

Utilization of Artificial Intelligence Tools for Improving Educational Outcomes of Students in Public Universities in Rivers State, Nigeria

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Abstract

The study examined the utilization of artificial intelligence tools for improving educational outcomes of students in Public Universities in Rivers State, Nigeria. The study was answered by three objectives, three research questions and three hypotheses. The study adopted the descriptive survey research design. The population of the study consisted of five hundred and eight five (585) final year students in Department of Educational Management from the three (3) public universities in Rivers State. The sample size consisted of the entire population of five hundred and eight five (585), hence census method was used in the study. The instrument used for the study was self-structured questionnaire titled "Utilization of Artificial Intelligence Tools for improving Educational Outcomes of Students Questionnaire". The instrument was validated by two (2) research experts in Educational Management and Measurement and Evaluation. The Cronbach Alpha statistics was adopted for the reliability of the instrument, which gave reliability coefficient of 0.86, 0.82 and 0.88 that was considered reliable. The data collected were analysed using weighted mean and standard deviation to answer the research questions, while the null hypotheses were tested using t-test statistical tool at a significance level of 0.05. Based on the data analysis, the findings of the study revealed that; the use of Grammarly in writing assignment; the use of QuillBot and the use of Natural Reader as text-to-speech AI tools would improve educational outcomes of students. Based on the findings of the study, the researchers recommended among others that public universities should formally integrate AI writing tools (Grammarly, QuillBot, Natural Reader) into their academic support systems, particularly in academic writing.

Keywords: Artificial Intelligence, Grammarly, QuillBot, Natural Reader, Educational Outcomes.

Introduction

Improving educational outcomes in public universities remains a critical challenge in Nigeria, particularly in Rivers State, where factors such as inadequate infrastructure, overcrowded classrooms, and outdated teaching methods hinder academic performance. Quality education is essential for equipping students with the knowledge, skills, and competencies needed for personal and national development. However, many institutions struggle with low graduation rates, poor student engagement, and graduates who lack employability skills. Addressing these issues requires innovative approaches that enhance teaching effectiveness, personalize learning experiences, and optimize administrative

efficiency. One of the most transformative solutions in modern education is the utilization of Artificial Intelligence (AI) tools, which have revolutionized learning and administrative processes globally. AI technologies, including machine learning, natural language processing, and adaptive learning systems, offer data-driven insights that can personalize instruction, automate administrative tasks, and improve student performance. Since its conceptualization by John McCarthy in 1956, AI has evolved into a powerful tool in education, enabling intelligent tutoring systems, automated grading, and predictive analytics to identify at-risk students (Chen, 2020).

The integration of AI in education has introduced dynamic changes, shifting from traditional, teacher-centered methods to more interactive and student-focused approaches. Technologies such as Augmented Reality (AR), Virtual Reality (VR), and AI-driven platforms enhance engagement by providing immersive and adaptive learning experiences. AI systems can analyze vast amounts of data to identify learning patterns, recommend tailored resources, and predict academic success, thereby improving decision-making in educational management (Blanchard, 2019).

Recently, the advancements in the adoption of AI in Nigerian public universities, particularly in Rivers State, remains limited due to factors such as inadequate ICT infrastructure, insufficient funding, and low digital literacy among educators and students (Ikedinachi, 2019). While AI has been widely embraced in sectors like healthcare, finance, and e-commerce, its potential in education—especially in improving learning outcomes—has yet to be fully harnessed in the region. Assessing AI readiness among students and institutions is crucial for successful implementation, as resistance to technological change and lack of preparedness can hinder its effectiveness (Makridakis, 2017).

Against these backdrops, this study examines how the utilization of AI tools such as Grammarly, QuillBot, NaturalReader as text-to-speech can be strategically implemented to improve teaching, learning, and administrative efficiency, and generally enhance educational outcomes in universities in Rivers State.

