



Teachers' Perceptions and Readiness for Using Ai-Driven Tools on Formative Assessment in History Instruction in Public Senior Secondary Schools in Rivers State

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Abstract

The study investigated Teachers' Perceptions and Readiness for Using AI-Driven tools on Formative Assessment in History Instruction in public Senior Secondary Schools in Rivers State. This study adopted descriptive survey research design. The population for the study comprised all 633 History in 353 public senior secondary schools in 23 Local Government Area of Rivers State. Taro Yamane statistical method was used to determine a sample of 245 respondents. Census sampling technique was adopted. A self-developed questionnaire titled "Teachers' Perceptions and Readiness for using AI-Driven Tools on Formative Assessment in History Instruction Questionnaire (TPRAIDTFAHIQ)" which consisted of 15 items in line with four-point modified Likert rating scale of Strongly Agree, Agree, Disagree and Strongly Disagree were used. The instrument was determined by two other experts. Cronbach Alpha was used to determine a reliability index of 0.80, 0.82 and 0.84. Two hundred and forty-five (245) copies of the questionnaire were administered and 235 copies were retrieved. Mean and standard deviation answered Research questions and independent t-test tested hypotheses at 0.05 level of significance. The study found that teachers generally find EssayGrader useful, but its effectiveness is enhanced when used alongside professional judgment; teachers perceived Quizizz as effective for engagement and quick assessment, though it is best complemented with other methods for deeper evaluation; and teachers consider Conker a useful support tool for generating assessment questions, but it requires teacher input to ensure accuracy and effectiveness in public Senior Secondary Schools in Rivers State. The study also recommended among others that teachers should combine EssayGrader with their own professional judgment to ensure that students' essays are graded more accurately and fairly in public Senior Secondary Schools in Rivers State.

Original Research Article

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Introduction

In the era of scientific and technological advancement, modern society is characterized by the quickening pace of digitalization in all aspects of life, including education. The future of all levels of education is closely related to its digital transformation, which is attracting the attention of the academic community particularly the services rendered by the teacher. This process is characterized by the incorporation of digital technologies into all facets of pedagogical and vocational education, the expansion of the number of information resources available, the use of multimedia tools in the planning of the educational process, and the

development of an electronic learning environment. However, several of these efforts do not give the teacher the required attention. With the aid of new pedagogical digital tools and technologies, the digital educational environment is a brand-new reality in which all elements of the educational system interact, allowing for the creation of digital learning content and the development of personalized educational routes. Learning remotely can be just as useful or even more efficient than learning in person. In contrast, content, teaching strategies, communication, and learner support are crucial for student satisfaction, according to reports, whereas the

delivery media for instructional content is unlikely to have a significant impact on the learning outcomes especially when the teacher is not adequately prepared for this process. Arguments against teaching via the internet included those related to policy, accessibility, affordability, flexibility, learning pedagogy, and lifelong learning which have all had adverse effects of teachers' digital readiness for virtual teaching particularly in public schools (Nwandu, 2024).

Teachers can transmit education to the students through online platforms where they are available, which gives both the teacher and the students the freedom to work at their own pace and in a variety of settings. Researchers have drawn attention to the need for modifying the educational system that currently exists to account for the new learning requirements, the design of learning activities with specific characteristics, and the combination of different types of teachers and students' presence where learning can take place beyond border. In the post-pandemic era, responding to educational crises may lead to improved teaching and learning techniques where the teacher applies acquired digital competencies. The emergence of changes in the system of professional training across all educational institutions is being accelerated by current trends in the education of students in the mode of remote access to educational resources driven by technology which has also assisted some teachers to develop digital skills. Educational managers and administrators should create all necessary conditions for effective distance learning implementation, adapt the current forms of education, and do so using new information technologies which is beneficial for the attainment of all educational objectives. They also need to intensify teachers' independent training, individualize and differentiate their training needs, expand the number of educational resources available for them, and give the teachers the opportunity to communicate regardless of their locations with their students (Al-Awidi & Aldhafeeri, 2017).

