

Infographics as Supplementary Learning Materials in Teaching Elementary Science

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Abstract

The main purpose of this study is to use infographics as supplementary learning materials in teaching elementary science. This specifically aims to answer the level of acceptability of components and features of supplementary learning materials in teaching elementary science, the status of learner Science Process Skills, students' mean performance in science, and the significant difference between the students' mean performance in science in terms of diagnostic test and summative test, Is there a significant difference between on the content and physical features performance in terms of diagnostic test and summative test? Is the Infographics learning materials significantly affects learner in terms of science process skill and; Is the infographics learning materials significantly affects learners as to performance?

The present study used the descriptive quantitative research method and quasi-experimental designs in gathering information were gathered by using a survey questionnaire composed of 35 questions that are answered by the 1 School Principal, 2 Master Teachers and 12 Teachers from Victoria Sub- office at Tomas Daguinsin Elementary School as respondents of this study. The researcher also conducted a diagnostic test and summative test before and after the use of supplementary materials. Moreover, the primary data-gathered instrument used was a questionnaire. Weighted Mean and Standard Deviation were used to determine the level of acceptability infographics supplementary learning materials in teaching elementary Science. In addition, paired t-test will be used to determine the significant difference in the students' mean performance in Elementary Science.

Based on the findings, (1) It was found out, that the level of acceptability of component of the Infographics Supplementary Learning Materials is highly acceptable, (2) and also level of acceptability of feature is very great excellent. (3) In the addition to the status of learner Science Process Skills in learning materials is very high, (4) The test difference between the performance of the learners in terms of diagnostic Test is fairly satisfactory while summative Test is very satisfactory. (5) The performance of the learners has significantly improved from low to very high or fairly satisfactory to very satisfactory. (6) The performance of the learners has significantly improved from low to very high. (7) Based on the data gathered in this study, the researcher arrived at the conclusion that the null hypotheses "Is there a significant effect of infographic learning materials on the learner performance" is accepted, which incites that there is no significant effect between them.

In interpretation of the aforementioned findings, the study has drawn the following conclusion: (1) There is a significant difference between on the component and features of infographics supplementary learning materials science, thus rejecting the hypotheses. (2) There is a significant difference between the performance of the learners, thus rejecting the hypotheses. (3) There significantly effects on the use of Infographics supplementary learning materials, thus rejecting the hypotheses.

In the light of the foregoing findings and conclusions of this study, the following recommendations are offered: (1) The educators may use and discover different scientific teaching approaches. Also, the use of methods and strategies in the lesson for the pupils to understand the science process skills such as video lessons and differentiated instruction, difficulty of the lesson, learning ability of pupils should be measured in the teaching-learning process. (2) The Infographics Supplementary Learning Materials for Elementary Science made by the researcher are encouraged to try using the developed supplementary learning material. They may subject the instructional material to revisions, modifications and reconstructions depending upon the needs of their learners. (3) The use of infographics supplementary learning materials can be used for intervention that will enhance the learnings of the students.

Keywords: Infographics; supplementary learning; performance

1. Introduction

As a teacher considered as the manager of the classroom doing different educational task to ensure quality learning as directed through the prescribe curriculum. For teachers, it remains notable that there is a need to gain knowledge regarding how they could use, adapt, and select appropriate resources that are tailored towards and targeted to their knowledge provision process.

The purpose of the study is to use Infographics as supplementary learning materials in teaching elementary science, it can help students to understand complex concepts by using visual aids such as charts, graphs, or diagrams. They can use both images and text in a visual format to explain concepts. Since most of our learners was focused on the visual or images than the text so I decide to combine the two components. Teaching Visual Literacy in the 21st Century learners improve not only the comprehension but on how they interpret the specific topic to be able to apply it on a real-life situation. For this reasons, Infographics as supplementary learning materials in teaching elementary science, on the other hand help learners particularly the least learned students arranged in heterogeneous setting to adapt and to cope with their difficulties on science subject. Moreover, Teachers must adapt instruction to the student's level of knowledge and development, motivate them to learn, and manage their technical skills in order to achieve the goal.

For this reason, to provide quality education the Department of Education released DepEd order No. 39, s. 2016 regarding the adoption of the "Basic Education Research Agenda" which will guide and encourages all DepEd researchers to go beyond especially for pressing and emerging education issues, to support learning that will focus on the contribution in the K to 12 curriculum and on improving learning outcomes with the integration of skills and competencies. Therefore, this study about Infographic Supplementary Learning Materials would be a great of help to uplift the teaching and learning process in the form of research-based studies.

Science is the handmaiden of mathematics, is also the art which expresses beauty through a system of definitions, axioms and methods. Most failure in science is due to the exclusive memorization with destitute understanding. Pupils lack the application of skills and techniques which help them develop their critical thinking, reasoning power and creative minds. These skills can be developed among pupils when properly motivated. The pupils tend to learn to work independently when properly guided by their teacher. Incorporating learning task and games in the instructional materials may also motivate students to do materials in a more fun and enjoyable way. The students will tend to behave appropriately while doing science materials.