While artificial intelligence (AI) has proven effective in automating routine and simplified tasks, its application in addressing complex higher-order learning processes remains limited (Finley, 2019). AI is a transformative technology that reshapes how individuals engage with digital platforms and influences socio-economic interactions. Its growing integration into various sectors suggests that its impact on education, work, and communication will only expand in the coming years. AI has the potential to revolutionize traditional learning systems, with smart technologies such as mobile apps, tablets, and laptops increasingly becoming standard educational tools (Kayii & Kwakye, 2024; Kaliski, 2018).

AI tools encompass a wide range of applications, including planning, problem-solving, navigation, facial recognition, digital assistants, text editing, and e-payment systems. Notable AI-driven platforms such as Grammarly, Quillbot, Natural Reader, Amazon Alexa, Dreambox, and ChatGPT enhance learning efficiency and productivity. For instance, Grammarly supports students in refining their academic writing by addressing grammar, style, and clarity—essential components of English for Specific Purposes (ESP) courses.

Academic writing demands a formal, objective, and structured approach, with stylistic variations depending on the discipline (Giltrow, 2014). For example, humanities papers typically follow the Modern Language Association (MLA) style, where sources are listed under "Works Cited," while social sciences adhere to the American Psychological Association (APA) format, labeling references as such. British academic writing often follows the Oxford style guide (Chazal, 2015). Fortunately, students can access numerous digital and print resources, including university writing guides, to master these conventions. One of the offers of Grammarly is developing and enhancing students' academic writing competence. According to Grammarly blogger Lindsay Kramer, "an essay is a short piece of writing that, like a research paper, makes and supports a specific point." (Kramer, 2021). It tends to use longer words and more complex sentences while avoiding contractions and colloquial or informal words or expressions that might be common in spoken English. Like any other academic piece of writing, this genre requires formality, precision, and objectivity. It is conventionally characterized by "evidence that the writer has been persistent, open-minded, and disciplined in study" (Thaiss, 2016). According to Pinker (2014), Grammarly's potentials would improve writing clarity and concision in the digital age (21st century). While Yagoda (2015), affirmed the effectiveness of Grammarly in clear writing and catching errors, and suggests that it can be a useful tool, but not perfect and should be used with caution.

Global adoption of technology in education will transform the way we teach and learn. Through personalized education, Artificial Intelligence would help find out what a student does and does not know, building a personalized study schedule for each learner considering the knowledge gaps. Personal tutoring and support for the students outside of the classroom help learners keep up with the course. AT tutors are great time-savers for the teachers, as they do not need to spend extra time explaining challenging topics to students. With AT-powered chatbots or AT virtual personal assistants, students can avoid being embarrassed by asking for additional help in front of their friends.

QuillBot is an advanced artificial intelligence (AI) writing tool, which offers features such as sentence rephrasing, article rewriting and AI-generated content creation. QuillBot serves as a complete language processing and productivity tool with its grammar checking and writing enhancement features. It aims to fulfill a variety of writing requirements, including academic writing, blogging and proofreading. As an AI language model, QuillBot would help users create well-structured sentences and improve overall writing quality.

According to Chazal (2015), the current version of QuillBot's writing and editing software suite includes products such as grammar checker, plagiarism checker, co-writer, summarizer, citation generator and translator. Each QuillBot writing or editing product can be accessed through its own navigation tab on the left rail of the QuillBot.com website. QuillBot's current homepage features the paraphraser product. With the exception of the Plagiarism Checker, all products are free to use on a limited basis (Kramer, 2021). The Grammar Checker, Paraphraser, and Summarizer products can also be accessed through a browser extension for Chrome, an add-in for Microsoft Word, or a desktop app for macOS.

QuillBot continuously learns and develops through user feedback. The QuillBot team can use user comments to improve the system if they discover any errors or inconsistencies in the output it generates (Davis, 2014).

Natural Reader is a text-to-speech AI tool that converts written text into spoken words, helping individuals with reading difficulties, visual impairments, or learning disabilities. Jocker (2013), attests text-to-speech (TTS) as a potential tool for data preparation in large-scale literary analysis. He suggests using TTS to convert texts into audio files, which can then be analyzed using audio analysis software. From the foregoing, one can affirm that TTS tools like Natural Reader has numerous offers that will promote students' educational outcomes, but one may ask if it can offer teacher-student relationship, which also supports students' academic achievement. Hence, Chiang (2013), emphasizes on the importance of "human touch" in writing and communication. He suggests that AI-powered tools can lack the nuance and imperfections that make human communication unique.

