up-to-date version (Beaunoyer *et al.*, 2020). For students, this means access to everything from research materials and educational apps to interactive edutainment and open resources from

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prestigious universities around the world. (Students may, however, need instruction on how to find credible resources and direction on providing proper attribution when they use them). Students can also supplement their learning by connecting with online groups and virtual communities in real-time, or by collaborating on group projects using tools such as wikis and cloud-based apps. And instructors can provide access to the course material (and additional resources) by setting up portals through learning management systems or providing access to course-specific software for each learner. For budget-conscious educators, open educational resources may provide useful course materials their students can access throughout a course (Dhawan, 2020).

Assistive technology in education is defined as "any item, piece of equipment, or product system that is utilized to augment, maintain, or improve functional skills of persons with disabilities, whether purchased commercially off the shelf, adapted, or customized. As a result, the spectrum of AT devices that may be used is enormous, including both "high-tech" and "low-tech" gadgets. Computers, electrical equipment, and software are examples of high-tech gadgets. A basic low-cost switch that controls a battery-powered toy, as well as a tape recorder, can be called high-tech gadgets, even though they are electronically driven. Low-tech gadgets are controlled manually rather than electrically. Pencil grips, mouth sticks, and mechanical hoists fall within this category.

Many students who struggle to get the most out of their schooling owing to the challenges they confront due to their handicap might benefit from the use of technology. When kids with learning disabilities are given the chance to use their skills to overcome obstacles, they are more likely to succeed in school. Students can use assistive technology to work around their limitations in a variety of ways. Assistive technology (AT) may be used to address a variety of learning challenges and improve the educational experience for both students and teachers. Assistive technology does not intend to give handicapped students an unfair advantage, but rather to provide them the freedom to study in an atmosphere where they may utilize their talents to overcome their obstacles.

Thus, the need to investigate teachers' perceptions is crucial in determining the extent of use of high-tech assistive resources (Onivehu *et al.*, 2017). In essence, when teachers perceived the use of high-tech devices like Dragon speak (software that converts speech-to-text) as good for students who have trouble with listening to spoken words or Word Q (software that converts text-to-speech) as useful for the visually impaired students they will be motivated to facilitate the use in the classroom. teachers perceived positively that there are great benefits to the use of these resources. Both government and other stakeholders should organize workshops, seminars, and other capacity-building training regularly for teachers as means of updating their knowledge and skills in the use of assistive devices considering the dynamic nature of special education (Emeka & Dominic, 2022).

Al-Zboon (2022) highlight the challenges that teachers perceive in using assistive technology with their students, particularly regarding computer use, the willingness of a child to use a particular device, the lack of such technologies in schools and the home, and a lack of training in the home. The results highlight perceived external barriers to the effective use of assistive technology, including those related to finance, training, societal attitudes, and family support (O'Brolcháin, 2018). It appears that assistive technology can also have negative effects, which can be considered an ethical issue since such technologies can expose students with visual impairments to negative community attitudes, addiction, bullying, abuse, and extremism.

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Assistive technology is a supplement to the learning of students with challenges as its use could improve students learning. However, if the students who ought to use these technologies have a negative perception of their use, this will discourage students from applying them as expected. This study thus investigates the perception of special needs undergraduates on the use of assistive technology for Academic Purposes.

The following research questions were answered in this study.

(i) What is the perception of undergraduates on the use of assistive technology for Academic Purposes?
(ii) What is the perception of undergraduates on the ease of use of assistive technology for Academic Purposes?
(iii) How does gender influence the perception of undergraduates on the use of assistive technology for Academic Purposes?
(iv) Is there gender influence on the perception of undergraduates on the ease of use of assistive technology for Academic Purposes?

The following hypotheses were also tested in this study: H01: There is no significant difference between male and female undergraduate students' perceived usefulness of assistive technology, and H02: There is no significant difference between male and female undergraduate students' perceived ease of use of assistive technology.

2. METHODS

The research design adopted for this study is descriptive survey research. This is because the design made it possible for the researchers to have a broad view from a sample of special education undergraduates in the special education schools to conclude assistive technology resources utilization in special education schools in Nigeria. The population for this study includes all special needs undergraduate students in Nigeria. The target population for this study comprised of two hundred (200) special needs undergraduate students from special needs institutions in Nigeria. The study adopted a multi-stage sampling technique in selecting the sampled schools and the respondents.

A questionnaire was used to collect the required information for the study. It was subjected to expert assessment to determine their face and content validity. Five lecturers from the related department across institutions in Nigeria validated the comprehensiveness, adequacy, and clarity of the items. Corrections and suggestions raised by these experts were incorporated in the final drafted questionnaire. Data were analyzed using mean, standard deviation, and t-test.

