

# JEFFREYS' AMAZING STATISTICS PROGRAM ON THE STUDENTS' ENGAGEMENT AND ACHIEVEMENT IN STATISTICS AND PROBABILITY

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## ABSTRACT

This study aimed to integrate Jeffreys' Amazing Statistics Program in teaching Statistics and Probability to improve the engagement and achievement of students. This study utilized the pre-experimental method of research design. The respondents were 120 ACTS Computer College Grade 11 Senior High students. Two instruments were used in this research: the test questionnaires which served as the formative and summative tests and a survey questionnaire in the form of checklist which was used to evaluate the use of software in teaching Statistics and Probability and its relation to the students' engagement and achievement. The results revealed that students had very high acceptability regarding the integration of JASP in terms of accessibility, functionality and perceived enjoyment. Efficiency was the only aspect of JASP integration on which the students have had high acceptability. Students' were always engaged cognitively in class because of JASP. Students were often behavioural and emotional engaged in class with the help of JAPS. The integration of JASP further shows that there was an improvement in the academic performance of the students as disclose by overall average score in the result of the summative test which is remarkably higher than formative test. Data revealed that there are significant differences between students' test results on formative and summative assessments of their learning. Integration of Jeffreys' Amazing Statistics Program has significant correlation on the Students' Engagement and Achievement. Based from the result of the study the researcher recommended that varieties of applications should be used by teachers to teach mathematics and students must use different software in solving word problems in order to achieve more interactive, innovative, and efficient instructional materials that will enhance the mastery skills and engagement of the students.

**Keywords:** *Jeffreys' Amazing Statistics Program*, engagement, achievement, accessibility, functionality, efficiency, perceived enjoyment

## INTRODUCTION

Traditional instruction is still the main method of instruction used to teach mathematics (Walle, 2013). Low mathematical achievement has been attributed to traditional mathematics training, which includes lecturing from a textbook, assigning the same issue to every student, focusing on one technique to solve problems, and ignoring conceptual understanding. According to Presidential No. 6-A of 1972 Section 5, educational improvement must be accomplished through initiatives that include personnel and curriculum development. One method for improving education is to incorporate various teaching methods and learning experiences. It is the responsibility of the instructor to develop fresh approaches and teaching methods in order to enhance student learning (Arellano Law Foundation, 2013).

Each area of mathematics education is impacted by the proper and coordinated use of innovation, including what is taught, how students learn it, and how it is evaluated. Technology- related changes in mathematics have been called for a while now. Students who learn mathematics with technology engage in more active mathematical practices like experimenting, analyzing, reasoning, and problem-solving. Teachers who use technology to enhance their

classrooms can connect materials with effective and developmentally appropriate tasks in which students can engage. Today's mathematics classes may be taught using different programs or software. Integrating software into mathematics instruction will raise student awareness, assist them in self-evaluation and correction and investigate their own abstract notions that they have acquired especially in Statistics.

The purpose of the study is to use and integrate the Jeffreys' Amazing Statistics Program as pedagogical strategy in teaching Statistics and Probability to improve the engagement and achievement of the Senior High School students. Additionally, this might be a teaching tool for the subject of Statistics and Probability to improve the teaching-learning process for all sorts of students. It is on this juncture, the researcher decided to conduct this study to investigate the effectiveness of using Jeffreys' Amazing Statistics Program in raising Grade 11 students' proficiency in Statistics and Probability.

Specifically, the study sought to answer the following questions:

1. What is the level of acceptability of Jeffreys' Amazing Statistics Program in terms of characteristics with regards to:
  - 1.1 Accessibility;
  - 1.2 Efficiency;
  - 1.3 Functionality; and
  - 1.4 Perceived Enjoyment?
2. What is the level of students' engagement towards the integration of Jeffreys' Amazing Statistics Program in terms of:
  - 2.1 Cognitive;
  - 2.2 Behavioral; and
  - 2.3 Emotional?
3. What is the level of students' achievement towards the integration of Jeffreys' Amazing Statistics Program with regards to:
  - 3.1 Formative Test; and
  - 3.2 Summative Test?
4. Is there a significant difference between the students' Achievement in terms of formative and summative tests scores?
5. Does the integration of Jeffreys' Amazing Statistics Program has significant correlation on the Students' Engagement?
6. Does the integration of Jeffreys' Amazing Statistics Program has significant correlation on the Students' Achievement?