Natural Reader offers a range of benefits which include, high-quality natural-sounding voices in various languages like English, Italian, Spanish, German, French and more; accurate text recognition and conversion; integrates with popular applications like Microsoft Office, Adobe

Acrobat and web browsers; available on windows, Mac, IOS and Andriod platforms; built-in proofreading tool to help users identify spelling and grammar errors; text highlighting features, font size adjustment, and keyboard-only navigation for visually impaired users. The adoption of innovative AI technologies opens up new ways of interacting for students with learning disabilities. AI grants access to education for students with special needs: deaf and hard of hearing, visually impaired, and so on. Artificial Intelligence tools can be successfully trained to help any group of students with special needs.

Grammarly, an AI-powered writing assistant, has gained recognition for improving students' academic writing by detecting grammatical errors, enhancing clarity, and suggesting stylistic improvements. Studies indicate that AI tools like Grammarly help non-native English speakers, particularly in Nigeria, where language proficiency can be a barrier to academic success (Ebadi & Rahimi, 2019). Research by Fitria (2021) found that Grammarly significantly improves students' writing accuracy, reducing common errors in syntax, punctuation, and vocabulary usage. In Nigerian universities, where large class sizes limit personalized feedback, Grammarly serves as an automated tutor, allowing students to refine their writing independently (Adeoye et al., 2022). However, some scholars argue that over-reliance on Grammarly may hinder critical thinking and self-editing skills, as students may depend too heavily on automated corrections rather than developing their own writing competence (Hyland, 2019). In Rivers State, where digital literacy and internet access vary, the effectiveness of Grammarly may depend on students' prior language skills and institutional support for AI integration.

QuillBot, an AI paraphrasing and summarization tool, assists students in rewording texts while retaining original meaning—a skill essential for avoiding plagiarism and improving writing fluency. Studies suggest that paraphrasing tools like QuillBot help students

comprehend complex texts and express ideas in their own words (Dodigovic, 2020). In Nigerian universities, where academic writing demands proficiency in formal English, QuillBot can serve as a supplementary learning aid, particularly for students struggling with language barriers (Ogunyemi et al., 2021). However, concerns exist regarding its misuse, as students may rely on it to bypass original writing, potentially undermining academic integrity (Warschauer & Grimes, 2020). Empirical research in Rivers State is limited, but findings from similar contexts suggest that when used ethically, QuillBot can enhance comprehension and writing efficiency, provided educators guide students on proper usage. Natural Reader, a text-to-speech (TTS) AI tool, converts written text into spoken words, aiding students with reading difficulties, visual impairments, or learning disabilities. Research indicates that TTS technology improves reading comprehension, retention, and accessibility, particularly for students who struggle with dense academic texts (Wood et al., 2018). In Nigeria, where educational resources are often limited, AI-driven TTS tools can bridge gaps by providing auditory learning alternatives (Adeleke & Adepoju, 2023). Studies in similar developing educational systems show that TTS tools enhance engagement, especially for auditory learners, and can improve performance in reading-intensive courses (Alqahtani, 2020). However, challenges such as poor internet connectivity, lack of institutional adoption, and low awareness of AI tools may limit its effectiveness in Rivers State universities.

While existing literature highlights the potential of Grammarly, QuillBot, and Natural Reader in enhancing educational outcomes, most of these literatures are foreign-based especially from Western or Asian backgrounds, with limited empirical data on Nigerian universities. From the above assertions, it has become obvious that the application of these AI tools and their identified roles would enhance teaching and learning. It is based on this, that this study is designed to investigate the utilization of artificial intelligence tools for improving educational outcomes of students in Public Universities in Rivers State, Nigeria.