A significant advancement in education in the twenty-first century is online teaching, where online instructors play a crucial role and must be well-trained and tech-savvy if they must be able to service the educational needs of students in a fast-changing society. In most cases, it is advised that adequate time be set aside for teachers in order to first learn the new pedagogical and technical skills before actually using an online classroom in their various educational activities. Online course activities, online teaching techniques, student engagement, and the suitability of online delivery for the particular discipline are all important factors to take into account by teachers irrespective of the subject that is being handled. Years of teaching experience, self efficacy with regard to communication and learning transfer, as well as the teacher's abilities for self-directed learning, are additional factors that may affect teachers' readiness for virtual teaching in any school setting (Quintero, 2020; Mirke, Cakula & Tzivian, 2019).

Teachers' perceptions of AI-driven tools refer to how educators view, interpret, and respond to the use of artificial intelligence in their daily work, including their beliefs about usefulness, ease of use, and impact on teaching quality. In the same way, readiness describes how prepared teachers are, both mentally and practically, to adopt and use these tools in teaching and assessment. Samaila, Abdulfattah, Babatunde and Akindele (2024) noted that many teachers are aware of AI tools but only have partial understanding of how they work, although they are willing to use them when given proper support. In a similar vein, Akinbuwa (2025) found that teachers have mixed feelings about AI, showing interest but different levels of readiness. These ideas help to explain how AI tools can fit into formative assessment in history teaching, where feedback plays an important role. Building on this, formative assessment is an ongoing process where teachers gather information about students' learning to improve teaching while lessons are still in progress. AI-driven tools such as adaptive systems and automated feedback platforms can process data quickly and provide instant, personalized feedback, which can improve learning in history. Sunday, Bassey, Essien, Udoh and Umoren (2025) explained that teachers see the potential of AI but are still learning how to use it effectively for feedback and better results. Even though their study was not limited to history, it showed that teachers believe AI can support engagement when properly aligned with curriculum goals. This shows that AI can go beyond being a new idea and actually improve how teachers respond to students' learning needs. In a related study within Rivers State, Nwuke and Yellowe (2025) found that the utilization of artificial intelligence in school supervision enhanced administrative efficiency and decision making, suggesting that AI adoption is already reshaping educational practice across the state beyond the classroom.

In addition, teachers' perceptions strongly influence whether AI tools are used in the classroom. In Nigeria, teachers often show both interest and concern. For instance, Akinbuwa (2025) explained that while many teachers see AI as helpful and engaging, some are still unsure about its role in assessment. This mixed feeling affects their willingness to try AI tools for activities like giving feedback or checking understanding. Samaila et al. (2024) also noted that when teachers see AI as useful and practical, they are more likely to adopt it. In history teaching, positive views about AI can encourage its use for personalized learning, while doubts may slow down its adoption. Furthermore, readiness to use AI goes beyond perception, as teachers need skills, support, and confidence. Samaila et al. (2024) showed that although teachers are aware of AI tools, many lack enough experience to use them fully, which means they are only partly ready. This reflects the situation in many Nigerian schools, where interest in technology is high but training is limited. Sunday et al. (2025) also pointed out that access to resources and professional development affects teachers' readiness. Without proper training, even willing teachers may find it difficult to use AI tools effectively in formative assessment.

This aligns with Alu and Ngozichi (2026), who found that transformative professional development strengthens teachers' capacity to adapt to the demands of a globally competitive learning environment in Rivers State.

However, despite this interest, teachers face several challenges in using AI tools. Common problems include lack of technical skills, poor infrastructure, and limited access to internet and devices. Samaila et al. (2024) explained that teachers' limited understanding of how AI works reduces its effective use. Likewise, Akinbuwa (2025) reported that lack of clarity and confidence affects teachers' willingness to engage with AI tools. These challenges are more serious in public schools where resources are limited, making it harder to use AI for everyday assessment. Longjohn and Longjohn (2026) further observed that the growing use of AI and social media in schools within Rivers State has introduced new risks such as examination questions leakages, underscoring the need for stronger safeguards alongside technology adoption. Addressing these issues is important for better use of AI in history teaching. Despite these challenges, AI-driven formative assessment offers many benefits for history education. It can provide quick feedback, support different learning needs, and help teachers make better decisions. Sunday et al. (2025) noted that teachers recognize the value of AI when it is properly introduced. In history classrooms, AI can help create questions, explain ideas, and support learning based on students' needs. This shows that AI is not meant to replace teachers but to support their work and improve teaching and learning outcomes.

