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Utilization of Math App Solvers and Online Grammar Checkers as Correlates of Students' Proficiency Level in Mathematics and English

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Abstract

This study examined the relationship between learners' utilization of Math App Solvers and Online Grammar Checkers as correlates of Mathematics and English proficiency. This study used descriptive research with correlational technique. Survey questionnaires were self-made and went validation process through the help of experts before the pilot testing. The questionnaires passed the reliability and consistency test with an Alpha value of 0.88. The survey questionnaires were given to seventy-seven (77) randomly chosen high school students from grade 10 and Senior High School at Malalag Cogon National High School in the school year 2024-2025. Pearson's correlation coefficient was used as statistical tool to evaluate the direction and strength of the correlations. Furthermore, findings showed that the level of Math app Solvers is high as well as the level of performance in Math, indicating that there is a significant relationship between level of utilization of Math App Solvers and level of performance in Math. Findings also showed that the level of English Grammar Checker is high as well as the learner's level of performance in English, indicating that there is a significant relationship between utilization of English Grammar Checkers and level of performance in English. These results demonstrated the potential of these digital tools as useful learning resources for raising academic achievement as they indicated a positive correlation between their use and increased student proficiency in both areas. The study advances knowledge on how digital tools might enhance student learning and improve academic results without relying too much on these tools.

Keywords: *online grammar checkers, math app solvers, learner's proficiency in Math and English, Philippines*

Introduction

The widespread use of tables and smartphones has improved education by enabling flexible learning at any time and place. Mathematics has become a challenging subject due to blended learning, which replaces traditional face-to-face instruction. Independent learning can help overcome these challenges. On the other hand, grammatical competence is one of the four elements of English language proficiency. At university, students must apply grammatical conventions to construct and organize coherent written academic discourses. Failure to follow norms results in grade deductions since academic staff penalize surface-level breaches such as grammar, punctuation, and spelling. Strong English language skills are also crucial for global market success and modern labor market employment, making them essential for students' academic performance (Cavaleri & Dianati, 2016).

In addition, the International Mathematics Union (2020) studies state that academic achievement in basic and secondary education is lower in African nations. The number of pupils who pursued mathematics is impacted by the education of mathematics as a major at the university. This issue aligns with the research conducted by the United States' National Council of Teachers of Mathematics, where they discovered that pupils in the twelfth grade lack mathematical competency, suggesting that pupils are ill-prepared when they move from high school to college to study mathematics (Gempes, & Galabo 2018; Schappacher, 2022).

Moreover, the influence of digital writing tools played an essential role in improving the writing process, which, in fact, allows for a more formal assessment. We consider English as a second language (ESL), however, the following must be considered in writing as well: punctuation, grammar, and spelling. We can't deny the fact that AI contributes to a smoother process in terms of plagiarism detection and more, which will surely help users improve their research writing skills. Spellings, punctuation, and grammar are fundamental aspects that students must improve to assess when making phrases and essays. The component of spelling involves careful placement and a precise choice of letters; on the other hand, punctuation is an element used in a sentence that has various purposes. Furthermore, online grammar and spelling checkers are essentially useful for teaching and learning purposes as they allow students to make accurate adjustments and assure that their written work is brief and understandable (Fitria, 2020; Mammadova, 2019; Perdana & Farida, 2019; Zawacki-Richter et al., 2019).

In fact, a study states that English major students who used self-monitoring and self-assessment procedures improved significantly in their writing skills. The study found that when grammar checkers were used as an error correction and feedback tool, pupils' writing accuracy and competency improved significantly. The results showed that students had a positive attitude toward grammar checkers and thus considered these tools to be very helpful in developing their grammar skills and academic writing competence. Another study concluded that the utilization of a mobile application in teaching mathematics to Grade 8 students in a public national high school—by using the mobile application—had somehow helped to enhance the achievement and learning of the students (Etcuban & Pantinople, 2018; Lipalam et al., 2023).