## REVIEW OF RELATED LITERATURE

Definitions, importance, and different studies relative to Integration of Mathematics Software, Engagement and Achievement are presented to support the claim and results of this study.

Xu (2016) said that Mathematical software can be used as valuable teaching tools in high school math education. The software can convey complex math concepts through the use of interactive models and engaging 2D/3D visualizations, making difficult topics come alive and interesting. She concluded that Mathematical software Maple can be employed as a powerful teaching aid in high school math class. With the help of Maple, the teaching and learning activities can be intuitive, interactive and interesting. By watching the teacher walk through the entire process using Maple, students may learn the method's algorithm.

In the classroom, software programs are employed as educational tools. Software program integration into the curriculum is crucial for raising student achievement (Kiriakidis, 2014). Audio, video, animations, text, and images can all be found in software. When educational software programs are in line with the curriculum, student achievement improves and students develop their educational skills. Integration of software programs into math

lessons could improve the way teachers impart knowledge and encourage pupils to think critically (Allsopp et al., 2013). Colado (2017) stated that educational software can also enable students to gather information that otherwise would have been impossible, time-consuming, or costly. For instance, data from outer space can now be utilized. Students can also experiment with the changing aspects of a model like increasing or lowering interest rates in order to see how this affects the economy. Kahu (2013) defines student engagement as an “individual psychological state” that includes a student’s affect, cognition, and behavior. It primarily focuses on student behavior and contends that engagement is the degree to which students participate in activities that have been associated in higher education research to high-quality learning outcomes. It has been suggested that engagement is the observable manifestation of motivation (Reeve 2013), although some researchers have pointed out that the behavioural and cognitive dimensions are more easily observed than other dimensions (Wang et al. 2016). Clark and Luckin (2013) reported that studies have “overwhelmingly” reported that tablet devices with software have a positive impact on students’ engagement with learning. Comparing their findings to those of children who attended conventional courses, they found that students were more motivated and engaged.

In a study by Jamaan (2016), which examined the effects of using computerized educational games on third-grade students' arithmetic ability in Jordan, the concept of multiplication was taught using four computerized learning games, and the students' math achievement was assessed using a test. The findings indicated that third-grade children who used computerized learning games outperformed those who studied normally in math. According to Terrell and Rendulic's (2014) study, using computer-managed instructional (CMI) feedback can increase student motivation and academic performance. The Cognitive Evaluation Theory postulates that receiving extrinsic, informative feedback will lead to higher levels of success. An experimental research study contrasted two groups of students based on this hypothesis. For 27 weeks, one of the groups got computer-generated, graphical grade feedback; the other got conventional achievement report. In this study, the group that received the computer-generated feedback had a significant boost in intrinsic motivation and achievement, supporting the hypothesis and proving CMI's effectiveness in a way that hasn't previously been seen.

The literature cited above backed up the definitions of integration of software, engagement and achievement. The text, ideas, and word meaning all affect how well students understand the subject matter. The majority of literature available are about integration of computer technology and its effectiveness to the students’ engagement and achievement. Some researchers believe that the use of computer technology in the teaching and learning process improves problem-solving in mathematics, while others believe that, despite the ease with which users of technology can solve mathematical problems; technology in mathematics actually makes learning more mechanical than mental.