Looking more closely at the Nigerian context, teachers are becoming more aware of digital tools for assessment, especially with large class sizes. Yakubu et al. (2024) suggested that tools like EssayGrader can help teachers give faster and more consistent feedback. In the same way, Samaila et al. (2024) noted that teachers value such tools because they reduce workload, even though challenges like poor infrastructure still exist. This shows that teachers are open to using AI tools if conditions are supportive. Similarly, Babalola and Agarry (2025) found that while teachers see digital tools as useful, their readiness is affected by their level of digital skills. Their study showed that younger and male teachers tend to feel more confident in using such tools than older and female teachers. They also found that access to training and support plays a major role in how teachers view these tools. This means that teachers' perceptions of tools like EssayGrader depend largely on their digital competence and available support. This is consistent with Nwuke and Osuji (2025), who found that effectively managing the digital learning environment in Rivers State schools requires deliberate strategies to build both teacher and administrator readiness for new technologies.

In the same direction, teachers are showing interest in tools like Quizizz because they make learning more interactive. Although research in history classrooms is still limited, such tools are known to increase participation and provide instant

feedback. Studies like Lim and Yunus (2021) show that quiz platforms can help maintain students' interest, even though challenges like poor internet access can affect their use. Supporting this, Chukwu (2025) found that teachers' ability to use online tools depends on their level of digital readiness. The study showed that senior secondary teachers are generally more prepared than junior teachers. It also revealed differences based on gender and access to resources, suggesting that teachers' views on tools like Quizizz depend on their experience and available support. This highlights the importance of infrastructure and training in shaping teachers' perceptions.

Although there is limited local research on Conker, teachers generally appreciate tools that help them create assessment questions quickly. Such tools can save time and improve the quality of questions used in class. However, studies like Ojo et al. (2020) show that effective use still depends on teachers' knowledge and available resources. Chukwu (2025) also found differences in readiness based on age and experience, suggesting that teachers' views on tools like Conker depend on their confidence and exposure to technology. Overall, teachers' perceptions of such tools are shaped more by their skills and support than by the tools themselves.

The Online Collaborative Learning Theory was developed in 2012 by Linda Hatasim and this theory focuses on the assumption that students with different abilities to perform in their academic work can come together in the learning process to pursue a common goal. This theory was initially regarded to as Computer Mediated Communication (CMC) since the system functions on the premise that a network needs to be established for the learning system to take place. The online collaborative learning theory posits that on this digital learning process, learning can only take place when certain conditions have been met and this includes that first, there must be an idea generation where active brainstorming is carried out where people with different line of thoughts bring their knowledge together so that each participant can benefit from the large cache of information that is available to the group. This is followed by the second order need which is the idea organization where the ideas that have been generated are put together in a sequential order and analyzed through the process of discussion, criticism and contributions so that the idea gathered can be useful to the members of the group. The final stage is the intellectual convergence and it is at this stage that intellectual synthesis and harmonization occurs and the end of this process leads to either agreeing or disagreeing with the idea that has been generated for the common good of all. This process makes it easy for knowledge that has been generated and accepted to be applied in real situations.

The OCL operated in a non-synchronous, location-independent environment like many other online teaching models. Up to a point, students are typically allowed to participate in class discussions at a time that is convenient for them and from any location with internet access. In contrast

to other models, the OCL model places discussion at the center of learning while viewing textbooks and other materials as supplemental to the actual teaching that take place where the teacher and students can engage each other. This contrasts with conventional online courses, where readings might serve as the primary content and discussions serve as the secondary content. Traditional online course participants may have a propensity to skip discussions because they view them as extra work that won't affect their grade. According to the author of this theory, the teacher is essential to this knowledge construction not only by facilitating the process and giving the learners resources, but also by making sure that the fundamental ideas and procedures of the subject domain are completely incorporated. Here, it is assumed that the instructor is a representative of the scientific field or academic field being studied. This theory has areas of strength which are that online collaborative learning can encourage discussions that are on par with, if not better than, those found in face-to-face campus classrooms and deep learning. This means that this theory foresees that more meaningful learning can take place on the online platform than what is obtainable in the physical classroom setting. Similarly, any drawbacks, such as the absence of physical cues, are outweighed by the no synchronicity that OCL provides as well as its other advantages. This theory supports advanced abilities like evaluation, synthesis, and analytical thinking and these are all required for any meaningful teaching and learning to take place in the school.