Statement of the problem

The educational sector in Nigeria, particularly in public universities, faces significant challenges in delivering quality education and achieving desirable learning outcomes. In Rivers State, public universities struggle with inadequate teaching resources, overcrowded classrooms, outdated curricula, and insufficient student engagement, leading to poor academic performance, high dropout rates, and graduates with limited employability skills. Despite the growing global adoption of Artificial Intelligence (AI) tools to enhance teaching, learning, and administrative efficiency, the integration of these technologies in Rivers State's public universities remains low.

Many institutions still rely on traditional, teacher-centered instructional methods, which often fail to cater to diverse learning needs, provide personalized feedback, or foster critical thinking. Additionally, lecturers are overburdened with administrative tasks, leaving little time for innovative pedagogy. The lack of AI-driven solutions, such as intelligent tutoring systems, automated grading, and adaptive learning platforms, further widens the gap

between students in Rivers State and their counterparts in more technologically advanced educational systems. Without the strategic adoption of AI tools, public universities in Rivers State risk falling further behind in educational quality, student performance, and global competitiveness. This study, therefore, seeks to investigate how the utilization of Artificial Intelligence tools can improve educational outcomes for students in public universities in Rivers State.

Purpose of the Study

The main purpose of the study is to examine the utilization, of artificial intelligence tools for improving educational outcomes of students in Public Universities in Rivers State, Nigeria. Specifically, this study seeks to:

1. Determine how the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.
2. Examine how the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.
3. Ascertain how the use of Natural Reader as a text-to-speech AI tool would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Research Questions

The following research questions guided this study:

1. To what extent does the use of grammarly in writing assignments improve educational outcomes of students in Public Universities in Rivers. State, Nigeria?
2. To what extent does the use of QuillBot improve educational outcomes of students in Public Universities in Rivers State, Nigeria?
3. To what extent does the use of Natural reader as a text-to-speech AI tool improve educational outcomes of students in Public Universities in Rivers State, Nigeria?

Hypotheses

1. There is no significant difference in the mean responses of male and female students on the extent the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.
2. There is no significant difference in the mean responses of male and female students on the extent the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.
3. There is no significant difference in the mean responses of male and female students on the use of Natural reader as a text-to-speech AI tool would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Methodology

The descriptive survey research design was employed for this study, which was conducted in Rivers State, Nigeria. The investigation specifically targeted three public universities in

the state: Rivers State University, Ignatius Ajuru University of Education, and the University of Port Harcourt. The study population comprised 585 final-year students from the Department of Educational Management across these institutions, distributed as follows: 73 students from Rivers State University, 175 from Ignatius Ajuru University of Education, and 337 from the University of Port Harcourt. Given the manageable size of the population, a census sampling technique was adopted, meaning the entire population of 585 students was included in the study.

The primary data collection instrument was a self-structured questionnaire titled "Utilization of Artificial Intelligence Tools for Improving Educational Outcomes of Students Questionnaire (UAITIEOSQ)". The questionnaire was designed using a 4-point Likert scale, with response options as follows: Very High Extent (VHE) = 4, High Extent (HE) = 3, Low Extent (LE) = 2, and Very Low Extent (VLE) = 1. To ensure the validity of the instrument, two research experts reviewed and validated its content. Additionally, the reliability of the questionnaire was assessed using Cronbach's Alpha method, yielding coefficients of 0.86, 0.82, and 0.88, indicating high internal consistency. A total of 585 copies of the questionnaire were distributed to students, with the assistance of two trained research assistants who were adequately briefed on the study's objectives. Out of these, 400 completed questionnaires were retrieved within a two-week administration period. The collected data were analyzed using weighted mean and standard deviation to address the research questions. The following decision rule was applied for interpretation: mean scores of 3.00–4.00 were classified as "Very High Extent," 2.00–2.99 as "High Extent," 1.00–1.99 as "Low Extent," and 0.00–0.99 as "Very Low Extent." Furthermore, the study's null hypotheses were tested using the t-test statistical tool at a 0.05 significance level.

Results

Research Question 1: To what extent would the use of grammarly while writing essay improve educational outcomes of students in Public Universities in Rivers State, Nigeria?