## **METHODOLOGY**

The present study used the pre-experimental design. In this approach, the researcher used software in teaching Statistics and Probability and the students were given formative and summative tests. The researcher prepared two instruments to gather pertinent data: the formative and summative tests, to determine students’ performance in Statistics and Probability and the checklist - questionnaire, to determine the level of the integration of Jeffreys's Amazing Statistics Program and level of students’ engagement. The tests include the lessons Measures of Central Tendency, Measures of Variation, and Correlation. In ensuring the validity and reliability of the research instrument, the researchers asked the help of the three (3) master teachers for validation purposes. The researcher used purposive sampling in selecting the subjects of the study.

Upon approval by the School Head, the researchers administered the tests and checklist-questionnaires at a time agreed upon by the approving authority. The weighted mean, standard deviation frequency count, percentage, and Pearson-r were the statistical tools used to analyze the data gathered.

## RESULT AND DISCUSSION

**Table 1 Level of Acceptability of Jeffreys' Amazing Statistics Program in terms of Accessibility**

Statement	Mean	SD	Remarks
JASP allows users to access all its structures.	4.13	0.961	Agree
JASP includes user-friendly features.	4.26	0.874	Strongly Agree
JASP guarantees that people with impairments may understand all information.	4.21	0.787	Strongly Agree
JASP ensures that the task flow and user interface are consistent across various functions.	4.20	0.826	Strongly Agree
JASP provides accessible modules, workshops and support materials.	4.28	0.810	Strongly Agree
<b>Weighted Mean</b>	<b>4.24</b>	<b>0.852</b>	<b>Very High</b>

Table 1 reveals the mean level of acceptability of Jeffreys' Amazing Statistics Program characteristics with regards to acceptability. It reveals that the students strongly agree that JASP provides accessible modules, workshops and support materials (M=4.28, SD=0.810). Muenchen (2019) said that modules for JASP are now available with the main program package. This makes finding and setting up JASP modules particularly simple. The students agree that JASP allows them to access all its structure (M=4.13, SD=0.961). Since, students used JASP online there were structures they did not able to try but they still believed that JASP is important because it enables them to carry out tasks that promote productivity, express creativity, and enhance communication. The level of acceptability of Jeffreys' Amazing Statistics Program in terms of characteristics with regards to acceptability obtained verbal interpretation of very high (M=4.24, SD=0.852). Software's accessibility must be tested in order to assess how easy it is for people with particular disabilities to utilize a software application. Numerous accessibility criteria increase usability for all users, particularly under constrained circumstances.

**Table 2 Level of Acceptability of Jeffreys' Amazing Statistics Program in terms of Efficiency**

Statement	Mean	SD	Remarks
JASP responses with a minimal time used.	4.04	0.902	Agree
JASP utilizes resources efficiently.	4.18	0.788	Agree
JASP secures convenient operation.	4.24	0.810	Strongly Agree
JASP creates an easy interaction for the users.	4.09	0.928	Agree
JASP delivers suitable performance in relation to the quantity of resources used.	4.28	0.744	Strongly Agree
<b>Weighted Mean</b>	<b>4.17</b>	<b>0.834</b>	<b>High</b>

Table 2 displays the mean level of acceptability of Jeffreys' Amazing Statistics Program characteristics with regards to efficiency. The results show that the statement "JASP responses with a minimal time used." obtained the lowest weighted mean and standard deviations ( $M=4.04$ ,  $SD=0.902$ ) with a remark of agree. This implies that the students experienced minimal issues in using JASP online.

The respondents strongly agree that JASP delivers suitable performance in relation to the quantity of resources used. This indicates that JASP uses its resources in a way that satisfies the requirement. In terms of efficiency, it obtained a remark of high ( $M=4.17$ ,  $SD=0.834$ ). This implies that the students have high acceptance level towards the efficiency of JASP. Lou (2013) asserts that software that is effective typically works well. Provided that the average resources used per unit time is the same, if the software completes a task more quickly, it means that it uses fewer resources, which means that it uses less computing power and performs well. Thus, responsiveness, processing speed and memory usage are all examples of efficiency.