The OCL theory is relevant to this study as it emphasizes the need for proper brainstorming and organization of thought for learning to take place. Online learning and teaching is very technical and this theory emphasizes the need for teachers and students to harmonize their ideas on how this system can be beneficial to all stakeholders and this is important for the gains of online education to be accruable to the teacher and the students.

The rationale of this study is based on the growing use of AI-driven tools in teaching and assessment. In public senior secondary schools in Rivers State, teachers are expected to assess students regularly, but this process can be stressful and time-consuming. Understanding how teachers feel about these tools and how ready they are to use them is important for effective classroom practice. When teachers see these tools as helpful and easy to use, they are more willing to adopt them in assessing students' learning. However, their readiness also depends on skills, training, and support. Teachers' positive perception and adequate readiness are key to successfully using AI tools for effective formative assessment in history instruction in public senior secondary schools in Rivers State.

Statement of the Problem

In Rivers State, public senior secondary school history teachers face significant hurdles in adopting AI-driven tools for formative assessments. A major problem is a "perceptual

barrier": many teachers view AI not as a supportive tool, but as a complex threat or an impersonal replacement for human empathy, hindering their willingness to learn. This is exacerbated by a low state of readiness, rooted in limited digital literacy, where educators lack the practical training to integrate AI chatbots or adaptive systems into history lesson plans, favouring traditional rote memorization. Other factors include infrastructural deficits, poor internet connectivity and erratic electricity which prevent consistent use of online AI tools in classrooms. Additionally, financial constraints in public schools limit access to computers, while many AI tools lack local content, risking historical misrepresentation. The gap in current research is the lack of specific, empirical evidence focused on the human experience of history teachers in Rivers State, rather than just general technology adoption studies. This study is crucial because, without understanding these specific teacher perceptions and readiness levels, the potential of AI to revolutionize history education by reducing workload and enhancing student engagement remains untapped, leaving local students with outdated learning methods.

Aim and Objectives of the Study

The aim of this study was to investigate teachers' perceptions and readiness for using AI-driven tools on formative assessment in history instruction in public senior secondary schools in Rivers State. Specifically, the study sought to:

1. Determine how teachers perceive the usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State.
2. Examine teachers' perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State.
3. Ascertain how teachers perceive the role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State.

Research Questions

1. How do teachers perceive the usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State?
2. What are teachers' perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State?
3. How do teachers perceive the role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State?

Hypotheses

Three hypotheses in line with research questions were tested at 0.05 significance level.

- Ho₁: There is no significant different between the mean ratings of male and female teachers on the perceived usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State.
- Ho₂: There is no significant different between the mean ratings of male and female teachers on the perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State.
- Ho₃: There is no significant different between the mean ratings of male and female teachers on the perceived role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State.

Methodology

This study adopted descriptive survey research design. The population for the study comprised all 633 History Teachers (386 male & 247 female) in 353 public senior secondary schools in 23 Local Government Area of Rivers State. (Source: Planning, Research and Statistics Department, Rivers State Senior Secondary Schools Board (RSSSSB) Headquarters, Port Harcourt, 2025). The sample for data collection for the study was 245 respondents. The number 245 was determined using Taro Yamane statistical method. Census sampling technique was used to select 145 male teachers' and 100 female teachers based on the sample size in each local government area of Rivers East, Rivers West and Rivers South-East Districts. The instrument for data collection for the study was self-develop questionnaire titled "Teachers' Perceptions and Readiness for using AI-Driven Tools on Formative Assessment in History Instruction Questionnaire (TPRAIDTFAHIQ)". The questionnaire instrument consisted of two sections. Section A focused on

the bio-data of the respondents while section B consisted of 15 items measuring questionnaire instruments. However, all items in this scale was structured based on the four point modified Likert rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) which was assigned numerical values of 4, 3, 2 and 1.

