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Examining The Relationship Between Artificial Intelligence And Teacher Productivity In Private Secondary Schools In Rivers State Using Zipgrade And Google Classroom

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ABSTRACT

The study examined the relationship between artificial intelligence and teacher productivity in Private Secondary Schools in Rivers State using Zipgrade and Google Classroom. Two research questions and two hypotheses guided the study, which adopted the correlational survey research as its working design. The population of the study was 9,576 teachers, out of which 400 respondents were drawn using stratified and proportionate stratified sampling techniques. The instrument of data collection was a structured questionnaire titled Artificial Intelligence and Teachers Productivity Application Scale (AIAS) and Teacher Productivity Indicators Scale (TPIS). This instrument was validated by educational management experts. The instrument reliability was established using Cronbach Alpha with indexes of 0.79 (ZipGrade) and 0.75 (Google Classroom), respectively. Data analysis was done using Pearson's Product Moment Correlation for research questions while Z-ratio was used to analyze the hypotheses (0.05 level of significance). Results revealed a weak positive significant relationship between artificial intelligence and teachers' productivity in Private Schools in Rivers State using ZipGrade and Google Classroom. Hence, the work recommends that private school owners should train teachers on how to use ZipGrade and they should be encouraged to download the software and use it in students grading. Furthermore, private teachers should learn how to use Google Classroom, and they should be motivated to integrate this AI tool in the teaching/learning process.

Keywords: Artificial intelligence, Teacher productivity, ZipGrade, Google Classroom

INTRODUCTION

The evolution of Computer and information communication technologies has not halted so they are bringing new inventions and now is the era of artificial intelligence. Fahimirad (2018) defined AI as a computer system that learns, adapts, synthesizes, self-corrects, and uses data for complicated processing tasks, much like a human being. Wartman and Combs (2018) defined artificial intelligence (AI) as the attempt to make computers think and act like humans. By this criterion, we can see that these AI technologies can do tasks in a human-like manner. Strusani and Hounghonon (2019) offered an alternative definition of AI, stating that it is the use of computational power and extensive data sets to mimic human thinking, language processing, discernment, visual recognition, and spatial processing, among other logical skills.

The productivity of an organization's members is a major factor in determining its success or failure, according to Sultana and Mahbuba (2013) in Khan and Abdullah (2019). According to Sutikno (2011), productivity in the workplace is defined as an individual's capacity to create more innovative, beneficial output. Productivity is the rate at which an organization or a person accomplishes a set of predetermined goals. A company's productivity may be defined as the pace at which it is able to achieve its stated objectives and guarantee that its products and services are up to par (Ayeni & Akinola, 2020). Educators and other school staff need to be more productive if we want our schools to be more productive. According to Sutikno (2011), the key to achieving school productivity lies with teachers, who are both professional and functional staff members. They are responsible for carrying out the main tasks and functions of the school, which include providing pupils with education and learning services.

Teachers in Nigerian secondary schools have been challenged by increased workloads that have made them combine both instruction and administrative tasks. OECD (2023) indicated that, an average teacher spends seven hours planning lessons and assessing students. Many teachers in public schools in urban areas are faced with the burden of teaching highly populated classes that have been split into different arms. They would also have to combine the teaching function with administrative and extracurricular functions such as class and club supervision, and sports mastership. Another well-discussed reason for the low productivity of teachers is the failure to develop educational materials based on the specific context, location, level, and behavioral pattern of students. Natural disasters such as flooding and insecurity issues like intra and inter-communal clashes have led to the disruption of academic activities which highly undermine teachers' productivity.