**Table 3 Level of Acceptability of Jeffreys' Amazing Statistics Program in terms of Functionality**

Statement	Mean	SD	Remarks
JASP suits the demands of the users.	4.18	0.857	Agree
JASP provides reliable information and results.	4.53	0.777	Strongly Agree
JASP interacts with the other components or subparts of the system itself.	4.16	0.860	Agree
JASP performs and functions correctly and properly.	4.38	0.821	Strongly Agree
JASP covers all of the user's tasks and objectives.	4.36	0.776	Strongly Agree
<b>Weighted Mean</b>	<b>4.32</b>	<b>0.818</b>	<b>Very High</b>

Table 3 unveils the results of the mean level of acceptability of Jeffreys' Amazing Statistics Program characteristics with regards to functionality Based on Software Quality ISO Standards, the functionality characteristic allows for inferences about how well software performs desired functions. It shows that the respondents agree that JASP interacts with the other components or subparts of the system itself and suits the demands of the users. This means that they believe that JASP is crucial software that they can use to solve word problems relative with Statistics and Probability subject. The statement "JASP provides reliable information and results." got a remark of strongly agree ( $M=4.53$ ,  $SD=0.777$ ) implying that the respondents were satisfied with the results of JASP. This helped them in getting the correct answer in the problem. They also strongly agree that JASP performs and functions correctly and properly and covers all of the user's tasks and objectives. This implies that JASP has the characteristics functional completeness, correctness and appropriateness.

Students' acceptability of Jeffreys' Amazing Statistics Program characteristics in terms of functionality was very high ( $M=4.32$ ,  $SD=0.818$ ). This indicates that students were satisfied with the extent to which a system or product performs tasks that, when used in certain ways, satisfy explicit and implicit needs. The results also revealed that data obtained were more spread out. Many users of software encounter unanticipated malfunctions, unwelcoming interfaces, and perplexing steps to complete even the most basic tasks. To keep the product's quality high, a produced feature that is both useful and appealing must be tested. The high weighted mean of the results indicates that the users had few difficulties.

**Table 4 Level of Acceptability of Jeffreys' Amazing Statistics Program in terms of Perceived Enjoyment**

Statement	Mean	SD	Remarks
JASP makes understanding Statistics and Probability more enjoyable for me.	4.25	0.919	Strongly Agree
JASP excites me to learn Statistics and Probability.	4.13	0.913	Agree
JASP provides happiness in learning.	4.15	0.913	Agree
JASP leads me to explore more.	4.45	0.743	Strongly Agree
JASP makes me feel confident when I am doing activities.	4.23	0.914	Strongly Agree
<b>Weighted Mean</b>	<b>4.24</b>	<b>0.880</b>	<b>Very High</b>

The data in table 4 reveals that the mean level of acceptability of Jeffreys' Amazing Statistics Program characteristics in terms of perceived enjoyment. It revealed that students had very high acceptability in terms of perceived enjoyment ( $M=4.24$ ,  $SD=0.880$ ). This implies that they really loved utilizing JASP to respond to their activities in Statistics and Probability. The students agree that JASP provides happiness in learning ( $M=4.13$ ,  $SD= 0.913$ ) and excites them to learn Statistics and Probability ( $M=4.15$ ,  $SD= 0.913$ ). They strongly agree that JASP makes them feel confident when they are doing activities ( $M=4.23$ ,  $SD= 0.914$ ); makes understanding Statistics and Probability more enjoyable for them ( $M=4.25$ ,  $SD= 0.919$ ) and leads them to explore more ( $M=4.45$ ,  $SD= 0.743$ ). Students reported that they enjoyed using it as well as how much it helped them learn. This suggests that students are more likely to succeed in if they are more engaged with their learning.