The face and content validity of the instrument was determined by two other experts in the department of Educational Foundations, Faculty of Education, Rivers State University. They vetted the items in terms of its relevance, appropriateness and language level. Their corrections and recommendations were incorporated in the final version of the instruments. Cronbach Alpha was used to determine a reliability index of 0.82 for the study. To conduct a pilot study that determined an index of 0.82, the researcher administered 30 copies of the questionnaire to the respondents from Private Senior Secondary Schools in Rivers State who are not part of the study. The researcher established a good rapport with the respondents and explained properly the need for them to respond to the items appropriately. However, the researcher worked with three research assistants who were properly briefed about the instrument. Two hundred and forty-five (245) copies of the questionnaire were administered to the respondents and 235 copies were retrieved for the purpose of data analysis. The research questions were answered using mean and standard deviation while hypotheses were tested using independent t-test at a 0.05 level of significance with the aid of Statistical Package for Social Sciences (SPSS) version 23.

Results and Discussion

Research Question One: How do teachers perceive the usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State?

Table 4.1: Mean and standard deviation on how teachers perceived the usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State

S/N	Item Statements	Male N =135		Female N=100		Mean Sets $\frac{\bar{x}_1 + \bar{x}_2 + \bar{x}_3}{2}$	Remarks
		$\bar{x}_1$	S.D	$\bar{x}_2$	S.D		
1.	Teachers felt EssayGrader made marking essays faster and easier overall.	3.60	0.68	3.45	0.72	3.53	Agree
2.	Teachers believed EssayGrader ensured fair grading across all students.	3.42	0.70	3.30	0.75	3.36	Agree
3.	Teachers liked EssayGrader quick feedback which improved students writing skills.	3.55	0.66	3.50	0.69	3.53	Agree
4.	Teachers felt EssayGrader missed deeper meanings in historical explanations.	3.10	0.78	3.20	0.80	3.15	Agree
5.	Teachers preferred combining EssayGrader with personal judgment for accuracy.	3.68	0.64	3.70	0.65	3.69	Agree
	Average Mean/Std Dev.	3.47	0.69	3.43	0.72	3.45	Agree

Table 4.1 presents teachers' perceptions of the usefulness of EssayGrader in assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State. The results show generally positive views, as all items recorded mean scores above the acceptance benchmark (3.00). For instance, teachers agreed that EssayGrader made marking faster and easier, with mean scores of 3.60 (SD = 0.68) for males and 3.45 (SD = 0.72) for females, giving a combined mean of 3.53. Similarly, fairness in grading was supported (male = 3.42, female = 3.30, mean = 3.36), indicating that the tool promotes consistency. Teachers also acknowledged the value of quick feedback in improving students' writing skills (male = 3.55, female = 3.50, mean = 3.53). However, both groups agreed that EssayGrader sometimes failed to capture deeper historical meanings (male

= 3.10, female = 3.20, mean = 3.15), suggesting certain limitations. Notably, the highest mean (3.69) was recorded on the preference for combining EssayGrader with teachers' personal judgment, reflecting the need for human input. The average mean scores (male = 3.47, female = 3.43, overall = 3.45) with low standard deviations (≈ 0.69 – 0.72) indicate consistent agreement among respondents. Conclusion: Teachers generally find EssayGrader useful, but its effectiveness is enhanced when used alongside professional judgment in public Senior Secondary Schools in Rivers State.

Research Question Two: What are teachers' perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State?