The researcher, as a science teacher, concerned on how to help the pupils perform better. This concern made the researcher planned to find possible solutions that could assist the Grade Five pupils. The use of infographics intervention on element is a viable way to increase pupil's motivation and performance in science.

1.1 Statement of the Problem

The focus of the study is on the acceptability of the supplementary learning materials.

1. What is the level of acceptability of the component of infographic materials in terms of:
 - 1.1 objective;
 - 1.2 vocabulary enrichment;
 - 1.3 content;
 - 1.4 learning task;
 - 1.5 assessment?
2. What is the level of acceptability on the features of infographic materials in terms of:
 - 2.1 Adaptability;
 - 2.2 Appearance;
 - 2.3 Design;
 - 2.4 Suitability;
 - 2.5 Usability?
3. What is the status of learner Science Skills in terms of:
 - 3.1 Observing;
 - 3.2 Classifying;
 - 3.3 Interpreting;
 - 3.4 Enumerating;
 - 3.5 Predicting?
4. What is the mean performance of learners in terms of:
 - 4.1 Diagnostic test;
 - 4.2 Summative test?
5. Is there a significant difference between on the content and physical features performance in terms of diagnostic test and summative test?
6. Is the Infographics learning materials significantly affects learner in terms of science process skill and;
7. Is the infographics learning materials significantly affects learners as to performance?

2. Methodology

The research was administered using quantitative type of research and quasi-experimental designs in gathering information. Specifically, the researcher created and stylized a questionnaire type of descriptive quantitative research - the Likert scale to be specific. This simply enabled researcher to gather information from the chosen respondents without the respondents having any difficulties in answering the questions required for the researcher to have information regarding the acceptability of the supplementary material in teaching elementary science.

As gleaned from the statement by Bhandari (2021), quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations.

3. Results and Discussion

This chapter enumerates the different results and discusses the results that were yielded from the treatment of the data that was gathered in this study.

Table 1. Level of acceptability of the component of infographic materials in terms of objective

STATEMENTS	MEAN	SD	REMARKS
<i>Contains goals that are attainable for the needs of the learners.</i>	4.87	0.35	Strongly Agree
<i>Motivates the learners to listen attentively.</i>	4.47	0.52	Strongly Agree
<i>Provides goals that are easily understood by the teachers and learners.</i>	4.73	0.46	Strongly Agree
<i>Clear, simple, attainable and measurable.</i>	4.80	0.41	Strongly Agree
<i>In line with the standard competencies set by the Department of Education.</i>	4.73	0.46	Strongly Agree
Weighted Mean			4.72
SD			0.20
Verbal Interpretation			Highly Acceptable

Table 1 illustrates the level of acceptability of the component of infographic materials in terms of objective.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.87$, $SD=0.35$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.47$, $SD=0.52$) yet was remarked Strongly Agree.

The level of acceptability of the component of infographic materials in terms of attained a weighted mean score of 4.72 and a standard deviation of 0.20 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 2. Level of acceptability of the component of infographic materials in terms of vocabulary enrichment

STATEMENTS	MEAN	SD	REMARKS
<i>Develop the in-depth knowledge of specific words.</i>	4.73	0.46	Strongly Agree
<i>Distinguish words with similar meanings.</i>	4.73	0.46	Strongly Agree
<i>Contexts as to how the words are to be used.</i>	4.60	0.51	Strongly Agree
<i>New words suited in this generation.</i>	4.87	0.35	Strongly Agree
<i>Word information strategies are attainable for the learners.</i>	4.53	0.52	Strongly Agree
Weighted Mean	4.69		
SD	0.30		
Verbal Interpretation			Highly Acceptable

Table 2 illustrates the level of acceptability of the component of infographic materials in terms of vocabulary enrichment.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.87$, $SD=0.35$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.53$, $SD=0.52$) yet was remarked Strongly Agree.

The level of acceptability of the component of infographic materials in terms of attained a weighted

mean score of 4.69 and a standard deviation of 0.30 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 3. Level of acceptability of the component of infographic materials in terms of content

STATEMENTS	MEAN	SD	REMARKS
<i>Contains topics that are practically related to each other.</i>	4.67	0.49	Strongly Agree
<i>States objectives that are attainable.</i>	4.73	0.46	Strongly Agree
<i>Provides learning tasks that relate directly to the objectives of the lessons.</i>	4.60	0.51	Strongly Agree
<i>Suitable to the level of the learners.</i>	4.67	0.49	Strongly Agree
<i>Contains discussion that are needed for better understanding of the activities.</i>	4.67	0.49	Strongly Agree
Weighted Mean	4.67		
SD	0.40		
Verbal Interpretation	Highly Acceptable		

Table 3 illustrates the level of acceptability of the component of infographic materials in terms of content.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.73$, $SD=0.46$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.60$, $SD=0.51$) yet was remarked Strongly Agree.