The fostering of independent learning in this new normal era could at least solve some of the challenges connected with Mathematics

and English studies. There is a critically existing need to have an effective tool for such support introduced. The researcher proposes the use of math apps and online grammar checkers thoughtfully integrated with pedagogic design principles to address the current educational demands and enhance students' learning experiences (Barrientos, 2021).

Additionally, Jayavalan et al. (2018) states that there is a significant relationship between 'Grammarly' and the achievement of narrative writing among the students, and at the end of their research, the experimental group (students who used Grammarly) outperformed the control group (students who did not utilize Grammarly) in writing a descriptive essay.

The general objective of the study is to investigate the students' proficiency levels in mathematics and English subjects. Specifically, it aims to measure the level of utilization of math app solvers in terms of preparation for the lesson, assistance during lesson, and assistance after lesson. It also aims to measure the utilization of Online Grammar Checkers in terms of doing written activities, doing assignments, and checking writing errors. Furthermore, this study aims to measure the level of academic performance of learners in Mathematics and English subject. Lastly, the goal of this study involves determining the significant relationship between utilization of Math App Solvers and Online Grammar Checkers to learners' academic performance in both Math and English.

The study will be based on the following theories: research reveals that domain-specific knowledge, specifically schemas, distinguishes specialists from beginners. Traditional problem-solving strategies are inefficient in assisting people in developing schemas due to the insufficient overlap between cognitive processes and the requirement for cognitive processing resources. This is supported by experimental evidence and a computational model; theoretical and practical implications are discussed. In language, Vygotsky's Zone (1978) of Proximal Development Hypothesis proposes that learning can lead to development, with the ZPD distinguishing between autonomous and aided performances. These likewise can be mediated either physically—with computers—that can act as grammar checkers—and mentally—with self-directed learning techniques. It is in this area that grammar checkers play an important role in making learners learn how to write English effectively, more so when written work is assigned.

The research "Utilization of Math App Solvers and Online Grammar Checkers as Correlates of Students' Proficiency Level in Mathematics and Language-Related Subjects" can actually be linked with 2 Sustainable Development Goals (SDG) and these are the following: SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities).

This is in line with SDG 4 that tries to ensure inclusive and quality education for all since the research concentrates on the performance of students in language-related and mathematical courses. This will also help in better designing of policy for education and enhancing access to technology within the US by giving study results. One is that comparative analysis could best flesh out the challenges and opportunities that already existed within the Philippine Education System. Importantly, it considers educational contexts in the US and the Philippines for a broader view of strategies and interventions required to promote inclusive and equitable education for all across the globe.

Lastly, level of student competence relates to the SDG 10, which aims at reducing inequality within and among nations. The findings from the study may present differences in the availability of technology and how they affect the academic performance of students, and therefore contribute to the promotion of educational equity.

The global competitiveness report has listed the Philippines ranked 79th out of 138 countries in terms of the quality of education provided in 2016–2017, which involves children's low performance in mathematics. Both the public and private institutions in the province of Cotabato have obtained a low score on the 2010 regional achievement test. These are concerns to be dealt with more in the education sector in the Philippines, for this will surely have an effect not only on the national level of decision-making in the near future but also on the international one.

On the other hand, while the EF English Proficiency Index does show there is indeed a crystal-clear problem with the country's proficiency in the English language, which has been gradually downgrading through the years, the ranking of the Philippines went down from 14th in 2018 to the 27th place in 2020, even though the majority of its people understand and speak English well. With that downfall, it claimed up to 18th in 2021; however, it's just nothing compared to its recent record in 2016, when it reached the 13th level (Capuno et al., 2019).