Table 1: Descriptive statistics on the extent the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

S/No	Statement	Male Students N ₁ = 180			Female Students N ₂ = 220		
		$\bar{X}$	SD	D	$\bar{X}$	SD	D
1	Grammarly would assist students in the development of their writing skills	3.12	1.01	VHE	3.08	0.93	VHE
2	Grammarly would assist in the development enhancement of student's academic writing competence.	3.04	0.81	VHE	3.11	1.04	VHE
3	Grammarly would facilitate the revision process of students by suggesting improvements and providing resources for further learning.	2.96	0.73	HE	3.10	0.91	VHE
4	Grammarly tools could be tailored to individual student's needs helping them identify and address specific writing challenges	3.25	0.67	VHE	3.17	0.73	VHE
5	Grammarly would help the students to detect spelling errors in the process of writing assignments.	2.89	1.12	HE	2.90	0.82	HE
	Grand Mean/Standard Deviation	3.05	0.87	VH	3.07	0.89	VHE

The findings presented in Table 1 reveal that both male and female students in public universities in Rivers State, Nigeria, perceive Grammarly as a highly beneficial tool for enhancing their academic writing skills. The grand mean scores for male students (3.05) and female students (3.07), both falling within the "Very High Extent" (VHE) range, indicate strong agreement that Grammarly contributes positively to their educational outcomes. A closer examination of individual statements shows that both genders rated Grammarly's role in developing writing skills (Statement 1: Male = 3.12, Female = 3.08) and enhancing academic writing competence (Statement 2: Male = 3.04, Female = 3.11) as "Very High Extent." This suggests that students recognize Grammarly as an effective aid in improving their writing proficiency. Additionally, female students (3.10) rated Grammarly's facilitation of the revision process slightly higher than male students (2.96), with females classifying it as VHE while males considered it a "High Extent" (HE) benefit. This difference may indicate that female students find Grammarly's suggestions and learning resources particularly useful in refining their work. Both genders strongly agreed that Grammarly can be tailored to individual needs (Statement 4: Male = 3.25, Female = 3.17), reinforcing its adaptability in

addressing specific writing challenges. However, while Grammarly's spelling error detection (Statement 5) was still perceived positively (Male = 2.89, Female = 2.90), it was rated slightly lower, falling under "High Extent" rather than "Very High Extent." This could imply that while students find Grammarly useful for basic error correction, they may rely on it less for advanced writing improvements. The standard deviation values (ranging from 0.67 to 1.12) indicate moderate variability in responses, suggesting that while most students agree on Grammarly's usefulness, some variations exist based on individual experiences. Overall, the results confirm that Grammarly is widely regarded as a valuable AI tool for improving academic writing among university students in Rivers State, with female students showing marginally higher positive perceptions in certain areas. These findings support the integration of AI writing assistants in higher education to enhance learning outcomes

Research Question 2: To what extent would the use of QuillBot improve educational outcomes of students in Public Universities in Rivers State, Nigeria?

Table 2: Descriptive statistics on how the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

S/No	Statement	Male Students N ₁ = 180			Female Students N ₂ = 220		
		$\bar{X}$	SD	D	$\bar{X}$	SD	D
6	Writing and paraphrasing can be done online through the help of QuillBot.	3.17	0.93	VHE	3.19	0.79	VHE
7	QuillBot helps users (students) to write better and come up with new phrases.	3.23	1.13	VHE	3.18	1.08	VHE
8	QuillBot improves the students clarity and quality of their content	3.11	0.88	VHE	3.10	0.91	VHE
9	QuillBot helps the students to produce alternate versions while preserving the sense of original.	3.27	0.79	VHE	3.20	0.73	VHE
10	QuillBot increase writing fluency and clarity because it considers grammar, sentence structure and content	2.98	1.07	HE	2.94	0.82	HE
	Grand Mean/Standard Deviation	3.15	0.96	VHE	3.12	0.87	VHE

The information in table 2 shows that items 6 to 10 have means of 3.17, 3.23, 3.11, 3.27, 2.98 for male students with standard deviations ranging from 0.79 to 1.13; and means of 3.19, 3.18, 3.10, 3.20, 2.94 for female students with standard deviations ranging from 0.73 to 1.08 indicating a "High Extent" on how the use of QuillBot improves educational outcomes of

students in Public Universities in Rivers State, Nigeria The grand means for male and female students are, respectively, 3.15 and 3.12, which is a confirmation of high extent on how the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

The above results imply that use of QuillBot improves educational outcomes of students in Public Universities in Rivers State, Nigeria to a "High Extent".