The level of acceptability of the component of infographic materials in terms of attained a weighted mean score of 4.67 and a standard deviation of 0.40 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 4. Level of acceptability of the component of infographic materials in terms of learning task

STATEMENTS	MEAN	SD	REMARKS
<i>Includes activities that are congruent with the objectives of the lesson.</i>	4.93	0.26	Strongly Agree
<i>Uses guided practice and monitoring activities for learner development.</i>	4.87	0.35	Strongly Agree
<i>Consists of different collaborative activities to make learning enjoyable.</i>	5.00	0.00	Strongly Agree
<i>Contains activities that are related in the discussion.</i>	5.00	0.00	Strongly Agree
<i>Comprises with challenging activities that uses pictures for deeper understanding of the lesson.</i>	4.93	0.26	Strongly Agree
Weighted Mean		4.95	
SD		0.12	
Verbal Interpretation	Highly Acceptable		

Table 4 illustrates the level of acceptability of the component of infographic materials in terms of learning task.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the

highest mean score ($M=5.00$, $SD=0.00$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.87$, $SD=0.35$) yet was remarked Strongly Agree.

The level of acceptability of the component of infographic materials in terms of attained a weighted mean score of 4.95 and a standard deviation of 0.12 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson. Multi-task learning is a learning paradigm which seeks to improve the generalization performance of a learning task with the help of some other related tasks.

Table 5. Level of acceptability of the component of infographic materials in terms of assessment

STATEMENTS	MEAN	SD	REMARKS
<i>Contains evaluation suited for the learners.</i>	4.87	0.35	Strongly Agree
<i>Assesses pupils' understanding of the lesson.</i>	4.87	0.35	Strongly Agree
<i>Sufficient to develop the pupils' knowledge.</i>	4.93	0.26	Strongly Agree
<i>Suggestions practices that are based from the knowledge that they acquired from the lessons.</i>	4.73	0.46	Strongly Agree
<i>Provides evaluation that uses critical thinking skills of the learners.</i>	4.93	0.26	Strongly Agree
Weighted Mean	4.87		
SD	0.18		
Verbal Interpretation	Highly Acceptable		

Table 5 illustrates the level of acceptability of the component of infographic materials in terms of assessment.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.93$, $SD=0.26$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.73$, $SD=0.46$) yet was remarked Strongly Agree.

The level of acceptability of the component of infographic materials in terms of attained a weighted mean score of 4.87 and a standard deviation of 0.18 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

The teacher's ability to assess students learning, analyze outcomes, and adopt instruction to meet student needs may not always shop up on a state standardized exam.

Table 6. Composite table of acceptability of the component of infographic materials

INDICATORS	W M V . I .
Objective	H i g h l
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Content		H
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		y
	4.67	A
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		c
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Learning Task	4.95	H
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		g h l y
		A c c e p t a b l e
Assessment		H i g h l y
	4.87	A c c e p t a b l e
Overall Mean	4.78	
SD	0.24	
Verbal Interpretation	Highly Acceptable	

Table 6 verifies the composite table of acceptability of the component of infographic materials

From the indicators, “*learning task*” yielded the highest weighted mean score ($M=4.95$, $SD=0.12$) and was interpreted to a Highly Acceptable. This is followed by “*assessment*” with a weighted mean score ($M=4.87$, $SD=0.18$) and was also interpreted to a Highly Acceptable. On the other hand, the indicator “*content*” received the lowest weighted mean score of responses with ($M=4.67$, $SD=0.40$) yet was also was also interpreted to a Highly Acceptable.

The level of acceptability of the component of infographic materials in terms of attained an overall mean score of 4.78 and a standard deviation of 0.24 and was interpreted to a Highly Acceptable among the respondents. This means that the Infographics Supplementary Learning materials in teaching elementary science are appropriate and suitable in impart knowledge to the learners, and encourage creative, critical, logical and scientific thinking skills.

Table 7. Level of acceptability on the features of infographic materials in terms of Adaptability

STATEMENTS	MEAN	SD	REMARKS
<i>Provide the needs of the learner despite of the present educational system.</i>	4.80	0.41	Strongly Agree
<i>Lecture prior problems encountered by the students and help them learn with their own paced.</i>	4.80	0.41	Strongly Agree
<i>Let the students assess their development and self-reflect on their needs.</i>	4.67	0.49	Strongly Agree
<i>Increases activities that are responsive and interactive.</i>	4.80	0.41	Strongly Agree
<i>Topics are break evenly so that learners will not be frustrating with the lessons they have.</i>	4.53	0.52	Strongly Agree
<i>Use activities that are appropriate and suitable for the target learners.</i>	4.33	0.49	Strongly Agree
<i>Allow the learners to control their own knowledge of system and learn through the additional supplementary materials given.</i>	4.47	0.52	Strongly Agree
Weighted Mean		4.56	
SD		0.28	
Verbal Interpretation		Highly Acceptable	

Table 7 illustrates the level of acceptability on the features of infographic materials in terms of adaptability.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.80$, $SD=0.41$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.33$, $SD=0.49$) yet was remarked Strongly Agree.