To emphasize, this study is urgent due to the fact that many students are still trying to improve their ability to solve any 'Math Problems' and enhance their skills when doing grammar. Also it is urgent because our score in the rankings based on knowledge and learning is low, and we are also one of the countries with the lowest scores among the smartest. The ways in which mathematics app solvers and online grammar checkers are employed as indicators of the students' level of proficiency in mathematical and language-related subjects, is one of the most important issues that should be considered in today's educational environment. The rapid spread of digital tools such as Math App Solvers and Grammar Checkers has sparked so many thoughts, ideas, and questions about their use and effect in terms of their accessibility in education. Furthermore, there are also factors and information about its effects in the field of teaching methods and improving student results.

Among all the challenges faced by teachers while trying to incorporate technology into class work, the relationship between these technological resources and learner abilities must be considered. This research may bring significant insights regarding the effectiveness of a technologically integrated system through analyzing whether the use of such facilities has any correlation with high test scores.

Research Questions

This study sought to answer the following questions:

1. What is the level of students' utilization of Math App Solvers in terms of:
 - 1.1. preparation for the lesson;
 - 1.2. assistance during lesson; and
 - 1.3. assistance after lesson?
2. What is the students' academic performance in Math?
3. Is there a significant relationship between utilization of Math App Solvers and proficiency level of students in Mathematics?
4. What is the level of students' utilization of Online Grammar Checkers in terms of:
 - 4.1. written activities;
 - 4.2. doing assignments; and
 - 4.3. checking writing errors?
5. What is the students' academic performance in English?
6. Is there a significant relationship between utilization of Online Grammar Checkers and proficiency level of students in English?

Methodology

Research Design

The research design employed a quantitative approach to investigate the relationship between the utilization of math app solvers and online grammar checkers and students' proficiency levels in mathematics and language-related subjects. A survey was administered to a randomly selected sample of 77 grade 10-12 high school students, encompassing various academic backgrounds and socioeconomic levels. The survey has gathered data on students' frequency of using math app solvers and online grammar checkers, as well as their self-reported proficiency levels in Mathematics and English subject. This data was analyzed using statistical tests, such as Pearson's correlation coefficient in determining the strength and direction of the correlation between app/checker usage and proficiency levels. Moreover, this research project has scheduled from August 2024 and has been concluded by the fourth week of November 2024, which allowed for a comprehensive data collection and analysis period.

It follows that the quantitative approach is a test towards the proficiency of the students, especially in the higher levels of high school, about mathematics and language-related disciplines through means and standard deviations. Quantitative methodology is founded on scientific principles such as concreteness, empirical, objectivity, reproducibility, logic, and systematic. A quantitative method is objective, neutral, and allows for broad coverage of the research; the researcher can therefore observe a wide scope and data coverage for a huge number of students. Data collection is objective and is systematically conducted using structured procedures and formal instruments. Numerical data are analyzed using statistical procedures, usually with the use of software such as SPSS, R, or Stata (Aidara, 2018; Johnson & Christensen, 2024; Queirós et al., 2017).

In addition, quantitative research methods involve conducting research that delves into the nuances of numbers and data collection techniques in the field. Quantitative methods are used when: 1) you have a clearly defined problem, which is the starting point of the research. A problem often consists of a deviation between what should be and what does happen, between theory and practice. 2) When the researcher of the study wants to get broad but general information from a population. This method is best when it is necessary to obtain broad but not in-depth information. 3) When you want to find the relation of the effect of a certain treatment on another; 4) when the researcher plans to test the research hypothesis; 5) when the researcher wishes to obtain accurate results based on empirical knowledge that is measurable phenomena. 6) When you want to test the researcher's doubts about the rationale validity of certain knowledge, theories, or products (Djollong, 2014; Gay et al., 2012).

In assessing our research, correlational analysis was used to determine the correlations between students' use of Math App Solvers and Online Grammar Checkers and their Mathematical and English skill levels. It improves understanding of whether students who utilize these tools have higher competency or if there is no meaningful relationship. It enabled researchers to examine the degree and direction of the correlations; a positive correlation would indicate that increased use of these applications is connected with greater proficiency, whereas a negative correlation would indicate the opposite.