Teacher Productivity

The definition of productivity has been done by many scholars and researchers. Productivity, according to Ayeni (2018) cited in Adefalu (2022), is the degree to which educational goals are met via the most effective use of available resources. Considering the intake, process, and output stages of education makes it a continuous process. The amount to which school administration and instructors make use of existing resources to accomplish educational objectives is what Ayeni and Sadiku (2020) mean when they talk about productivity in the classroom. It follows that a productive educator makes the most of the means at their disposal to complete the duties outlined in the position's requirements and timetable. The link between the output of goods and services and the resource inputs (human and material) that are used to produce such goods and services was defined by Nwachukwu (2006) as productivity. Work productivity is defined by Sutikno (2011) in Anisah, Gistituati, and Rusdinal (2020) as the capacity to create more innovative and beneficial output. Maximizing output while minimizing inputs is one definition of productivity (Ibrahim, 2006 in Agbo, 2021). Productivity in the classroom is defined as the output per unit of effort put into a school system. According to Aja-Okorie (2016), technological and technical aspects, including the amount and quality of instructional materials, as well as the teacher's talents and motivations, affect the teacher's performance. But being smarter, rather than spending more or working more, is the key to increased production. Thus, maximizing of production is the primary focus of productivity (Emunemu & Isuku, 2011).

A productive teacher is one who is enthusiastic about continuing their career in education, shows up to work every day with a positive attitude, and is clearly dedicated to the success of their students. The hallmark of an effective educator is the ability to maximize output while minimizing inputs or to maintain a constant level of output quality while using a minimal number of resources. There exists an ideal correlation between the inputs and outputs of a highly effective educator. A highly effective educator makes the most of his time in the classroom to ensure that his pupils learn the material and develop the character traits required for success in the extracurricular and formal programs offered by the school. Despite negative outside forces, he said, such a teacher shows enough interest in the school's functioning to warrant his praise. Teachers who get strong encouragement from the administration are more likely to be invested in their students' academic success. Dynamic principals who set a positive example, and who regard teachers as colleagues are more likely to have schools where instructors are very productive.

ZipGrade

The history of ZipGrade can be traced to John Viebach. Palanas, Alinsod, and Capunitan (2019). John Viebach was the founder of ZipGrade LLC Company. His wife is a teacher, and she was the one who pushed him to create an affordable software for smartphone grading. After consulting with hundreds of educators, John has added features that classroom teachers all across the globe have been asking for to ZipGrade since the program's inception. Jonathan (2020) presented Zipgrade as a tool that has increased the efficiency of several educators, created by the spouse of a teacher. Printing out bubble sheets and scanning them with your mobile device is a breeze with this software. It's perfect for class surveys or multiple-choice quizzes. Although not all subjects are well-suited to multiple-choice tests, the instructor may get immediate feedback on student progress using the robust tools provided. An answer sheet may be automatically assigned to a student by scanning it and entering the student number. One may use the ZipGrade app on one's iOS or Android phone and access the website on one's desktop computer at www.ZipGrade.com. One may get a printable response sheet from Zipgrade's website that details the exact layout and alignment instructions that the camera will pick up while scanning. One may choose from three different exam formats, each accommodating 20, 50, or 100 questions. According to Ndahimana, Archibong, and Ga (2024), there are five possible answers for each question.

An essential aspect of the teaching-learning process is doing assessments. In this way, educators can guarantee that their students acquire the knowledge necessary to achieve the learning outcomes. Teachers may use ZipGrade to determine whether remediation is necessary. Conversely, evaluating students' work is an essential component of assessment because it provides teachers with data they can use to take corrective or interventionary measures, depending on the situation (Cortez, Singca & Banaag, 2023). According to Suhendara, Herma, Slamet, and Priyanto (2020), educators need to be good with social media and also know how to use technology in the classroom. The majority of educators still fail to critically examine test questions. So, people aren't sure whether their inquiries are genuine and reliable. Based on the data collected, it seems that the educators are struggling to do this kind of study. That is why they require an analytical tool that can streamline the process.