The level of acceptability of the features of infographic materials in terms of attained a weighted mean score of 4.56 and a standard deviation of 0.28 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 8. Level of acceptability on the features of infographic materials in terms of Appearance

STATEMENTS	MEAN	SD	REMARKS
<i>The info-graphical supplementary materials in science shows an attractive and eye-catching cover.</i>	4.80	0.41	Strongly Agree
<i>The info-graphical supplementary materials in science are handy and easy to carry.</i>	4.87	0.35	Strongly Agree
<i>The info-graphical supplementary materials in science are also provide information for visual learning.</i>	4.67	0.49	Strongly Agree
<i>Uses appropriate text font size, style and understandable icons.</i>	4.87	0.35	Strongly Agree
<i>The info-graphical supplementary materials in science are clear and understandable.</i>	4.80	0.41	Strongly Agree
<i>It provides key ideas and colorful illustrations that help to motivate the learners.</i>	4.00	0.00	Agree
<i>The info-graphical supplementary materials in science that provide specific information you needed.</i>	4.07	0.26	Agree

Weighted Mean	4.48
SD	0.20
Verbal Interpretation	Highly Acceptable

Table 8 illustrates the level of acceptability on the features of infographic materials in terms of appearance.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.87$, $SD=0.35$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.00$, $SD=0.00$) yet was remarked Agree.

The level of acceptability of the features of infographic materials in terms of attained a weighted mean score of 4.48 and a standard deviation of 0.20 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 9. level of acceptability on the features of infographic materials in terms of Design

STATEMENTS	MEAN	SD	REMARKS
<i>Construction of materials are well organized.</i>	5.00	0.00	Strongly Agree
<i>Classification of materials (lesson, activities and tasks) are well</i>	4.80	0.41	Strongly Agree
<i>Designs are used to make a more detailed for the learners.</i>	4.67	0.49	Strongly Agree
<i>The design of the materials is designed according to the course curriculum.</i>	4.60	0.51	Strongly Agree
<i>Lessons and task are appropriately made for the users.</i>	4.87	0.35	Strongly Agree
<i>Activities are ranged with the course and help students mastered several topics in science 5.</i>	4.53	0.52	Strongly Agree
<i>Design including of differentiated instructions and task that can enhance learner's knowledge and mastery of the lesson.</i>	4.00	0.00	Agree
Weighted Mean	4.53		
SD	0.25		
Verbal Interpretation	Highly Acceptable		

Table 9 illustrates the level of acceptability on the features of infographic materials in terms of design.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=5.00$, $SD=0.00$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.00$, $SD=0.00$) yet was remarked Agree.

The level of acceptability of the features of infographic materials in terms of attained a weighted mean score of 4.53 and a standard deviation of 0.25 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 10. Level of acceptability on the features of infographic materials in terms of Suitability

STATEMENTS	R S
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		D R S
		S t r o n g l y
<i>The Content formats are planned and well-designed according to the needs of the students.</i>	4.67	
		A g r e e S t r o n g l y
<i>Provides adequate information that are needed by the students.</i>	4.87	
		A g r e e S t r o n g l y
<i>Gives clarification on the lessons and/or topics that are least learned by the students.</i>	4.80	
		A g r e e S t
<i>Provides information that supplies the needs of the students.</i>	5.00	

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Bring knowledge that are clear, accurate and easy to understand. 4.33

The traditional learning system and uses interactive activities which will help students learn more. 4.27

Uses real-world examples or real-life situation and hands-on activities so that learners are able to experience learning more efficiently. 4.33

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Weighted Mean	4.55
SD	0.19
Verbal Interpretation	Highly Acceptable

Table 10 illustrates the level of acceptability on the features of infographic materials in terms of suitability.

From the statements, “Contains goals that are attainable for the needs of the learners” yielded the highest mean score ($M=5.00$, $SD=0.00$) and was remarked as Strongly Agree. On the other hand, “Motivates the learners to listen attentively” received the lowest mean score of responses with ($M=4.27$, $SD=0.46$) yet was remarked Strongly Agree.