**Table 5 Level of Students' Engagement towards the integration of JASP in terms of Cognitive**

Statement	Mean	SD	Remarks
JASP helps me to focus on our lesson.	4.08	0.885	Often
JASP removes trouble in solving problems involving Statistics and Probability.	4.48	0.820	Always
JASP provides an opportunity to hone my higher order thinking skills when I am solving Statistics problems.	4.12	0.909	Often
JASP allows me to think and solve critically and creatively.	4.05	0.924	Often
JASP helps me to learn Statistics and Probability concepts.	4.28	0.879	Always
<b>Weighted Mean</b>	<b>4.20</b>	<b>0.883</b>	<b>Very High</b>

Table 5 shows the results of level of students' engagement towards the integration of Jeffreys' Amazing Statistics Program in terms of cognitive. The data revealed that JASP often allows the students to think and solve critically and creatively, helps them to focus on their lesson and provides an opportunity to hone their higher order thinking skills when they are solving Statistics problems. Shadaan and Eu (2013) found out that about 75% of students reported that using software helped them think critically and creatively during class debates and question-and-answer sessions. JASP always helps them to learn Statistics and Probability concepts ( $M=4.28$ ,  $SD= 0.879$ ) and removes trouble in solving problems involving Statistics and Probability ( $M=4.48$ ,  $SD= 0.820$ ). This implies that JASP helped at-risk students solve word problems. Data revealed that they had very high level of engagement towards the integration of

Jeffreys's Amazing Statistics Program in terms of cognitive ( $M=4.20$ ,  $SD= 0.883$ ). This indicates that when their teacher used Jeffreys' Amazing Statistical Program to teach their lessons in Statistics and Probability, students exhibited extremely high levels of cognitive engagement.

**Table 6 Level of Students' Engagement towards the integration of JASP in terms of Behavioral**

Statement	Mean	SD	Remarks
JASP makes me feel happy if the teacher uses in teaching Statistics and Probability.	4.28	0.860	Always
JASP helps me to participate actively in our discussion.	4.08	0.894	Often
JASP allows me to complete my activities.	4.34	1.017	Always
JASP pushes me to more engaged in the learning process.	4.13	0.907	Often
JASP helps me to improve my understanding of Statistics and Probability concepts explored after taking the lessons.	4.12	0.945	Often
<b>Weighted Mean</b>	<b>4.19</b>	<b>0.925</b>	<b>High</b>

The data in Table 6 presents the results of the level of students' engagement towards the integration of Jeffreys' Amazing Statistics Program in terms of behavioral. It showed that the statement "JASP helps me to participate actively in our discussion." gained the lowest weighted mean ( $M=4.08$ ,  $SD= 0.894$ ) and a remark of often. On the other hand, the statement "JASP allows me to complete my activities." got the highest weighted mean ( $M=4.34$ ,  $SD= 0.1017$ ) with a remark of always. This means that software like JASP helped them in accomplishing their task however this made them less participative. In terms of behavioral, they had a high level of students' engagement towards the integration of Jeffreys's Amazing Statistics Program ( $M=4.19$ ,  $SD= 0.925$ ). The result implies that the use of JASP by the teacher to increase student engagement in class led to increased and high behavioral engagement on the part of the students.

**Table 7 Level of Students' Engagement towards the integration of JASP in terms of Emotional**

Statement	Mean	SD	Remarks
JASP arouses my eagerness to attend our classes.	4.03	0.921	Often
JASP makes me feel good when I am learning with the help of JASP.	4.13	0.966	Often
JASP stimulates my enthusiasm in participating to our discussion activities.	4.04	0.947	Often
JASP makes me feel confident when doing activities	4.18	0.984	Often
JASP boosts my confidence in solving statistical problems.	4.08	0.984	Often
<b>Weighted Mean</b>	<b>4.09</b>	<b>0.960</b>	<b>High</b>