If your students' tests are multiple-choice, you may use the free web tool ZipGrade to grade them. This technique is great for quickly assessing how well a pupil is doing (Ndahimana, Archibong & Ga, 2024). Modern teachers are now adopting AI tools such as ZipGrade which can scan and grade multiple-choice answer sheets through the mobile phones, tablets, or computers of the teacher saving time and energy. All the teacher needs to do is just to point a camera at any answer sheet. According to Gcargill (2019), ZipGrade does more than only look at students' test scores; it can also provide teachers with a percentage breakdown by question, allowing for more precise and timely feedback on which parts of the course material students and teachers should work on more. If your study or teaching involves collecting and analyzing multiple-choice data, ZipGrade is an excellent, time-saving tool to consider. In a matter of seconds, you may grade an entire class's worth of exams, and your grades will be instantly recorded and synchronized.

Google Classroom

Google Classroom, part of Google Apps for Education, is a free program that was released to the public on August 12, 2014. According to Structural learning (2023), it was created to facilitate many tasks such as communication, collaboration, assignment organization and management, and becoming paperless. The term "virtual classroom" refers to an online meeting place where students may collaborate on projects, share and watch multimedia presentations, and converse with one another. Many companies have begun using the virtual classroom, a kind of synchronous elearning, to teach their employees without spending as much money or time on traditional classroom settings (Xanthoula, 2015 in Anekwe & Amadi, 2020). According to Structural learning (2023), this AI tool is Google Classroom, an online suite of tools that lets educators design classes, assign and track student work, and provide feedback on their work. Google Classroom, an LMS, makes it easy to design, distribute, and grade assignments and involve students in online or remote learning. Google Classroom is tool that allows instructors and students to communicate, share resources, and assess each other's work.

As a pedagogical and cognitive tool, Google Classroom has the potential to shift the emphasis of the classroom from the instructor to the students, encouraging them to take an active role in the learning process via questioning, discussing, and generating their ideas. Even when there is no in-person meeting, teachers may still provide pupils access to learning resources over the internet. At the same time, student-centered learning is undergoing testing so that students may engage in self-learning alongside the new learning method. According to Anekwe and Amadi (2020), students may take use of Google Classroom's central location for all of their class discussions and assignments, which might greatly improve their efficiency and communication. Students may benefit from improved file organization as a result of the ability to save all of their work "paperlessly" in one software. Because of the built-in monitoring methods in assignments, teachers can see which pupils are having trouble more immediately.

Google Classroom is another artificial intelligence tool that many educators are utilizing to enhance the learning and teaching process. Its purpose is to facilitate two-way communication between instructors and students, allowing them to watch presentations or videos, engage in group work with shared resources, and boost teacher productivity. This is related to the argument put out by al-Zyoud (2020), who argues that AI is attracting the attention of scientists and educators alike due to the innovation and progress taking place in the field and the positive impact it will have on education in the future. Using this AI-powered technology, one can set up a virtual classroom online, where authorized users may collaborate on projects, share and watch presentations, and communicate with one another. According to Google (2024), this AI platform simplifies the process of delivering and sharing course materials, assignments, surveys, and papers, as well as facilitating better communication and cooperation between teachers and students. Udoh, Bisong, Ekpo-Eloma, and Effiong (2022) stated that Google Classroom is a free, cutting-edge tool for teaching. It lets educators set up online classrooms where students may interact with one another and with the instructor. For students to access and see, teachers may post videos, documents, links, assignments, and announcements. Among the most advanced apps for online education, Google Classroom gives instructors the means to remotely lecture, provide course materials, and even administer tests and quizzes (García, 2023).

ZipGrade and Teacher Productivity

Zipgrade is a more effective tool for today's data-driven education system, according to the study (Ndahimana, Archibong & Ga, 2024), and it is an essential technology in marking and grading. According to Cortez, Singca, and Banaag (2023), instructors may save time by using Zipgrade to quickly review student work. Based on the study of Suhendara (2020) jobs were made simpler by the study of the ZipGrade evaluation of student learning outcomes. ZipGrade has been a great assistance as it simplifies and expedites the process of grading students' work. Cimafranca and Tamayo (2019) indicated that TLE teachers who used the ZipGrade application were more likely to submit their reports on time for the second and third quarters of evaluation.