3. RESULTS AND DISCUSSION

3.1. Temperature

Dua ratus respondents were sampled for this study but responses from 149 were properly filled and returned and were thus used for the analysis at a return rate of 74.5%. **Table 1** shows that male and female respondents formed the study of the total sampled respondents with 82 (55.0%) being male while 67 (45.0%) females formed different percentages of the total sampled respondents respectively. This is also shown graphically in **Figure 2**.

Table 1. Demography on Respondents' Gender.

Gender	Frequency	Percent	Cumulative Percent
Male	82	55.0	55.0
Female	67	45.0	100.0
Total	149	100.0	

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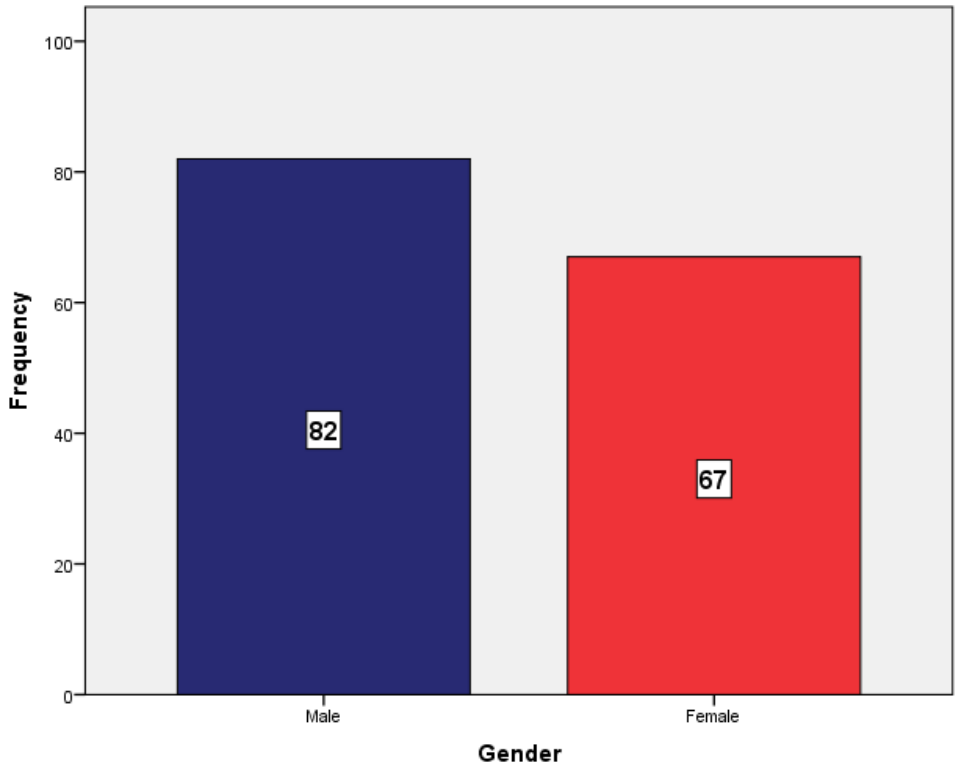

Figure 1. Chart on Respondents' Gender.

3.1. Research Question One: What is the perception of undergraduates on the use of assistive technology for Academic Purposes?

The perception of undergraduates on the use of assistive technology for utilization was investigated and the result presented in **Table 2**. It indicated that I find the use of assistive technology very easy and an effective tool to use for academics with mean scores of 3.69 and 3.35 respectively. The grand mean score of 3.41 revealed that Undergraduate Students acquire a strong Perception of the usefulness of Assistive technology.

Table 2. Undergraduate Students' Perceived Usefulness of Assistive Technology.

S/N	Perceived Usefulness	Mean	Std. Deviation
1.	I find the use of assistive technology for learning very easy	3.6900	0.5680
2.	The application of technology is an effective tool to use for academics	3.3500	0.5580
3.	Assistive technologies' utilization is an improvement towards learning	3.5900	0.5580
4.	Innovative assistive technology allows me to express myself	3.2800	0.6790
5.	The utilization of assistive technologies is direct and technical	3.4600	0.5880
6.	I have it easy to participate more in studies while using assistive technologies	3.3100	0.6360
7.	The use of assistive technologies helps me develop my digital skills	3.5100	0.5530
8.	The utilization of assistive technologies helps to study wide	3.2600	0.6920
9.	Assistive technologies utilization enhance collaboration with and among peer group	3.3400	0.6950
10.	Assistive technology is useful for all types of students learning styles	3.2600	0.7570
	Undergraduate Students' Perceived usefulness of Assistive Technology for Learning	3.4088	0.33391

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3.2. Research Question Two: How special needs undergraduate students perceived ease of use of assistive technology

The extent to which the undergraduate students' perceived ease of assistive technology was determined and the result was presented in **Table 3**. It revealed that the majority of the respondents perceived that a conducive environment is very important to make learning successful and Preparation ahead of the class show how learners are ready for the task with mean scores of 3.58 and 3.46 accordingly. It was further revealed that most of the undergraduate students perceived that the tools for the assistive technology should be easy to handle arising from the mean score of 3.54. The grand mean score of 3.37 revealed that Undergraduate Students obtain solid Perception towards the ease of use of Assistive technology.