Furthermore, correlation sometimes can be termed as correlation analysis, which is a term to describe the relationship or dependence of two or more quantitative variables. This analysis is for the most part based on the assumption that the quantitative variables have a straight-line relationship. Like the measures of association for binary variables, it does measure the "strength" or "extent" of an association between variables and its direction. A correlation analysis produces a correlation coefficient, which can be between the range of -1 and +1. A correlation coefficient of +1 reflects the perfect positive/linear relationship between the two variables, whereas a correlation coefficient of -1 shows that the two variables are perfectly related negatively/linear. A correlation coefficient of zero depicts no linear relationship between the two variables in consideration (Gogtay & Thatte, 2017).

Also, correlational studies differ from comparative studies in that the evaluator does not control for the assignment of subjects to



comparison groups or the delivery of interventions to some groups but not others. Instead, the evaluator pre-sets a set of variables, including the desired outcome, and then examines for hypothesized relationships between those variables. The dependent variable would refer to the result and the independent variables refer to the variables that are being investigated for a relation. Correlational studies use an objectivist approach, like comparative studies in which variables are identified, quantified and evaluated in order to identify the presence of hypothesized relationships (Gogtay & Thatte, 2017).

Respondents

Among the selection criteria for a respondent are the utilization of data from previous responses and the assessment of the subgroup's diversity and representativeness. Probability sampling is a quantitative research methodology, which provides for an efficient process of data collection based on mathematical and statistical laws. It derives statements of empirical probability from random samples of target populations, based on available data. Different probability sampling strategies include simple random sampling, systematic sampling, stratified sampling, cluster sampling, and multistage sampling. Thus, simple random sampling ensures that each target population member has an equal chance of being included, while it minimizes biases and enables generalization to the whole population of high school ESL learners. However, this method can be rather annoyingly tedious and costly; nevertheless, this is vital for valid data collection (Creswell & Creswell, 2017; Cooksey et al., 2019; Votava et al., 2020).

The main objective of probability sampling is to get a sample that is representative of the population from which this was taken; random sampling does not imply that each sample is representative of 100% of the population. It simply means that most random samples will fall near the population most of the time, and it is possible to determine how probable a sample is. Simple random sampling is a method whereby each member of the population is fairly and equally likely to be selected for being a respondent. This strategy is adapted for particular findings in social science research investigations. Simple random sampling works if the goal of the study is to find a generalized result applicable to the entire population. However, different limitations and obstacles of simple random sampling have been noticed in the research procedure of social science. For example, one of the major disadvantages of simple random sampling is that it cannot be applicable for the heterogeneous units of the population (Rahman et al., 2022; Thomas, 2020).

The respondents of the study involved 77 respondents from a total of 333 students from Grade 10, Grade 11, and Grade 12 tracks, namely; Humanities and Social Sciences (HUMSS), Accountancy and Business Management (ABM), SPORTS, and Technical Vocational Track (TVL). The study further used random sampling as a sampling procedure. This is because once researchers know who they want to study, they can make sure that their research goals and sample methods are in line with the study's aims and objectives. Thus, random sampling was chosen because it eliminates bias and enhances representativeness even with a small population, such as 333 (Alvi, 2016).

Table 1. Selection of Respondents

Grade Level	section/Track	number of males per grade level	number of females per grade level	total	sample per level
Grade 10	Baguio	24	14	38	9
	Domingo	20	14	34	8
	Maban	11	21	32	7
	Samontina	8	20	28	6
Grade 11	ABM	7	21	28	6
	HUMSS	7	17	24	6
	SPORTS	21	6	27	6
	TVL	8	18	26	6
Grade 12	ABM	5	15	20	5
	HUMSS	19	19	38	9
	SPORTS	13	0	13	3
	TVL	15	8	23	5
Total				N = 333	n = 77

So for a population of 333 respondents in total (N = 333), researchers would need approximately 77 respondents (n = 77). The said sample size is to ensure that the results will be reasonably accurate within the sample proportion the researchers have set. Researchers got the sample per level by the formula $n = N(x)$. X represents no. of students per section.