Research Question 3: To what extent would the use of Natural reader as a text-to-speech AI tool improve educational outcomes of students in Public Universities in Rivers State, Nigeria?

Table 3: Descriptive statistics on the extent the use of Natural reader as a text-to-speech AI tool improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

S/No	Statement	Male Students N ₁ = 180			Female Students N ₂ = 220		
		$\bar{X}$	SD	D	$\bar{X}$	SD	D
11	Natural Reader offers a high-quality natural- sounding voices in various languages like English, Italian, Spanish, German, and French.	3.16	0.96	VHE	3.67	0.65	VHE
12	Users of Natural Reader can adjust speech rate, pitch and volume to suit their needs	3.16	0.99	VHE	3.22	0.77	VHE
13	Natural Reader ensures accurate text recognition and conversion	3.44	0.90	VHE	3.12	0.88	VHE
14	Natural Reader supports various file formats such as PDF, DOCX, EPUB, e.t.c.	3.26	0.70	VHE	3.36	0.93	VHE
15	Natural Reader helps users identify spelling and grammar errors with its built-in proofreading tool	3.03	0.82	VHE	3.66	0.77	
	Grand Mean/Standard Deviation	3.21	0.87	VHE	3.41	0.8	VHE

The information in table 3 shows that items 11 to 15 have means of 3.16, 3.16, 3.44, 3.26, .03 for male students with standard deviations ranging from 0.70 to 0.99; and means of 3.67, 3.22, 3.12, 3.36, 3.66 for female students with standard deviations ranging from 0.65 to 0.93 indicating a "High Extent" on how the use of NaturalReader as a text-to-speech AI tool would improve educational outcomes of students in Public Universities in Rivers State, Nigeria. The above results imply that the use of Natural reader as a text-to-speech AT tool improve educational outcomes of students in Public Universities in Rivers State, Nigeria to a "High Extent".

Hypotheses

Hypothesis 1: There is no significant difference in the mean responses of male and female students on the extent the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Table 4: T-test analysis of the extent the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Respondents	N	$\bar{X}$	SD	Std	Df	α	t-cal	t-crit	Decision
Male	180	3.05	0.87						Ho
				0.008	398	0.05	0.22	1.96	Accept
Female	220	3.07	0.89						

Source: Field Survey, 2022

Table 4 shows that t-calculated is 0.22, while t-crit is 1.96 at 0.05 level of significance. Since t -calculated is less than t-crit (i.e., 0.22 < 1.96), the hypothesis is accepted. This means that there is no significant difference in the mean rating on the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Hypothesis 2: There is no significant difference in the mean responses of male and female students on the extent the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Table 5: T-test analysis of the extent the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Respondents	N	$\bar{X}$	SD	Std	Df	α	t-cal	t-crit	Decision
Male	180	3.15	0.96						Ho
				0.008	398	0.05	0.37	1.96	Accept
Female	220	3.12	0.87						

Source: Field Survey, 2022

Table 5 shows that t-calculated is 0.37, while t-crit is 1.96 at 0.05 level of significance. Since t-calculated is less than t-crit (i.e., 0.37 < 1.96), the hypothesis is accepted. This means that there is no significant difference in the mean rating on the use of Quillbot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Hypothesis 3: There is no significant difference in the mean responses of male and female students on the extent the use of Natural reader as a text-to-speech AI tool would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Table 6: T-test analysis of the extent the use of Natural reader as a text-to-speech AI tool would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Respondents	N	$\bar{X}$	SD	Std	Df	α	t-cal	t-crit	Decision
Male	180	3.21	0.87						Ho
				0.008	398	0.05	0.5	1.96	Rejected
Female	220	3.41	0.8						

Source: Field Survey, 2022

Table 6, the t-calculated value of 2.5 is greater than z-critical value of 1.96 at 0.05 levels of significance and 398 degree of freedom. The null hypothesis is therefore Rejected, Indicating there is a significant difference in the mean responses of the use of Natural reader as a text-to- speech AI tool would improve educational outcomes of students in Public Universities in Rivers State, Nigeria.