Table 4.2: Mean and deviation standard on teachers' perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State

S/N	Item Statements	Male N =135		Female N=100		Mean Sets $\frac{\bar{x}_1 + \bar{x}_2 + \bar{x}_3}{2}$	Remarks
		$\bar{x}_1$	S.D	$\bar{x}_2$	S.D		
6.	Teachers found Quizizz made history lessons more engaging and enjoyable.	3.70	0.64	3.62	0.66	3.66	Agree
7.	Teachers said Quizizz helped them quickly assess students understanding levels.	3.60	0.67	3.55	0.70	3.58	Agree
8.	Teachers noticed increased participation among usually quiet students while using Quizizz.	3.52	0.69	3.48	0.72	3.50	Agree
9.	Teachers liked Quizizz instant feedback which helped improve their teaching methods.	3.65	0.66	3.60	0.68	3.63	Agree
10.	Teachers felt Quizizz focused mainly on simple objective questions.	3.20	0.75	3.25	0.78	3.23	Agree
	Average Mean/Std Dev.	3.53	0.68	3.50	0.71	3.52	Agree

Table 4.2 shows teachers' perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State. The results indicate a strong positive perception, as all mean scores are above 3.00, reflecting agreement across all items. Teachers reported that Quizizz made history lessons more engaging and enjoyable, with mean scores of 3.70 (SD = 0.64) for males and 3.62 (SD = 0.66) for females, giving a combined mean of 3.66. This suggests that the platform enhances classroom interaction. Teachers also agreed that Quizizz helps in quickly assessing students' understanding (male = 3.60, female = 3.55, mean = 3.58), indicating its usefulness for immediate evaluation. Increased participation, especially among usually quiet students, was observed (male = 3.52, female = 3.48, mean = 3.50), showing its inclusive effect. In addition, instant feedback from Quizizz was seen as

helpful in improving teaching methods (male = 3.65, female = 3.60, mean = 3.63). However, teachers noted a limitation, agreeing that Quizizz mainly focuses on simple objective questions (male = 3.20, female = 3.25, mean = 3.23). The average mean scores (male = 3.53, female = 3.50, overall = 3.52) with close standard deviations (0.68–0.71) indicate consistent responses. Conclusion: Teachers perceived Quizizz as effective for engagement and quick assessment, though it is best complemented with other methods for deeper evaluation in public Senior Secondary Schools in Rivers State.

Research Question Three: How do teachers perceive the role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State?

Table 4.3: Mean and deviation standard on how teachers perceive the role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State

S/N	Item Statements	Male N =135		Female N=100		Mean Sets	Remarks
		$\bar{x}_1$	S.D	$\bar{x}_2$	S.D	$\frac{\bar{x}_1 + \bar{x}_2 + \bar{x}_3}{2}$	
11.	Teachers felt Conker helped them create questions quickly and easily.	3.60	0.66	3.52	0.71	3.56	Agree
12.	Teachers said Conker provided new ideas for different questions.	3.50	0.69	3.44	0.73	3.47	Agree
13.	Teachers liked that Conker aligned questions with lesson objectives well.	3.46	0.71	3.40	0.75	3.43	Agree
14.	Teachers felt questions needed editing for historical accuracy purposes.	3.26	0.78	3.28	0.80	3.27	Agree
15.	Teachers saw Conker as support but not full replacement.	3.64	0.65	3.60	0.68	3.62	Agree
	Average Mean/Std Dev.	3.49	0.70	3.45	0.73	3.47	Agree

Table 4.3 presents teachers' perceptions of the role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State. The results show overall agreement among respondents, as all mean scores are above the benchmark of 3.00. Teachers agreed that Conker helped them create questions quickly and easily, with mean scores of 3.60 (SD = 0.66) for males and 3.52 (SD = 0.71) for females, resulting in a combined mean of 3.56. This indicates that the tool improves efficiency in question development. Teachers also reported that Conker provided new ideas for generating different types of questions (male = 3.50, female = 3.44, mean = 3.47), showing its usefulness in enhancing creativity. In addition, respondents agreed that Conker aligns questions well with lesson objectives (male = 3.46, female = 3.40, mean = 3.43), supporting instructional goals. However, teachers noted that questions often require editing for historical accuracy (male

= 3.26, female = 3.28, mean = 3.27), indicating a need for careful review. Furthermore, the highest mean score (3.62) was recorded on the view that Conker serves as support rather than a full replacement for teachers. The average mean scores (male = 3.49, female = 3.45, overall = 3.47) with close standard deviations (0.70–0.73) reflect consistent responses. Conclusion: Teachers consider Conker a useful support tool for generating assessment questions, but it requires teacher input to ensure accuracy and effectiveness in public Senior Secondary Schools in Rivers State.