Table 2. Selection of Respondents by Section

Grade Level	section/Track	total number of students (x)	calculation	sample per level
Grade 10	Baguio	38	77 / 333 (38) = 8.7/9	9
	Domingo	34	77 / 333 (34) = 7.8/8	8
	Maban	32	77 / 333 (32) = 7.3/7	7
	Samontina	28	77 / 333 (28) = 6.5/7	7
grade 11	ABM	28	77 / 333 (28) = 6.4/6	6
	HUMSS	24	77 / 333 (24) = 5.5/6	6
	SPORTS	27	77 / 333 (27) = 6.2/6	6
	TVL	26	77 / 333 (26) = 6	6

grade 12	ABM	20	77 333 (20) = 4.6/5	5
	HUMSS	38	77 333 (38) = 8.7/9	9
	SPORTS	13	77 333 (13) = 3	3
	TVL	23	77 333 (23) = 5.3/5	5
Total		N = 333		n = 77

Instrument

This study was conducted at Malalag Cogon National High School. A research instrument is a tool used to collect data or measure objects of a research variable. The data collection method used for this study was a questionnaire; bond papers were used to hand deliver written statements or questions to respondents. Random sampling was used to choose the respondents. The Likert scale was used to gauge agreement or disagreement, and the outdated but dependable questionnaire format was used. The scoring was a function of the extent to which the respondent agreed or disagreed with the statement on the questionnaire. On the Likert scale, there were five possible answers: strongly agree, agree, neutral, disagree, and disagree strongly. The Likert scale was used to gauge the agreement or disagreement of an article (Baron et al., 2023).

An article stated that tools may vary in complexity, interpretation, design, and administration. Each tool is suitable for the collection of certain types of information. The survey questionnaire is probably the most used and most abused of the data gathering devices. It is easy to prepare and administer. The survey questionnaire is a form prepared and distributed to secure responses to certain questions. It is a device for securing answers to questions by using a form that the respondent will fill out himself. It is a systematic compilation of questions. It is an important instrument being used to gather information from widely scattered sources. Normally used where one cannot see personally all of the people from whom he desires responses or where there is no particular reason to see them personally (Pandey & Pandey, 2021).

As the researchers want to determine the learners' proficiency in Mathematics and English subject, to measure the level of utilization of Math App Solvers, to measure the level of utilization of Online Grammar Checkers, to measure the level of learners' performance in Math and English, and to determine the significant relationship between the level of utilization of Math App Solvers and Online Grammar Checkers and the learners' performance in English and Math, they chose to use the structured forms of survey questionnaires to collect the primary data that they used to conduct their study. The study used a 77-item structured questionnaire based on a four-point Likert scale, including some reverse-coded items. Respondents were asked to rate their level of agreement on each statement from "1" as "strongly disagree" to "5" as "strongly agree". The questionnaire's first section sought to reveal the details of the respondents that can be answered in (yes) or (no), while the last two sections comprised likert scales that the respondents should answer from the scale 1-5.

Besides, the reason why researchers make use of paper questionnaires is that it provides them with convenience and automation. The subject of a paper questionnaire is relevant in such cases where access to the internet or technology is highly restricted, privacy is needed, or assessment of the disabled is to be considered. Also, paper surveys can ensure more control over the process of surveying and be more cost-efficient for small-scale projects.

Procedure

Data collection is an integral component of research; it elicits all the information needed in researching a problem when well-designed. Data collection is the fundamental tool in research; the type depends on one's area of study. The central objective for collecting data indeed revolves around securing information-bearing and stable data for statistical analysis, based on which decisions can be factually made. In their turn, researchers need to decide on the type of data they will use and choose either this or that method of data collection based on research objectives.