The level of acceptability of the features of infographic materials in terms of attained a weighted mean score of 4.55 and a standard deviation of 0.19 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 11. Level of acceptability on the features of infographic materials in terms of Usability

STATEMENTS	MEAN	R S E D M A R K S
		S t r o n g l y A g r e e
Usable paraphrase to the learning target.	4.47	0 g l y 2
Teachers can correctly use it to teach Science 5.	4.47	A g r e e S t r o n g

		l y A g r e e S t r o n g l y A g r e e S t r o n g l y A g r e e S t r o n g l y A g r
		4 . 3 3
Allow the students to explore and learn more facts about the lessons.		
Provides additional information that can help students learn more about science.	4.80	
Contains with activities and content needed for the deeper understanding of the lesson.	4.73	

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<i>Provides specific word that are easy to understand.</i>	4.60	
<i>Materials can be used to help students to gain knowledge in the specific topics in science 5.</i>	4.33	
Weighted Mean	4.56	
SD	0.17	
Verbal Interpretation	Highly Acceptable	

Table 11 illustrates the level of acceptability on the features of infographic materials in terms of usability.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.80$, $SD=0.41$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.33$, $SD=0.49$) yet was remarked Strongly Agree.

The level of acceptability of the features of infographic materials in terms of attained a weighted mean score of 4.56 and a standard deviation of 0.17 and was Highly Acceptable among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 12. Composite table of performance of the student’s before and after using the localized learning activities in teaching science

INDICATORS	WM	SD	V. I.
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<i>Adaptability</i>	4.56	0.28	Highly Acceptable
<i>Appearance</i>	4.48	0.20	Highly Acceptable
<i>Design</i>	4.53	0.25	Highly Acceptable
<i>Suitability</i>	4.55	0.19	Highly Acceptable
<i>Usability</i>	4.56	0.17	Highly Acceptable
Overall Mean	4.54		
SD	0.22		
Verbal Interpretation	Very Great Extent		

Table 12 verifies the composite table of acceptability on the features of infographic materials

From the indicators, “*adaptability*” yielded the highest weighted mean score ($M=4.56$, $SD=0.28$) and was interpreted to a Highly Acceptable. This is followed by “*usability*” with a weighted mean score ($M=4.56$, $SD=0.17$) and was also interpreted to a Highly Acceptable. On the other hand, the indicator “*design*” received the lowest weighted mean score of responses with ($M=4.53$, $SD=0.25$) yet was also was also interpreted to a Highly Acceptable.

The level of acceptability on the features of infographic materials in terms of attained an overall mean score of 4.54 and a standard deviation of 0.22 and was interpreted to a Very Great Extent among the respondents. This means that the Infographics Supplementary Learning materials in teaching elementary science are appropriate and suitable in impart knowledge to the learners, and encourage creative, critical, logical and scientific thinking skills.

Table 13. Status of learner Science Process Skills in terms of Observing

STATEMENTS	MEAN	SD	REMARKS
<i>Observe a picture to identify a part of the reproductive system.</i>	4.27	0.71	Strongly Agree
<i>Observing learning task.</i>	4.20	0.71	Agree
<i>The learners make observation, they use five senses to gather information about objects or events in the environment.</i>	4.10	0.72	Agree
<i>Learners observe during class sessions.</i>	4.16	0.70	Agree
<i>Learners can learn observe and trace the flow of cells.</i>	4.17	0.61	Agree
Weighted Mean	4.18		
SD	0.36		
Verbal Interpretation	High		

Table 13 illustrates the status of learner’s science process skills in terms of observing.

From the statements, “*Contains goals that are attainable for the needs of the learners*” yielded the highest mean score ($M=4.27$, $SD=0.71$) and was remarked as Strongly Agree. On the other hand, “*Motivates the learners to listen attentively*” received the lowest mean score of responses with ($M=4.10$, $SD=0.72$) yet was remarked Agree.

The Status of learner Science Process Skills in terms of attained a weighted mean score of 4.18 and a standard deviation of 0.18 and was High among the respondents. Furthermore, learners were able to

understand and to construct a new knowledge from the derived reasons in the lesson.

Table 14. Status of learner Science Process Skills in terms of Classifying

STATEMENTS	MEAN	SD	REMARKS
<i>Classification of materials (lesson, activities and tasks) are well.</i>	4.34	0.66	Strongly Agree
<i>They classify the materials according to the course curriculum.</i>	4.18	0.74	Agree
<i>Classification of materials are used to make a more detailed for the learners.</i>	4.33	0.66	Strongly Agree
<i>It is simply organizing the data collected through observation.</i>	4.39	0.64	Strongly Agree
<i>Classify the given data according to the quantity it is used.</i>	4.34	0.69	Strongly Agree
Weighted Mean		4.32	
SD		0.37	
Verbal Interpretation		Very High	

Table 14 illustrates the status of learner's science process skills in terms of classifying.

From the statements, "Contains goals that are attainable for the needs of the learners" yielded the highest mean score ($M=4.39$, $SD=0.64$) and was remarked as Strongly Agree. On the other hand, "Motivates the learners to listen attentively" received the lowest mean score of responses with ($M=4.18$, $SD=0.74$) yet was remarked Agree.