Discussion of Findings

The finding of the study in research question one revealed that the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria. The corresponding hypotheses one was accepted and concluded that there is no significant difference in the mean responses of male and female .students on the extent the use of grammarly in writing assignments would improve educational outcomes of students in Public Universities in Rivers State, Nigeria. This finding is in collaboration with Chen (2020) who observed that development of student's academic writing skills is a function of grammarly as a tool of artificial intelligence. The study still shows that grammarly in writing assignments would assist in the development and enhancement of student's academic writing competence. It was also observed from the analysis that the use of grammarly in writing assignments would facilitate the revision process of students by suggesting improvements, and providing resources for further learning. The study further showed that grammarly tools could be tailored to individual student's needs helping them identify and address specific writing challenges (Akpomi, Nwile & Kayii, 2022). The study also showed that the use of grammarly in writing assignments would help the students to detect spelling errors in the process of writing assignment.

In research question two, the findings also showed that the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria. The corresponding hypotheses two was accepted and concluded that there is no significant difference in the mean responses of male and female students on the extent the use of QuillBot would improve educational outcomes of students in Public Universities in Rivers State, Nigeria. This finding are in the view with Finley (2019), who asserts that writing and paraphrasing can be done online through the help of Quillbot the study still revealed that Quillbot helps users (students) to write better and come up with new phrases and that

QuillBot improves the students clarity and quality of their content. The analysis also indicated that Quillbot helps the students to produce alternate versions while preserving the sense of original and that Quillbot increase writing fluency and clarity because it considers grammar, sentence structure and content.

In research question three, the findings also showed that the use of Natural reader as a text-to- speech AI tool improve educational outcomes of students in Public Universities in Rivers State, Nigeria. The corresponding hypotheses three was accepted and concluded that there is a significant difference in the mean responses of male and female students on the extent the use of Natural reader as a text-to-speech AI tool improve educational outcomes of students in Public Universities in Rivers State, Nigeria. This finding is in collaboration with Jocker (2013) who observed that Natural Reader is a text-to-speech AI tool that converts written text into spoken words, helping individuals with reading difficulties, visual impairments, or learning disabilities. This is in line with the view of Chiang (2013), stated that TTS tools like Natural Reader has numerous offers that will promote students' educational outcomes, but one may ask if it can offer teacher-student relationship, which also supports students' academic achievement. Furthermore NaturalReader offers a range of benefits which include, high-quality natural-sounding voices in various languages like English, Italian, Spanish, German, French and more; accurate text recognition and conversion; integrates with popular applications like Microsoft Office, Adobe Acrobat and web browsers; available on windows, Mac, IOS and Andriod platforms; built-in proofreading tool to help users identify spelling and grammar errors; text highlighting features, font size adjustment, and keyboard-only navigation for visually impaired users.

Conclusion

This study concluded that Grammarly, QuillBot, and Natural Reader on improving educational outcomes among students in public universities in Rivers State, Nigeria. The findings reveal that students perceive these AI tools as highly beneficial, with Natural Reader receiving the highest overall ratings, followed by QuillBot and Grammarly. The results confirm that AI-powered writing and reading tools can significantly contribute to academic success by facilitating error detection, improving writing fluency, and offering personalized learning support. However, the study also highlights variations in tool effectiveness, with students valuing different features based on their academic needs.

Recommendations

Based on the findings, the following recommendations are proposed:

Institutional Adoption of AI Tools

1. Universities should formally integrate AI writing tools (Grammarly, QuillBot, Natural Reader) into their academic support systems, particularly in academic writing.
2. Training workshops should be organized to educate students and lecturers on maximizing these tools for learning and assessment.

3. Public universities should invest in reliable internet access and computer labs to ensure seamless usage of AI-powered tools and consider subscription-based access to premium versions of these tools to provide students with advanced features.

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