To emphasize, the researchers of this study has relate to primary data, since it is a representation of original information directly obtained from a source; hence, it provided the researchers with first-hand information that best addresses the research questions. In fact, according to Mazhar et al., (2021), primary data are those that are collected for the first time and are original and fresh data. In the case of descriptive type research and surveys (including sample surveys or census surveys), primary data are obtained either through observation or through direct communication with the respondents in one form or another.

To conduct this study, the researchers targeted 77 randomly selected students from grades ten (10), eleven (11), and twelve (12) at Malalag Cogon National High School (MCNHS). This ensures a representative sample across the targeted population. A comprehensive survey questionnaire has been developed and validated, encompassing questions related to students' usage of Math App Solvers and Online Grammar Checkers, their perceived effectiveness, and their academic performance in Mathematics and English subject. The questionnaire was designed using bond paper, providing a user-friendly platform for data collection and analysis.

Prior to data collection, the researchers asked formal permission from the school principal to conduct the study. This step ensured compliance with school regulations and ethical guidelines. A letter of request outlining the study's purpose, methodology, and potential benefits was submitted to the principal. Furthermore, informed consent has been obtained from all students who participated. This involved providing them with comprehensive information about the study, including its objectives, data usage, and their right to

withdraw at any time. Consent forms has been distributed to each grade level adviser, who then distributed them to their students. Students was required to provide their consent through the paper questionnaire.

The questionnaire was distributed to the selected students personally. The questionnaire has been designed to gather information related to students' usage of Math App Solvers and Online Grammar Checkers, their perceived effectiveness, and their academic performance in Mathematics and English subject. The researchers monitored the completion rate of the questionnaire and followed up with students who have not yet submitted their responses. Once all questionnaires were collected, the data has been verified for completeness and accuracy. Any inconsistencies or missing data has been addressed through appropriate measures, such as contacting the respondents or using imputation techniques.

The collected data was analyzed using statistical methods appropriate for the research questions. Descriptive statistics has been used to summarize the data, while inferential statistics was employed to test the hypotheses regarding the correlation between app usage and academic proficiency. The findings was interpreted in light of relevant literature and research on technology integration in education.

Data Analysis

Correlation coefficient is a single value or number that indicates a link between the two variables being researched. This value is calculated using two different approaches, viz. Karl Pearson's product moment correlation coefficient r , also known as Karl Pearson's correlation coefficient r , and Spearman's rank correlation coefficient ρ (ρ), abbreviated as Spearman's ρ (ρ). The Pearson's correlation coefficient establishes a relationship between two variables based on three assumptions: (a) the relationship is linear, (b) the variables are independent of one another, and (c) the variables have normal distributions (Gogtay & Thatte, 2017).

For this study, researchers used Pearson r because it assumes that the data is continuous and normally distributed, it is appropriate in our study if both the utilization of the tools (hours spent using the apps) and students' competency levels (test scores or grades) are measured on interval or ratio scales. Additionally, Pearson R assumes that the variables have a normal distribution and a linear connection. As a result of our data either roughly meeting or meeting these assumptions, Pearson r will give a reliable indication of the connection. A perfect negative linear relationship is represented by a correlation value of -1 by Pearson r , a perfect positive linear relationship by $+1$, and no linear relationship by 0 in the Pearson r correlation coefficient range. Because of this, it's simple to understand the results.

Results and Discussion

The presentation of the results and discussion is arranged according to the order of research question. The objective of this study involves determining the level of utilization of Math App Solvers in terms of preparation for the lesson, assistance during the lesson, and assistance after the lesson. The also aims to find out the level of Online Grammar Checkers utilization in terms of doing written activities, doing assignments, and checking writing errors. Furthermore, it measures the level of academic performance of the learners in Mathematics and English subject. Lastly, this study aims to determine the significant relationship between utilization of Math App Solvers and Online Grammar Checkers in the learners' academic performance. .