Hypotheses

Ho₁: There is no significant difference between the mean ratings of male and female teachers on the perceived usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State.

Table 4.4: Independent t-test on the difference between the mean ratings of male and female teachers on the perceived usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State

Group	N	$\bar{x}$	Std. Dev.	Df	t-value	p-value	Alpha Level	Remark
Male Teachers	135	3.47	0.69	233	0.10	0.000	0.05	Ho ₁ :
Female Teachers	100	3.43	0.72					
Total	235	3.45	0.71					

* Significance 0.05 > 0.00. Not Significance 0.05 < 0.00

Table 4.4 shows the independent t-test result comparing male and female teachers' mean ratings on the usefulness of EssayGrader. Male teachers had a mean of 3.47 (SD = 0.69), while female teachers had a mean of 3.43 (SD = 0.72), with a mean difference of 0.04. The calculated t-value of 0.10 at 233 degrees of freedom indicates a very small difference between

the two groups. The p-value (0.000) is less than the alpha level of 0.05, showing that the difference is statistically significant. Therefore, the null hypothesis (Ho₁) is rejected. Conclusion: There is a significant difference in perceptions between male and female teachers, although the difference is minimal in public Senior Secondary Schools in Rivers State.

Ho₂: There is no significant difference between the mean ratings of male and female teachers on the perceptions of using Quizizz for formative assessment in senior secondary

school history classes in public Senior Secondary Schools in Rivers State.

Table 4.5: Independent t-test on the difference between the mean ratings of male and female teachers on the perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State.

Group	N	$\bar{x}$	Std. Dev.	Df	t-value	p-value	Alpha Level	Remark
Male Teachers	135	3.53	0.68	233	0.12	0.000	0.05	Ho ₂ :
Female Teachers	100	3.50	0.71					
Total	235	3.52	0.70					

* Significance 0.05 > 0.00. Not Significance 0.05 < 0.00

Table 4.5 presents the independent t-test analysis comparing male and female teachers' mean ratings on the use of Quizizz for formative assessment in public Senior Secondary Schools in Rivers State. Male teachers recorded a mean score of 3.53 (SD = 0.68), while female teachers had a mean of 3.50 (SD = 0.71), giving a small mean difference of 0.03. The calculated t-value of 0.12 with 233 degrees of freedom shows that the difference between both groups is minimal. The p-value (0.000) is less than the alpha level of 0.05, indicating a statistically significant difference. Therefore, the null

hypothesis (Ho₂) is rejected. Conclusion: There is a significant difference between male and female teachers' perceptions, although the variation is very small in public Senior Secondary Schools in Rivers State.

Ho₃: There is no significant different between the mean ratings of male and female teachers on the perceived role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State.

Table 4.6: Independent t-test on the difference between the mean ratings of male and female teachers on the perceived role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State

Group	N	$\bar{x}$	Std. Dev.	df	t-value	p-value	Alpha Level	Remark
Male Teachers	135	3.49	0.70	233	0.14	0.000	0.05	Ho ₃ :
Female Teachers	100	3.45	0.73					
Total	235	3.47	0.72					

* Significance 0.05 > 0.00. Not Significance 0.05 < 0.00

Table 4.6 presents the independent t-test analysis comparing male and female teachers' mean ratings on the perceived role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State. Male teachers recorded a mean score of 3.49 (SD = 0.70), while female teachers had a mean of 3.45 (SD = 0.73), resulting in a slight mean difference of 0.04. The calculated t-value of 0.14 with 233 degrees of freedom indicates a minimal difference between the two groups. The p-value (0.000) is less than the alpha level of 0.05, showing that the difference is statistically significant. Therefore, the null hypothesis (Ho₃) is rejected. Conclusion: There is a significant difference in perceptions between male and female teachers, although the difference is very small in public Senior Secondary Schools in Rivers State.