Table 3. The extent to which the undergraduate students' perceived ease of assistive technology.

S/N	Perceived Ease of Use	Mean	Std. Deviation
1.	A conducive environment is very important to make learning successful	3.58	.594
2.	Preparation ahead of the class show how learners are ready for the task	3.46	.539
3.	The tools for the assistive technology should be easy to handle	3.54	.575
4.	Test running of the assistive technology tools is necessary	3.43	.680
5.	Assistive technology will make me understand and learn how to operate computers effectively	3.47	.632
6.	The interaction with assistive technology should be easy	3.41	.604
7.	Assistive technology will make me more skillful in its utilization	3.40	.636
8.	Assistive technology should focus on how learners utilize the learning processes	3.28	.648
9.	Assistive technology reviews the nature of the course	3.17	.786
10.	I do not get distracted when using assistive technology for the utilization	2.97	.850
	Undergraduate Utilization level on the Perceived Ease of Assistive technology	3.3718	.31151

3.3. Hypothesis One: There is no significant difference between male and female undergraduate students' perceived usefulness of assistive technology

Results in **Table 4** shows that the calculated t-value was 0.27 with a significant value of 0.60 was not significant at 0.05 alpha levels because the p-value was greater than 0.05. This implies that the null hypothesis one was not rejected: hence, there was no significant difference between male and female undergraduate students' perceived usefulness of assistive technology.

Table 4. t-test on Significant Difference between Male and Female Perception on Usefulness of Assistive technology.

Gender	N	Mean	Std. Deviation	Df	t	Sig. (2-tailed)
Male	82	3.46	0.286			
				147	0.27	0.79
Female	67	3.35	0.380			
Total	149					

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3.4. Hypothesis Two: There is no significant difference between male and female undergraduate students' perceived ease use assistive technology

Results in **Table 5** shows that the calculated t-value was 1.95 with a significant value of 0.06 was not significant at 0.05 alpha levels because the p-value was greater than 0.05. This implies that the null hypothesis one was not rejected: hence, there was no significant difference between male and female undergraduate students' perceived ease of use of assistive technology.

Table 5. t-test on Significant Difference between Male and Female Perception on Ease of Use of Assistive technology.

Gender	N	Mean	Std. Deviation	df	T	Sig. (2-tailed)
Male	82	3.38	0.313			
				147	1.95	0.06
Female	67	3.36	0.312			
Total	149					

The findings deduced that Undergraduate Students acquire a strong Perception of the usefulness of Assistive technology. Established that special students have a good perception of the use of technologies for instruction. Also, students who have a good attitude towards the use of educational technology concepts embrace any technology which teachers use to teach them. This implies that special needs students will utilize assistive technologies which can be used to boost their learning if they have access to it. This will thereby improve their academic performance. Furthermore, it was established that undergraduate Students obtain a solid Perception of the ease of use of Assistive technology. Technology has also become part of the educational process, but it is often being separated and not integrated into the learning experience. The technology applies to all spheres of life (Ogunlade *et al.*, 2019). Adopting technology into the curriculum should be educators' priority if not mandatory in schools today. Most educational technology experts agree that technology should be adopted, not as a separate subject or as a once-in-a-while project, but as a tool to promote and extend student learning daily (Jordaan, 2014). The implication of this is that the undergraduate students who are learning with the conventional method will embrace the assistive technologies if procured for their instruction.

In addition, there was no significant difference between male and female undergraduate students' perceived usefulness of assistive technology. For budget-conscious educators, open educational resources may provide useful course materials their students can access throughout a course irrespective of their gender (Dhawan, 2020). Moreover, there was no significant difference between male and female undergraduate students' perceived ease of use of assistive technology. When male and female students with learning disabilities are given the chance to use their skills to overcome obstacles, they are more likely to succeed in school. Students can use assistive technology to work around their limitations in a variety of ways.

4. CONCLUSION

Based on this study, the following recommendations were made. Efforts should be made to continue to encourage special needs students to utilize assistive technologies for their academic purposes. All necessary assistive technologies to aid the learning of special needs students should be procured.

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5. AUTHORS' NOTE

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

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