The Status of learner Science Process Skills in terms of attained a weighted mean score of 4.32 and a standard deviation of 0.37 and was Very High among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 15. Status of learner Science Process Skills in terms of Interpreting

STATEMENTS	MEAN	SD	REMARKS
<i>Learners can explain the interpretation of data as transferring information by using graphs and tables.</i>	4.10	0.73	Agree
<i>Learners can interpret the drawing/data and explain the graphs.</i>	4.16	0.64	Agree
<i>Learners has an ability to construct the data or graph.</i>	4.24	0.77	Strongly Agree
<i>Learners to be given to the result of experiments and observations in process of interpretation of data.</i>	4.40	0.58	Strongly Agree
<i>Learners can write down the questions of the reaction involved in the learning tasks.</i>	4.40	0.69	Strongly Agree
Weighted Mean		4.26	
SD		0.43	
Verbal Interpretation		Very High	

Table 15 illustrates the status of learner's science process skills in terms of Interpreting.

From the statements, "Contains goals that are attainable for the needs of the learners" yielded the highest mean score ($M=4.40$, $SD=0.69$) and was remarked as Strongly Agree. On the other hand, "Motivates the learners to listen attentively" received the lowest mean score of responses with ($M=4.10$, $SD=0.73$) yet was remarked Agree.

The Status of learner Science Process Skills in terms of attained a weighted mean score of 4.26 and a standard deviation of 0.43 and was Very High among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 16. Status of learner Science Process Skills in terms of Enumerating

STATEMENTS	MEAN	SD	REMARKS
<i>Learners can enumerate the learning tasks.</i>	4.21	0.72	Strongly Agree
<i>Provide a variety of learning task for the development of students' concept.</i>	4.07	0.75	Agree
<i>The learning task excite learner's comprehension and learning ability.</i>	4.41	0.69	Strongly Agree
<i>Are in order to maintain the learner's interest in each of the learning task.</i>	4.00	0.68	Agree
<i>The learners' comprehension level in Learning task are suitable.</i>	4.48	0.65	Strongly Agree
Weighted Mean		4.23	
SD		0.41	
Verbal Interpretation		Very High	

Table 16 illustrates the status of learner's science process skills in terms of Enumerating.

From the statements, "*Contains goals that are attainable for the needs of the learners*" yielded the highest mean score ($M=4.48$, $SD=0.65$) and was remarked as Strongly Agree. On the other hand, "*Motivates the learners to listen attentively*" received the lowest mean score of responses with ($M=4.07$, $SD=0.75$) yet was remarked Agree.

The Status of learner Science Process Skills in terms of attained a weighted mean score of 4.23 and a standard deviation of 0.41 and was Very High among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 17. Status of learner Science Process Skills in terms of Predicting

STATEMENTS	MEAN	SD	REMARKS
<i>Learners help in making a decision.</i>	4.28	0.70	Strongly Agree
<i>Can generate creative thinking.</i>	4.34	0.69	Strongly Agree
<i>Can generate critical thinking.</i>	4.23	0.69	Strongly Agree
<i>Can build teamwork.</i>	4.34	0.65	Strongly Agree
<i>Many good values come out of the activities.</i>	4.29	0.57	Strongly Agree
Weighted Mean		4.32	
SD		0.39	
Verbal Interpretation		Very High	

Table 17 illustrates the status of learner's science process skills in terms of predicting.

From the statements, "*Contains goals that are attainable for the needs of the learners*" yielded the highest mean score ($M=4.34$, $SD=0.69$) and was remarked as Strongly Agree. On the other hand, "*Motivates the learners to listen attentively*" received the lowest mean score of responses with ($M=4.23$, $SD=0.69$) yet

was remarked Strongly Agree.

The Status of learner Science Process Skills in terms of attained a weighted mean score of 4.32 and a standard deviation of 0.39 and was Very High among the respondents. Furthermore, learners were able to understand and to construct a new knowledge from the derived reasons in the lesson.

Table 18. Composite table of status of learner Science Process Skills

INDICATORS	WM	SD	V.
<i>Observing</i>	4.18	0.36	High
<i>Classifying</i>	4.32	0.37	Very High
<i>Interpreting</i>	4.26	0.43	Very High
<i>Enumerating</i>	4.23	0.41	Very High
<i>Predicting</i>	4.32	0.39	Very High
Overall Mean	4.26		
SD	0.39		
Verbal Interpretation	Very High		

Table 18 Table 12 verifies the composite table of status of learner Science Process Skills.

From the indicators, “*Predicting*” yielded the highest weighted mean score ($M=4.32$, $SD=0.39$) and was interpreted to a Very High. This is followed by “*classifying*” with a weighted mean score ($M=4.32$, $SD=0.37$) and was also interpreted to a Very High. On the other hand, the indicator “*observing*” received the lowest weighted mean score of responses with ($M=4.18$, $SD=0.36$) yet was also was also interpreted to a High.