Table 7 uncovers the results of the level of students' engagement towards the integration of Jeffreys' Amazing Statistics Program in terms of emotional. It shows that JASP often arouses the students' eagerness to attend classes ( $M=4.03$ ,  $SD= 0.921$ ), stimulates their enthusiasm in participating to the discussion activities ( $M=4.04$ ,  $SD= 0.947$ ), boosts their confidence in solving statistical problems ( $M=4.08$ ,  $SD= 0.984$ ), makes them feel good when they are learning with the help of JASP ( $M=4.13$ ,  $SD= 0.966$ ) and makes them feel confident when doing activities ( $M=4.18$ ,  $SD= 0.984$ ). Data revealed that students had high level of emotional engagement with regard to the inclusion of Jeffreys' Amazing Statistics Program

( $M=4.09$ ,  $SD= 0.960$ ). This means that software motivates students' behavior, favorably influencing their attitudes and interests toward learning.

**Table 8 Level of Students' Achievement towards the integration of Jeffreys' Amazing Statistics Program**

Score	Formative Test		Summative Test		Remark
	Tally	Relative Frequency (%)	Tally	Relative Frequency (%)	
15	0	0.00	28	23.33	Excellent
13-14	1	0.83	50	41.67	Very Satisfactory
10-12	32	26.67	26	21.67	Satisfactory
7-9	49	40.83	11	9.17	Fairly Satisfactory
4-6	27	22.50	5	4.17	Passed
3 and below	11	9.17	0	0.00	Failed
<b>General Average</b>	<b>7.62</b>		<b>12.60</b>		
<b>Standard Deviation</b>	<b>2.567</b>		<b>2.601</b>		
<b>Remarks</b>	<b>Fairly Satisfactory</b>		<b>Very Satisfactory</b>		

Table 8 presents the level of Students' Achievement towards the integration of Jeffreys' Amazing Statistics Program in terms of Formative and Summative Tests. The data shows that in terms of formative, 7 to 9 points or got the highest frequency of 49 with the percentage of 40.83. Out of 120 students, 32 or 26.67% obtained the scores of 10 to 12 points, 27 or 22.50% obtained the scores of 4 to 6 points, 11 or 9.17% attained the scores of 3 points and below, 1 of 0.83% got the scores of 13 to 14 points and 0 obtained the score of 15 points. In terms of Summative Test, 50 out of 120 students got the scores of 13 to 14 points with a percentage of 41.67. There were 28 or 23.33% students attained the score of 15 points, 26 or 21.67% obtained the scores of 10 to 12 points, 11 or 9.17% got 7 to 9 points, 5 or 4.17% obtained 4 to 6 points and no one got 3 points and below. The general average scores of the students in their summative test was 12.60 with a standard deviation of 2.601 and verbal interpretation of very satisfactory. Students' scores in formative test attained fairly satisfactory performance ( $M= 7.62$ ,  $SD= 2.567$ ) while their scores in summative test obtained very satisfactory performance ( $M= 12.60$ ,  $SD= 2.601$ ). This shows that there were still JASP features the students were unaware of when they used JASP for the first time in their formative test. However, they demonstrated complete proficiency with JASP while responding to their summative test.

**Table 9 Significant Difference between the Students' Achievement in terms of Formative and Summative tests scores**

Achievement	Mean	Standard Deviation	t	df	p	Analysis
Formative	7.62	2.567	-14.938	238	< .001	Significant
Summative	12.60	2.601				

Table 9 shows the results of significant difference between the students' achievement in terms of their scores in formative and summative tests. A paired sample t-test was used to compare the scores of formative and summative tests. The results revealed that the scores obtained in formative tests ( $M = 7.62$ ,  $SD = 2.567$ ) was significantly lower compared to the scores obtained in summative test ( $M = 12.60$ ,  $SD = 2.601$ ). The results imply that there is an improvement in students' achievement in Statistics and Probability. In addition, the score of standard deviation of formative is less than standard deviation of summative. This means that the scores of formative are homogeneous how those of summative. Based on the results, the t-value is -14.938 and the p-value is  $<0.001$  at 238 degrees of freedom. Since the p-value is less than the 5% level of significance therefore there is a significant difference between the students' achievement in terms of formative and summative tests scores.