Level of Utilization of Math App Solvers

Shown in Table 1 is the level of utilization of Math App Solvers with the following indicators: preparation for the lesson, assistance during lesson, and assistance after lesson. The three indicators generated an overall mean of 4.08 which can be interpreted as high. This means that they agree that they utilize Math App Solvers in their Mathematics subject. Among the three indicators, assistance during lesson got the highest mean of 4.15 which is interpreted as high. This means that students agree that they use Math App Solvers as assistance during math lessons. Meanwhile, assistance after lesson got 4.06 which is interpreted as high. This means that students also agree that they use Math App Solvers as assistance after lesson. Lastly, preparation for the lesson attained a mean of 4.04 which is also interpreted as high. This means that students concur that they use Math App Solvers in preparation for the Math lessons.

Table 1. *Level of Utilization of Math App Solvers*

<i>Indicator</i>	<i>Mean</i>	<i>Descriptive Interpretation</i>
Preparation for the lesson	4.04	High
Assistance during lesson	4.15	High
Assistance after lesson	4.06	High
Overall	4.08	High

This aligns with the study that states Math apps using interactive elements, gamification, and visuals can enhance learning experiences. These elements can help learners see elaborate thoughts, improve their familiarity with them, and ideally decrease to some degree their Mathematics anxiety. Research shows that the use of applications in studying can positively affect student engagement and motivation to learn mathematics, thereby having a positive outcome on joyful learning (Cabugwason et al., 2024; Pandita & Kiran, 2023; Zhang et al., 2020).

Level of the Academic Performance of Learners in Mathematics

Shown in table 2 is the learners mean grade in mathematics, 87.87, which in DepEd's grading scale and description is stated as very

satisfactory with a remark of passed.

Table 2. *Level of the Academic Performance of Learners in Mathematics*

Subject	Mean Grade	Interpretation
Mathematics	87.87	Very Satisfactory

The results is consistent with the finding that Math App Solvers have the tools to teach individual versions, simplify arithmetic, and offer detailed solutions, students can learn to comprehend math. Chatbots with artificial intelligence have the potential to radically alter the way that mathematics is taught. Despite their drawbacks in terms of expense, precision, and uniqueness, they remain crucial instruments for tackling complex issues (Wardat et al., 2023).

Significance on the Relationship between Utilization of Math App Solvers and Learner's Academic Performance in Math

Table 3 presents the significant relationship between utilization of Math App Solvers and learner's academic performance in Math. With the computed r-value of 0.3375 with a probability value of 0.0027, there is a significant relationship between preparation for the lesson and learner's academic performance in Math. Next, r-value obtained 0.4550 with a probability value of 0.0000, there is a significant relationship between assistance during lesson and learner's academic performance in Math. Lastly, r-value of 0.2257 with a probability value of 0.0484 means that there is a significant relationship between assistance after lesson and learner's academic performance in Math.

Table 3. *Significance on the Relationship between Utilization of Math App Solvers and Learner's Academic Performance in Math*

Utilization of Math App Solvers	Learner's Academic Performance in Math
Preparation for the lesson	0.3375* (0.0027)
Assistance during lesson	0.4550* (0.0000)
Assistance after lesson	0.2257* (0.0484)

*Significant at 0.05 significance level

The result is supported by the idea that Math applications have become a viable tool in this evolving educational landscape, offering many benefits over conventional methods. Because these programs take into account individual needs and learning styles, they offer the potential to personalize learning (Byers, Jeonghwa & Shin, 2018).

Level of Utilization of Online Grammar Checkers

Table 4 shows the level of utilization Online Grammar Checkers with the following indicators: doing written activities, doing assignment, and checking writing errors. The three indicators generated an overall mean of 4.27 which can be interpreted as very high. This means that students agree that they utilized Online Grammar Checkers in their English class. Among the three indicators, checking writing errors got the highest mean of 4.36 which can be interpreted as very high. This further means that students agree that they use Online Grammar Checkers in checking writing errors. Then, the indicator, doing assignment got the mean of 4.25 which is interpreted as very high. This means that students concur that they use Online Grammar Checkers in doing assignments. Lastly, doing written activities got 4.20 which is also interpreted as very high. This means that students agree that they use Online Grammar Checkers in doing written activities.