According to Muslu (2017) as cited in Ningsih and Mulyono (2019), instructors may grade more quickly using the software ZipGrade. After students' answers are properly scanned, ZipGrade does the analysis and adds the results to an internal digital grade book. One may convert any student assignment to a multiple-choice format with the help of ZipGrade, a free software and web resource.

An essential aspect of the teaching-learning process is doing assessments. In this way, educators can guarantee that their students acquire the knowledge necessary to achieve the learning outcomes. Teachers may use ZipGrade to determine whether remediation is necessary. Conversely, evaluating students' work is an essential component of assessment because it provides teachers with data they can use to take corrective or interventionary measures, depending on the situation (Cortez, Singca & Banaag, 2023). According to Suhendara, Herma, Slamet, and Priyanto (2020), educators need to be good with social media and also know how to use technology in the classroom. The majority of educators still fail to critically examine test questions. So, people aren't sure whether their inquiries are genuine and reliable. Based on the data collected, it seems that the educators are struggling to do this kind of study. That is why

they are in need of an analytical tool that can streamline the process. Evaluating, reviewing, and grading assignments may sometimes be an uncomfortable part of a teacher's daily routine.

Google Classroom and Teacher Productivity

The relationship between Google Classroom and teacher productivity have been discussed by many scholars. Johns and Beutlin (2020) indicated that students are generally pleased with Google Classroom, proving that it is a powerful tool for active learning and that the use of improved and innovative technology may facilitate the learning and teaching process in any setting. Rajaindaran and Abdullah (2023), concluded in their study that instructors saw Google Classroom favorably as a means to improve their students' public speaking skills concluded in their research work that the Google Class LMS can be effectively used to teach Biology and other subjects involving ICT and that it can be customized to meet the specific needs of each student. Research conducted by Gupta and Pathania (2020) found that students felt more connected to one another and that instructors were able to provide more individualized attention as they used Google Classroom. Thomas (2021), in his findings, showed that all three participant teachers indicated a change in pedagogical practice with the introduction of GC. One noticeable difference from the interviews was the move from a teacher-centered to a learner-centered educational setting.

With GC, students autonomously accessed relevant information for coursework rather than asking for teacher help. Crawford (2015) cited in Aneke and Amadi (2020) that students can collaborate on projects more easily using Google Classroom. Google Classroom improved student engagement and retention, according to research cited by Heggart and Yoo (2018) in Rajaindaran and Abdullah (2023). The authors Maryanti, Kurniawan, and Sarbini (2020) reached a consensus that the creation of flexible learning based on the premise of learning anytime, anyplace, and via any device may be an attempt to enhance student academic performance. Aneke and Amadi (2020) stated Google Classroom is a top platform for improving instructors' workflow. Because of its robust range of capabilities, it is a great tool for classroom usage. Providing support to educators in their pursuit of efficiency, classroom organization, and student-teacher dialogue. Thomas (2021) in his findings showed that all three participant teachers indicated a change in pedagogical practice with the introduction of GC. One noticeable difference from the interviews was the move from a teacher-centered to a learner-centered educational setting. With GC, students autonomously accessed relevant information for coursework rather than asking for teacher help.

Even if there is no way for teachers to meet with their pupils in person, they may still provide them resources to help them study online. The new method of instruction is now undergoing testing that is student-centered, with the goal of encouraging pupils to engage in self-directed learning. Students may develop a sense of autonomy and individuality via the integration of technology into the classroom (Graham, 2006 in Shahazwan & Anwar, 2021). Although there were a few hiccups, overall, GC was a good fit for the State Islamic Institute of Kendari and helped make the transition from the old system smoother. In addition, the survey found that GC features are enticing because they are simple to use, have intriguing characteristics, and are easy to grasp, according to the students. Google Classroom's impact on social studies instruction for students with learning difficulties was the subject of research by DiCicco (2016) cited in Shahazwan and Anwar (2021). The researcher has used a single-subject design with ABC stages to evaluate their learning results in terms of topic knowledge and vocabulary words. The baseline was teaching students using textbooks in the conventional manner. In addition, during the intervention, students were assessed using Google Classroom-based unit assessments and vocabulary quizzes, and they were asked to complete many assignments each day utilizing the platform. The results showed that while students' topic understanding was lacking, their vocabulary test scores were much higher. According to DiCicco (2016) in Shahazwan and Anwar (2021), teachers have mentioned that Google Classroom is easy to use, with features such as the ability to reuse posts, personal preference, more student engagement, more student writing and posting, online gaming, and finding relevant links.