**Table 10 Significant Correlation of Integration of JASP on the Students' Engagement**

Engagement	Jeffreys' Amazing Statistics			Analysis
	r value	Correlation Interpretation	p-value	
<b>Cognitive</b>	0.677	High Positive Correlation	$<0.001$	Significant
<b>Behavioral</b>	0.699	High Positive Correlation	$<0.001$	Significant
<b>Emotional</b>	0.625	High Positive Correlation	$<0.001$	Significant

\*significant at 0.05 level

Table 10 presents the results of significant correlation of integration of Jeffreys' Amazing Statistics Program on the Students' Engagement. Data revealed that students' engagement such as cognitive ( $r=0.677$ ,  $p<0.001$ ), behavioural ( $r=0.699$ ,  $p<0.001$ ) and emotional ( $r=0.625$ ,  $p<0.001$ ) have high positive correlation on the integration of Jeffreys' Amazing Statistics Program in Statistics and Probability. Based on the results, the hypothesis was rejected because none of the three variables' p-values exceeded the 5% level of significance. This indicates that there is a significant correlation between students' engagement and the use of Jeffreys' Amazing Statistics Program. Computer-based technology affects student involvement, according to Schindler, Burkholder, Morad, and Marsh's 2017 research. The majority of the technologies and software had a favorable impact on a number of student engagement measures, which may result in a higher return on investment in terms of learning outcomes.

**Table 12 Significant Correlation of Integration of JASP on the Students' Achievement**

Achievement	Jeffreys' Amazing Statistics			Analysis
	r value	Correlation Interpretation	p-value	
<b>Formative</b>	0.264	Low Positive Correlation	0.004	Significant
<b>Summative</b>	0.201	Low Positive Correlation	0.028	Significant

\*significant at 0.05 level

Table 12 presents the results of significant correlation of integration of Jeffreys' Amazing Statistics Program on the Students' Achievement in terms of their scores in Formative and Summative Tests. This was hypothesized that integration of JASP has no significant correlation on the achievement of the students. The researcher used Pearson's Correlation test to test the relationships between the two variables. The data revealed that the p-values of the achievement of students in terms of formative test ( $r=0.264$ ,  $p=0.004$ ) and summative test ( $r=0.201$ ,  $p=0.028$ ) are less than 5% level of significance. This indicates that the null hypothesis was rejected and denoting that there is a significant correlation between the integration of Jeffreys' Amazing Statistics Program and Students' Engagement. The data also revealed that there was a low positive correlation between the integration of Jeffreys' Amazing Statistics Program and students' achievement in terms of their scores in formative and summative tests.

## CONCLUSION

There is a significant difference in the achievement of students in terms of formative and summative tests scores. It also revealed that there is a significant correlation between integration Jeffreys' Amazing Statistics Program and Students' Engagement in terms of cognitive, behavioral and emotional and Achievement in terms of formative and summative.

## RECOMMENDATIONS

Based on the findings and conclusions drawn, the following were recommended:

1. Teachers are encouraged to use a variety of software when teaching mathematics. This must be combined with research to establish better findings and determine with certainty whether the software genuinely affects students of different grade levels and their ability to acquire more complex mathematical topics. Integrating software in teaching Statistics and Probability is more effective than using printed materials and calculators, therefore teachers can use them as part of curricular instruction.
2. Future researchers should investigate this issue further and with a bigger sample size in order to examine how software is used in teaching and learning in public and private institutions. Considering the majority of private schools permit students to bring devices to class and use them for the teaching and learning process.
3. It is suggested that students must use different software in solving word problems in order to achieve more interactive, innovative, and efficient instructional materials that will enhance the mastery skills and engagement of the students.

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