The Status of learner Science Process Skills in terms of attained an overall mean score of 4.26 and a standard deviation of 0.39 and was interpreted to a Very High among the respondents. This means that the Infographics Supplementary Learning materials in teaching elementary science are appropriate and suitable in impart knowledge to the learners, and encourage creative, critical, logical and scientific thinking skills.

Table 19. Mean performance of learners in terms of diagnostic test

Score	f	%	Descriptive Equivalent
41 - 50	0	0.00	High
31 - 40	0	0.00	Very Satisfactory
21 - 30	4	3.81	Satisfactory
11 - 20	89	84.76	Fairly Satisfactory
0 - 10	12	11.43	Did not meet Expectation
Total	105	100	
Weighted Mean		14.86	
SD		3.58	
Verbal Interpretation		Fairly Satisfactory	

Table 19 presents the mean performance of learners in terms of diagnostic test. Out of total number of one hundred and five respondents “11 to 20” received the highest frequency of one hundred and eighty-nine (89) or 84.76% of the total population with descriptive equivalent of *Fairly Satisfactory*. While the scores “0 to 10” received the lowest frequency of twelve (12) or 11.43% of the total population with descriptive equivalent of *Did not meet Expectation*.

With a (Weighted Mean = 14.86, SD = 3.58) it shows that the mean performance of learners in terms of diagnostic test has a descriptive equivalent of *Fairly Satisfactory*. It indicates that the learners have slightest knowledge on the subject which is focusing in science prior to the use of Infographic supplementary learning

materials.

Table 20. Mean performance of learners in terms of summative test

Score	f	%	Descriptive	Equivalent
41 - 50	7	6.67	Outstanding	
31 - 40	57	54.29	Very Satisfactory	
21 - 30	40	38.10	Satisfactory	
11 - 20	1	0.95	Fairly Satisfactory	
0 - 10	0	0.00	Did not meet Expectation	
Total	105	100		
Weighted Mean		32.41		
SD		5.20		
Verbal Interpretation		Very Satisfactory		

Table 20 presents the mean performance of learners in terms of summative test. Out of total number of one hundred and five respondents “31 to 40” received the highest frequency of fifty-seven (57) or 54.29% of the total population with descriptive equivalent of *Very Satisfactory*. While the scores “11 to 20” received the lowest frequency of one (1) or 0.95% of the total population with descriptive equivalent of Fairly Satisfactory.

With a (Weighted Mean = 32.41, SD = 5.20) it shows that the mean performance of learners in terms of summative test has a descriptive equivalent of *Very Satisfactory*. From the findings above, it deduced that the use of Infographics supplementary learning materials has an effect on the learners’ attitude towards science subject in elementary and affected on the learners’ performance during the diagnostic and summative test.

Table 21. Test of Difference between the performance of the learners in terms of diagnostic test and summative test

Infographic learning materials	Diagnostic test		Summative test		Mean Difference	95% Confidence Interval of Difference		t	df	Sig (2-tailed)
	Mn	SD	Mn	SD		L	U			
<i>performance</i>	14.86	3.58	32.41	5.20	17.55	6.626	15.308	5.01	104	0.000

Legend: *Significant at 0.05

Revealed in Table 21 is the test of difference between the performance of the learners in terms of diagnostic test and summative test. Data obtained through a paired t-test indicated that the increase in the scores in *performance* is significant ($p < 0.05$).

This implies that the students performed better after using the Infographic learning materials. The performance of the learners has significantly improved from low to very high.

Hence, the main aim of diagnostic testing is to find out a student's weak learning point and not how much the student scores. Summative testing as well as diagnostic testing are commonly used testing processes to measure how much of the assigned materials students are mastering. It also indicates how well students are learning the materials, and learning problems that constrains students’ meeting the stated goals and objectives.

The quasi-experimental pre-test-post-test design, the pre-test results of the two groups were equivalent in terms of their academic performance in science. The post-test result of the supplementary modular learning materials group was higher compared to the post-test result of the non-supplementary modular learning materials group.

Table 22. Regression Analysis on the use of infographic learning materials on the learner Science Process Skills

Learner Science Skills	B	SE	β	t	p
Constant	3.577	1.309		2.732*	.007
<i>objective</i>		.161	.063	.394	.695
<i>vocabulary enrichment</i>		.104	-.19	-1.79	.077
<i>content</i>		.079	-.02	-0.23	.815
<i>learning task</i>		.363	.376	1.036	.303
<i>assessment</i>			-.11		
R-squared			.078		
Adjusted R-squared			.031		
Standard Error of the Estimate		.25			
F(5, 99)				1.674	.148
Learner Science Skills	B	SE	β	t	p
Constant	6.05	1.564		3.869*	.000
<i>Adaptability</i>		.107	-.16	-1.5	.138
<i>Appearance</i>		.164	-.32	-1.97	.051
<i>Design</i>		.127	.139	1.091	.278
<i>Suitability</i>		.165	-.07	-.45	.655
<i>Usability</i>			.021		
R-squared			.006		
Adjusted R-squared			.012		
Standard Error of the Estimate		.253			
F(5, 99)				1.262	.287

*p < 0.05

The table presents the results of a multiple regression analysis examining the effect of infographic learning materials on the learner Science Skills. The *Components and Features* have no significant effect to the learner Science Skills. The F-test of the overall model is not significant (F(5, 99) with, $p > 0.05$), indicating that the regression model is not a good fit for the data.