Google Classroom improved student engagement and retention, according to research cited by Heggart and Yoo (2018) in Rajaindaran and Abdullah (2023). Using digital resources piqued students' interest in the material. The authors Maryanti, Kurniawan, and Sarbini (2020) reached a consensus that the creation of flexible learning based on the premise of learning anytime, anyplace, and via any device may be an

attempt to enhance student academic performance. Learning Management Systems (LMS) and other similar platforms and apps may help with this. One learning management system (LMS) application is Google Classroom. Students who participated in these classes reported feeling satisfied with their progress. When it comes to online education, Google has you covered with their Google Classroom service. According to Aneke and Amadi (2020), Google Classroom is a top platform for improving instructors' workflow. Because of its robust range of capabilities, it is a great tool for classroom usage. Providing support to educators in their pursuit of efficiency, classroom organization, and student-teacher dialogue. Anyone with the free Google Apps for Education suite—which includes Docs, Drive, and Gmail—can access it.

Google Classroom helped students make the most of their learning experience, according to a study by Al-Maarouf and Al-Emran (2018) in Rajaindaran and Abdullah (2023). In addition to finding it straightforward and helpful, the students who took part in the research were quite enthusiastic about using Google Classroom in their learning. Google Classroom improves education, according to Hussaini, Ibrahim, Wali, Libata, and Musa's (2020) research. Google Classroom activities transform students from spectators to participants in the learning process; the platform is dependable, effective, and efficient in this regard. With Google Classroom's online exams, students can see how far they've come, and parents can keep tabs on their kids' development whenever it's convenient for them. Olivier (2016) in Aneke and Amadi (2020) found, among other things, that students acknowledge GC's beneficial effects on their learning and social media engagement. Afterward, he concluded that students can complete their assignments, enhance their learning productivity, and have a greater intention to use GC when they use it more often.

Statement of Problem

There are a lot of things that contribute to Nigerian pupils' bad performance in school, but one of the most important is the low productivity of teachers. A lot of studies have shown that the educational system in Nigeria is in such a bad state because instructors don't know how to use the resources at their disposal to their best advantage. But a close look at this situation shows that although some teachers are not productive because of their faults other factors have affected their ability to maximize resources. Some of these impediments include excess workload, lack of technological tools, truancy, shortage of time for research, insecurity/natural disaster, communication barriers, etc. Teachers in Nigerian secondary schools have been challenged by increased workloads that have made them combine both instruction and administrative tasks. OECD (2023) indicated that, an average teacher spends seven hours planning lessons and assessing students. Many teachers in public schools in urban areas are faced with the burden of teaching highly populated classes that have been split into different arms. They would also have to combine the teaching function with administrative and extracurricular functions such as class and club supervision, and sports mastership. Another well-discussed reason for the low productivity of teachers is the failure to develop educational materials based on the specific context, location, level, and behavioral pattern of students. To increase teacher's productivity many measures have been adopted by the government, but it has brought limited impact. The application of scientific tools such as ICT and social media in the secondary school teaching-learning process has been highly discussed by many scholars. However, investigations into the relationship between artificial intelligence and teacher's productivity have been limited.

Aim/Objectives

This research examined that relationship between artificial intelligence and teacher productivity in Private Secondary Schools in Rivers State using Zipgrade and Google Classroom.

Specifically, the study sought to;

1. ascertain the relationship between ZipGrade (AI Grading application) and teacher productivity in private secondary schools in Rivers State, Nigeria.
2. examine the relationship between Google Classroom (AI personalized learning application) and teacher productivity in private secondary schools in Rivers State, Nigeria.