Table 4. *Level of Utilization of Online Grammar Checkers*

Indicator	Mean	Descriptive Interpretation
Doing written activities	4.20	Very High
Doing Assignment	4.25	Very High
Checking Writing errors	4.36	Very High
Overall	4.27	Very High

In fact, according to Jayavalan et al. (2018), there is a significant correlation between students' proficiency with "Grammarly" and their ability to write narratives. At the conclusion of their study, students who used Grammarly (the experimental group) performed better than students who did not use Grammarly when it came to writing a descriptive essay.

Level of the Academic Performance of Learners in English

Shown in table 5 is the learners mean grade in English, 89.77, which in DepEd's grading scale and description is stated as very satisfactory with a remark of passed.

Table 5. *Level of the Academic Performance of Learners in English*

Subject	Mean Grade	Interpretation
English	89.77	Very Satisfactory

This is corroborated by the results of the study that grammar checkers are helpful for adjusting subject-verb agreement, verb tense, and verb form. It has also been discovered that the grammar checker's remarks improve L2 writers' grammar accuracy. Only an average result about the students' dependence on the grammar checker tool is displayed by that record. Grammar Checker collects information in the form of paper, sentences, and even paragraphs, as studies have shown us. The input is then separated into smaller components. The appropriate language, punctuation, shows that a sentence is complete (Bhirud et al., 2017; Long, 2022; Yang, 2018).

Significance on the Relationship between Utilization of Online Grammar Checkers and Learner's Academic Performance in English

Table 6 presents the significant relationship between utilization of Online Grammar Checkers and learner's academic performance in English. With the computed r-value of 0.3375 with a probability value of 0.0027, there is significant relationship between doing written activities and learner's academic performance in English. Next, r-value obtained 0.4550 with a probability value of 0.0000, there is significant relationship between doing assignment and learner's academic performance in English. Lastly, r-value of 0.2257 with a probability value of 0.0484 means that there is significant relationship between checking writing errors and learner's academic performance in English.

Table 6. *Significance on the Relationship between Utilization of Online Grammar Checkers and Learner's Academic Performance in English*

<i>Utilization of Online Grammar Checkers</i>	<i>Learner's Academic Performance in English</i>
Doing Written Activities	0.3375* (0.0027)
Doing Assignment	0.4550* (0.0000)
Checking Writing Errors	0.2257* (0.0484)

*Significant at 0.05 significance level

Furthermore, the findings are consistent with Yang's (2018) research, which revealed that the majority of students expressed positive opinions about the grammar checker's ability to increase grammatical accuracy. Additionally, it can help with grammatical problems. Regarding perceived utility, half of students reported that the unrestricted comments had raised their mark, and the majority claimed that they could have used the advice to enhance the particular work they submitted to Grammarly. The findings also point to potential long-term advantages for pupils. The majority of students said that the explanations they received had improved their understanding of grammar rules. Thus, one could draw the conclusion that Grammarly might aid in improving your grammar for use in subsequent writing assignments.

Conclusions

The quantitative study revealed that the utilization of Math App Solvers' high level in terms of preparation for the lesson, assistance during the lesson, and assistance after the lesson. Furthermore, it was shown that the use of Online Grammar Checkers are very high in terms of the following indicators: completing assignments, detecting writing faults, and engaging in written activities.

Additionally, this study shows a strong correlation between learners' academic achievement in Math and their use of Math App Solvers. According to this study, students who used Math App Solvers performed better academically and received higher grades in the relevant subject. Additionally, this study demonstrates a strong correlation between students' use of online grammar checkers and their academic achievement in English subject. Therefore, data suggests that students who use Online Grammar Checkers have performed better academically in English courses. Overall, the study shows that learners' skill levels in Mathematics and English are correlated with both Online Grammar Checkers and Math App Solvers.

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