From the findings above, we can infer that at 0.05 level of significance, the null hypothesis "Is there a significant effect of infographic learning materials on the learner Science Skills" is accepted, which incites that there is no significant effect between them. Based on the data gathered, the components and features are no significant effect while the learner's science skills are accepted because the info-graphical learning materials used different approaches which catches the interest of the learners and learned to understand complicated knowledge in learning-teaching process.

Table 23. Regression Analysis on the use of infographic learning materials on the learner performance

Learner performance	B	SE	β	t	p
Constant	65.57	27.6		2.376*	.019
<i>objective</i>		3.394	1.789	.527	.599
<i>vocabulary enrichment</i>		2.186	-.35	-.16	.873
<i>content</i>		1.67	-.83	-.49	.622
<i>learning task</i>		7.646	-5.45	-.71	.477
<i>assessment</i>			-1.88		
R-squared			.021		
Adjusted R-squared			-.03		

Standard Error of the Estimate		5.277			
F(4, 136)				0.434	.824
Learner performance	B	SE	β	t	p
Constant	3.513	32.35		.109	.914
Adaptability		2.205	.567	.257	.798
Appearance		3.391	3.535	1.042	.3
Design		2.635	-3.5	-1.33	.187
Suitability		3.405	5.519	1.621	.108
Usability			.273		
R-squared			.039		
Adjusted R-squared			-.01		
Standard Error of the Estimate		5.23			
F(4, 136)				0.8	.552

*p < 0.05

The table presents the results of a multiple regression analysis examining the effect of infographic learning materials on the learner performance. The *Components and Features* have no significant effect to the learner performance. The F-test of the overall model is not significant (F(5, 99) with, $p > 0.05$), indicating that the regression model is not a good fit for the data.

From the findings above, we can infer that at 0.05 level of significance, the null hypothesis “*Is there a significant effect of infographic learning materials on the learner performance*” is accepted, which incites that there is no significant effect between them. During the use of the supplementary learning materials the learners were able to enjoy the lesson topics with additional infographics materials.

4. Conclusion and Recommendation

In interpretation of the aforementioned findings, the study has drawn the following conclusion:

The findings of the study led to the conclusions that the students believed that the Infographics supplementary learning materials were very helpful in today's face-to-face or in distance learning. It also concluded that the academic performance of the students who were using Infographics supplementary learning materials had a larger score compared to the students who were using conventional methods of teaching. It also concluded that both groups showed equivalent percentage score before administering the Infographics supplementary learning materials that had no significant difference. However, after implementing the Infographics supplementary learning materials, there would be an increasing mean percentage score that had significant difference. This implies that both modules, whether Deped printed modules or Infographics supplementary learning materials were the effective way to increase the academic performance of the students. However, students who were using Info-graphics supplementary learning materials had increased a score and improved largely with high points compared to the students who were using a conventional way of teaching. The results could be the basis to help the learners to master the least learned competencies and infer the Info-graphics supplementary learning materials in teaching elementary science, to be utilized as instructional materials during the face-to-face or distance learning process as an effective learning tool and an alternative or an intervention or remedies in the face-to-face or distance learning modality.

1. There is a significant difference between on the component and features of infographics supplementary learning materials science, thus rejecting the hypotheses.

2. There is a significant difference between the performance of the learners in terms of diagnostic test and summative test, thus rejecting the hypotheses.

3. There significantly effects on the use of Infographics supplementary learning materials in terms of science process skills of the learners and the infographics learning materials significantly affects learners as to performance, thus rejecting the hypotheses.

In the light of the foregoing findings and conclusions of this study, the following recommendations are offered:

The Infographics Supplementary Learning Materials for Elementary Science made by the researcher are encouraged to try using the developed supplementary learning material. They may subject the instructional material to revisions, modifications and reconstructions depending upon the needs of their learners. Next, Teachers in any grade level can develop such materials focusing on the newly-added skill viewing in the K to 12 Basic Education Curriculum. Lastly, The educators may use and discovery different scientific teaching approaches. Also, the use of methods and strategies in the lesson for the pupils to understand the science process skills such as video lessons and differentiated instruction, difficulty of the lesson, learning ability of pupils should be measured in the teaching- learning process.

Reference:

DepEd Order No. 39, s. 2016. The Department of Education adopts the Basic Education Research Agenda to provide guidance to DepEd and its stakeholders in the conduct of education research and in the utilization of research results to inform the Department's planning, policy, and program development aligned with its vision, mission, and core values. Page 3. 2.