Research Questions

1. What is the relationship between ZipGrade (AI Grading application) and teacher productivity in private secondary schools in Rivers State, Nigeria?
2. What is the relationship between Google Classroom (AI personalized learning application) and teacher productivity in private secondary schools in Rivers State, Nigeria?

Hypothesis

1. There is no significant relationship between ZipGrade (AI Grading application) and teacher productivity in private secondary schools in Rivers State, Nigeria.
2. There is no significant relationship between Google Classroom (AI personalized learning) and teacher productivity in private secondary schools in Rivers State, Nigeria.

METHODOLOGY

The study adopted the correlational research design with the population consisting of all the teachers of the 453 government-approved private secondary schools in Rivers State. The total population of teachers is 9,576 (Nine Thousand Five Hundred and Seventy-Six) and the sample of the study comprised 400 private senior secondary school teachers. The multistage sampling procedure will be used to arrive at the sample size. The multi-stage sampling is made up of stratified and proportionate stratified sampling techniques. First, the registered private would be stratified into three regions: Rivers West, with 125 schools (2625 teachers), Rivers East with 156 schools (3,276), and Rivers South-East with 175 schools (3,675) respectively. Second, the percentage of all the three regions will be determined, Rivers West had 28%, Rivers East 34% and Rivers South-East 38%. Using Taro Yamane formula, a sample size of 400 was derived. Third, a proportionate stratified sampling technique was used to draw 112 teachers from the Rivers West stratum, 136 teachers from the Rivers East stratum and 152 teachers from the Rivers South-East stratum respectively. The instrument of data collection was a researcher-designed scale titled Artificial Intelligence Applications and Teacher Productivity Scale (AIATS) with reliability indexes of 0.79 (ZipGrade) and 0.75 (Google Classroom) using the Cronbach Alpha model. Pearson Product Moment Correlation was used to answer the research questions while Z-ratio analysis was adopted to test the hypotheses at 0.05 significance level.

RESULTS AND ANALYSIS

Research Question One: *What is the relationship between ZipGrade and teacher productivity in private secondary schools in Rivers State, Nigeria?*

Table 1: Analysis of the Relationship between ZipGrade and Teacher Productivity of Private Secondary School Teachers in Rivers State.

		ZipGrade	Teachers Productivity
Zipgrade	Pearson correlation	1	.420**
	Sig. (2-tailed)		.000
	N	386	386
Teachers productivity	Pearson correlation	.420**	1
	Sig. (2-tailed)	.000	
	N	386	386

*. Correlation is significant at the 0.05 level.

Legend

N: Number of respondents

Scale of Measurement

- 0.00- 0.25 Very weak relationship
- 0.26- 0.50 Weak relationship
- 0.51- 0.75 Strong relationship
- 0.76 – 1.00 Very strong relationship

Data on Table I show the Person Product Moment Correlation analysis of the relationship between ZipGrade applications and teacher productivity in Private Secondary Schools in Rivers State. With 386 respondents, the r-calculated value resulted in 0.42. When reference is made to the scale of measurement, the calculated r-value of 0.42 falls between 0.25 and 0.50 (weak correlation). Based on the above observations, the results show, that there is a weak positive relationship between ZipGrade applications and teacher productivity in Private Secondary Schools in Rivers State. The weak positive relationship between the two variables shows that they constantly move in the same direction to another. This entails that if teachers adopt ZipGrade their productivity will increase in a weak magnitude and vice versa.

Research Question Two: *What is the relationship between Google Classroom (AI personalized learning) and teacher productivity in private secondary schools in Rivers State, Nigeria?*

Table 2: Analysis of the Relationship between Google Classroom and Teacher Productivity of Private Secondary School Teachers in Rivers State.

		Google	Teachers Productivity
Google	Pearson correlation	1	.309**
	Sig. (2-tailed)		.000
	N	386	386
Teachers productivity	Pearson correlation	.309**	1
	Sig. (2-tailed)	.000	
	N	386	386

*. Correlation is significant at the 0.05 level.

- The scale of measurement of Table 4.1 applies.