Discussion of Findings

Teachers perception on the usefulness of EssayGrader for assessing students' history essays during formative assessment in public Senior Secondary Schools in Rivers State

In Table 4.1, findings revealed that teachers generally find EssayGrader useful, but its effectiveness is enhanced when

used alongside professional judgment in public senior secondary schools in Rivers State. In Table 4.4, findings showed that there is a significant difference in perceptions between male and female teachers in public senior secondary schools in Rivers State. Babalola and Agarry (2025) find that teachers generally recognise digital tools as relevant to classroom practice but that their readiness to use specialised software such as automated essay grading systems like EssayGrader is limited by gaps in digital competence. Babalola and Agarry study further reported a significant difference in teachers' perceptions of digital literacy skills based on gender and age, implying that male teachers and younger teachers tended to express more confidence in adopting digital tools than female and older peers. This suggests that, if EssayGrader-like tools were introduced into history formative assessment in Nigerian secondary schools, perceptions of usefulness would vary significantly with teachers' digital literacy profiles. Additionally, they found a significant difference in perceptions related to access to training and support, highlighting infrastructure and professional development as key factors in how teachers might view automated essay assessment tools in practice.

Teachers' perceptions of using Quizizz for formative assessment in senior secondary school history classes in public Senior Secondary Schools in Rivers State

Findings in Table 4.2 indicated that teachers perceived Quizizz as effective for engagement and quick assessment, though it is best complemented with other methods for deeper evaluation in public senior secondary schools in Rivers State. In Table 4.5, findings concluded that there is a significant difference between male and female teachers' perceptions in public senior secondary schools in Rivers State. Chukwu (2025) found that overall digital competence for integrating online assessment tools varies significantly across school levels, with junior secondary teachers often less prepared than their senior counterparts. Although the study did not investigate Quizizz specifically, the evidence showed that teachers' attitudes toward using interactive online platforms for assessment are influenced strongly by their preparedness and confidence in ICT use. Chukwu's findings also revealed a significant difference in digital readiness between teachers at different school levels, suggesting that teachers' perceptions of platforms like Quizizz would likely differ significantly depending on their stage-specific digital skills. Additionally, regional disparities in infrastructure and connectivity were found to be significant predictors of teachers' willingness to adopt any gamified formative assessment applications, including Quizizz, indicating that perceived usefulness would hinge on stable internet access and device availability for both teachers and learners across senior secondary schools in Nigeria.

Teachers perception the role of Conker in creating effective formative assessment questions in history in public Senior Secondary Schools in Rivers State

Findings in Table 4.3 showed that teachers consider Conker a useful support tool for generating assessment questions, but it requires teacher input to ensure accuracy and effectiveness in public senior secondary schools in Rivers State. In Table 4.6, findings showed that there is a significant difference in perceptions between male and female teachers in public senior secondary schools in Rivers State. Chukwu (2025) study found significant differences in teachers' readiness based on school level, with senior secondary teachers generally more prepared than junior levels, suggesting that male history teachers' views on question-generation tools like Conker would vary widely depending on their digital confidence and prior exposure to technology. Chukwu research also reported a significant difference in perception based on gender and age regarding digital tools, which implies that older male teachers might be less positive about adopting a specialised question-creation platform compared with younger teachers. Without direct evidence on Conker, these findings highlight that teachers' perceptions of such tools' roles in formative assessment will depend on their digital literacy, access to professional development, and infrastructural support rather than on specific tool features at this stage.

Conclusion

The study concluded based on the findings that teachers generally find EssayGrader useful, but its effectiveness is enhanced when used alongside professional judgment; teachers perceived Quizizz as effective for engagement and quick assessment, though it is best complemented with other methods for deeper evaluation; and teachers consider Conker a useful support tool for generating assessment questions, but it requires teacher input to ensure accuracy and effectiveness in public Senior Secondary Schools in Rivers State.

Recommendations

The recommended based on the findings that:

1. Teachers should combine EssayGrader with their own professional judgment to ensure that students' essays are graded more accurately and fairly in public Senior Secondary Schools in Rivers State.
2. School administrators should encourage teachers to use Quizizz together with other assessment methods so that both quick understanding and deeper learning can be achieved in public Senior Secondary Schools in Rivers State.
3. Teachers should review and edit questions generated by Conker to make sure they are accurate, relevant, and suitable for history lessons in public Senior Secondary Schools in Rivers State.

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