Data on Table 2 show the Person Product Moment Correlation analysis of the relationship between Google Classroom applications and teacher productivity in Private Secondary Schools in Rivers State. With 386 respondents, the r-calculated value resulted in 0.31. When reference is made to the scale of measurement, the calculated r-value of 0.31 falls between 0.25 and 0.50 (weak relationship). Based on the above observations, the results show that there is a weak positive relationship between Google Classroom applications and teacher productivity in Private Secondary Schools in Rivers State. The weak positive relationship between the two variables shows that they constantly move in the same direction to another. This entails that if teachers adopt Google Classroom their productivity will increase in a weak magnitude and vice versa.

Test of Hypothesis

Hypothesis One: There is no significant relationship between ZipGrade (AI Grading application) and teacher productivity in private secondary schools in Rivers State, Nigeria.

Table 3: Summary of Z-Ratio Analysis on the Relationship between Zipgrade and Teacher Productivity in Private Secondary Schools in Rivers State, Nigeria.

Model	N	r.	df	z-ratio	Sig	Alpha value	Decision
Teacher Productivity* ZipGrade	385	.040 ^a	383	1.96	.000 ^b	0.05	Significant

a. Dependent Variable: Teachers Productivity

b. Predictors: (Constant), ZipGrade

Data on Table 3 show the summary of z-ratio on the relationship between ZipGrade application and teacher productivity in private secondary schools in Rivers State, Nigeria. With an already established number of 385 respondents and r. value of 0.04. The z-ratio value used in testing the hypothesis came out as 1.96, using 383 degree of freedom a significant value of .000 was arrived at. Since the significant value of 0.00 is less than the Alpha value of 0.05, we reject the null hypothesis. Hence there is a significant relationship between the independent variable (ZipGrade Application) on the dependent variable (teacher

productivity). Based on the foregoing observations, the researcher rejected the null hypothesis in favour of the alternative that, there is a significant relationship between ZipGrade applications and teacher productivity in private secondary schools in Rivers State.

Hypothesis Two: There is no significant relationship between Google Classroom (AI personalized learning) and teacher productivity in private secondary schools in Rivers State, Nigeria.

Table 4: Summary of z-Ratio Analysis on the Relationship between Google Classroom and Teacher Productivity in Private Secondary Schools in Rivers State, Nigeria.

Model	N	r.	Df	z-ratio	Sig	Alpha value	Decision
Teacher Productivity* Google Classroom	385	.0309 ^a	383	1.96	.000 ^b	0.05	Significant

a. Dependent Variable: Teachers Productivity

b. Predictors: (Constant), Google Classroom

The result revealed on Table 4 highlighted the summary of z-ratio on the relationship between Google Classroom applications and teacher productivity in private secondary schools in Rivers State, Nigeria. With an already established number of 385 respondents and r. value of 0.03, the z-ratio value used in testing the hypothesis came out as 1.96, using 383 degree of freedom a significant value of .000 was arrived at. Since the significant value of 0.00 is less than the Alpha value of 0.05, we reject the null hypothesis. Hence there is a significant relationship between the independent variable (Google Classroom applications) on the dependent variable (teacher productivity). Based on the foregoing observations, the researcher rejected the null hypothesis in favour of the alternative that, there is a significant relationship between Google Classroom applications and teacher productivity in private secondary schools in Rivers State.

DISCUSSION OF FINDINGS

The first finding of the study is that there is a weak relationship between the use of ZipGrade application and teacher productivity in Private Secondary schools in Rivers State. This finding is in line with the findings of Muslu (2017) as cited in Sri, Hamka, Herri, and Hamka (2019), Ndahimana, Archibong & Ga, (2024), Cortez, Singca, and Banaag (2023), Priyantod (2020) and Tamayo (2019). These scholars and researchers have in their theoretical and empirical contributions found that the ZipGrade application has a relationship with teacher productivity. A possible explanation for the weak relationship may be the fact that the respondents of the study might not be familiar with the artificial intelligence tool ZipGrade. It could also be that some of these teachers find the process of using this artificial intelligence tool complex, hence they prefer to mark and grade students' tests manually. Maybe the respondent's judgment was affected by the cost of the technological tools and internet connections that will make ZipGrade effective.

On the other hand, the associated hypothesis's results showed that ZipGrade's application significantly correlates with teachers' productivity. This finding agrees with the contributions of these scholars, Parab (2020), Estarez, Cheng, Libunao, and Manalastas (2023), Palanas, Capunitan, and Alinsod (2019), Sucharita and Seethalakshmi (2022), Braun and Clarke (2006), Azevedo, Silva and Delgado (2017) and other researchers cited in the preceding paragraph. These latter findings give so much credence to the work that ZipGrade has a relationship with teacher productivity. That the result differs from the answer obtained from research questions does not mean that ZipGrade is not an effective artificial intelligence tool that can aid teachers in performing their efficiently, rather, it may have been caused by the lack of ICT knowledge among most Nigerian teachers. Based on these explanations the findings, imply that teachers who wish to improve their productivity by reducing the workload of marking, scoring, and recording tests can use ZipGrade. As the hypothesis predicted, there has been a steady upward trend in the usage of AI and other technological aids in the classroom, which has demonstrated to boost educator effectiveness. ZipGrade makes short work of grading, a tedious but necessary activity for educators. Instantaneous test scanning and grading frees up instructors' time to concentrate on other important areas,

such class preparation, student engagement, and providing unique feedback. This immediate improvement in efficiency leads to higher production, which is in line with the study's premise.

The second finding of this study is that there is a weak relationship between the use of Google Classroom and teacher productivity in Private Secondary Schools in Rivers State. The result, the following scholars support that there is a relationship between the two variables: Johnsy and Beutlin (2020), Rajaindaran and Abdullah (2023), Maryanti, Kurniawan, and Sarbini (2020), Gupta and Pathania (2020), and Thomas (2021). Maybe the weak relationship of the findings might be because teachers believe that Google Classroom is an emergency online teaching tool mainly designed for COVID-19 and other disasters that limit face-to-face learning. Since most classes are currently physical, the respondents might have seen the relationship between Google Classroom and teacher productivity. It could also be that some of the respondents do not have sufficient information about personalized learning and how Google Classroom can facilitate it. The cost of the technological tools and internet connections might have also affected their responses.

The related hypothesis finding showed that private secondary school teachers in Rivers State were much more productive when they used the Google Classroom app. This finding agrees with the contributions of these scholars, Rajaindaran and Abdullah (2023), Johnsy and Beutlin (2020), Effiong, Bisong, and Udoh (2022), Latif (2016), Albashtawi and Bataineh (2020) and Hussain et al (2020) and others cited in the preceding paragraph. These scholars agree that the observed relationship is not due to chance. Google Classroom is a useful tool for schools to include into their instructional technology, but the research shows that it won't solve all of their productivity problems. Teachers will likely see incremental gains in their productivity, and the platform can be a useful tool in reducing some of the more repetitive or administrative burdens.

CONCLUSION

Based on the findings, it is concluded that there is a positive weak significant relationship between the application of artificial intelligence and teacher productivity in Private Schools in Rivers State. This implies that if artificial intelligence tools are applied accordingly, teachers' productivity will increase.

RECOMMENDATIONS

Based on the findings and conclusion of the study, the following recommendations are offered:

1. Students' examinations, tests, and assignment scripts should not be graded manually since they consume time that would have been used for teaching. Arising from the significant relationship between ZipGrade and teacher productivity, the researcher recommended that private school owners should train teachers on how to use ZipGrade and they should be encouraged to download the software and use it in students grading.
2. Teacher productivity can be increased when students are exposed to personalized learning. Google Classroom should be adopted by teachers in secondary schools since it promotes individualized learning. Arising from the significant relationship between Google Classroom and teacher productivity, the researcher recommended that teachers should learn how to use it, and they should be motivated to integrate this AI tool in the teaching/learning process.

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