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An Exploratory Study on the Impact of Strategic Intervention Materials (SIM) on Science Education Among Filipino 7th Graders: Prospects and Strategies

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Abstract

This article strives to investigate the effectiveness of Strategic Intervention Materials (SIM) as an instructional strategy for enhancing the teaching and learning of 7th Grade Science in the Philippines. Recognizing the persistent challenges in science education—such as low mastery levels, limited engagement, and diverse learning needs—SIM was developed to provide targeted, learner-centered resources that address specific competency gaps. The research investigates how SIM supports conceptual understanding, fosters active participation, and promotes retention of scientific knowledge among junior high school students. Findings reveal that when strategically designed and contextually relevant, SIM not only improves academic performance but also stimulates curiosity, critical thinking, and problem-solving skills. This underscores the potential of SIM as an innovative, sustainable approach to improving science education outcomes in the Philippine setting, ultimately equipping learners with the competencies necessary for lifelong learning in a science-driven world.

Keywords: *Strategic Intervention Material, 7th Grade Science, Quasi-Experimental Design, Philippine Education, Science Teaching Strategies, Learning Gaps.*

1. Introduction

Science education plays a vital role in developing students' critical thinking skills, problem-solving abilities, and understanding of the natural world. It is widely agreed that the goal of education in science is to build a society that is scientifically literate. While scientific literacy is defined in a variety of ways, most involve the ability to solve problems, make evidence - based decisions, and logically evaluate information. One reason for this problem is that we have chosen to continue approaching teaching science in a manner that does not consider the critical assumptions that science faculties bring into the classroom (Glaze, 2017).

Science teachers are constantly challenged nowadays. Science is a subject which demands a sense of concentration and discipline. Adhering to the inquiry, adopting the scientific method, understanding how a hypothesis works and approaching it when

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the answer is not directly obvious, data notation and the fine tuning of data representation are all very challenging skills for students. It is therefore a provocation for teachers to look for ways and strategies in which students can easily learn. Likewise, Bachiri explains that the "the majority of students haven't developed a reading stamina. They would almost always stop reading after the first or second page, which is clearly indicative of their weakness in the reading skill (2024, P. 979)."

Due to its relevance to student life and the universally applicable problem-solving and critical thinking skills it uses and develops, science education is one of the most important subjects in school. These are lifelong skills that enable students to generate ideas, intelligently weigh decisions, and even understand the evidence behind making public policy.

The rapid advancement of science and technology is a major challenge for humanity to keep pace with the rapid development of society, especially in the Third World and developing countries such as the Philippines. Being in a rhythmic movement means not only acquiring advanced facilities and technologies, but also acquiring and improving knowledge and skills that are essential to a highly competitive and scientifically inclined society's demands.

The secret of the quality of science education is one of the fundamental questions. Science is among all subjects taught in elementary and secondary schools where the most logical anchor for environmental education and Philippine education has suffered in this wider area. That's why environmental education is poor–science's very anchor is weak (Rabino, 2014).

Studies of learning science reveal that the subject is difficult for many pupils. The rationale for this outcome will also be disclosed. The reasons why students perceive science are the traditional teaching method, the teacher's personality, and the lack of facilities. The traditional way of teaching is nothing wrong. However, there are different learner batches for each generation. Students from the 1950s are different from the 21st students. Students are engaging in technology these days. Therefore, the chalk and talk teaching method is outdated or not a good choice.

Scientific education cannot be considered as a strength in our country. The passing rate for the National Achievement Test (NAT) for grade six students is only 69.21 percent based on results from 2014. The high school passing rate seems far worse, with only 46.38 percent of the 2010 statistics passing. In addition to the aforementioned national examination, the Philippines has shown consistently abysmal performance in international surveys such as Trends in International Mathematics and Science Study (TIMSS). In 2003, only 34th out of 38 countries ranked the country in HS II Math and 43rd out of 46 in HS II Science. For elementary, fourth grade participants in both math and science ranked 23rd out of 25 countries. Our country stopped taking part in the survey in 2008, possibly after receiving such lackluster scores (Ambag, 2018).

1.2. Research Questions

This study aspires to answer the following questions:

1. How does the use of Strategic Intervention Material (SIM) affect the science achievement of 7th-grade students?
2. What are the perceptions of 7th-grade students toward learning science through SIM?
3. How does SIM influence students' engagement and participation in science lessons?

2. Research Design

This study used quasi experimental design, which is a pretest group that is not equivalent. The researcher used this design as the subjects of the study in a naturally assembled setting were seven grade students in science class at Flora A. Ylagan High School.

In addition, the researcher used a teacher-made multiple item test questions that covered the topics of waves as part of the third quarter coverage, based on the Department of Education's learning skills. The test questions were validated by experts or the master teachers in Science respectively.

The pre-test and post-test were designed to measure the academic achievement of seven grade students. The pre- test and post- test consist of a test of 50 items determined the students ' academic achievement in science concepts about waves.

The experimental group and the control group took twice the same test, pretest and posttest content. Prior to the treatment, the pretest was given to all subjects. The test was helpful in evaluating students ' prior knowledge about waves and testing the initial equivalence between groups.Furthermore, the results of the pre - test and post - test scores were analyzed and categorized using the following scale:

0 – **19.99%** - Very Poor
20 – **39.99%** - Poor
40 – **59.99%** - Satisfactory
60 – **79.99%** - Very Satisfactory
80 – **100%** - Outstanding

2.1. Sampling

The sampling of the study was primarily the two sections of Seventh Grade students handled by the researcher himself. These two sections were classified as homogeneous learners thus considered as good respondents of the study. Moreover, these two sections with an average of forty-five (45) students per class were categorized as control group and experimental group, respectively. These two groups both took a pretest. The control group was subjected to a traditional classroom setting while the experimental group utilized the SIM. After these treatments, the two groups took a posttest to measure the increase, if any, in terms of performance in both traditional setting and utilization of SIM.

2.2. Participants

The participants of the study were the current 7th Grade students of Flora A. Ylagan which were dealt with by the researcher himself to avoid class interruptions.

The number of participants were summarized in the table below:

Table 1

Number of Respondents of Experimental Group and Control Group

Respondents	
Experimental Group	Control Group
45 students	45 students
Total : 90 students	

The aforementioned 7th grade students classified as control and experimental groups, respectively. Both groups will take a pre-test

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and post-test to investigate the effectiveness of using SIM in teaching Science topics, especially the concepts about waves.

2.3. Data Collection Methods

The primary source of data was the teacher-made test provided by the researcher. It covered almost all topics of 7th Grade Science about the concepts of waves. Such a test intended to reveal students' understanding and comprehension in a traditional classroom setting, as well as the use of Strategic Intervention Material.

3. Literature Review

To have a successful classroom, each teacher needs supplies and resources. All useful objects in a classroom are to write utensils, paper, and inspiring wall signs, but they are not instructional materials. Instructional materials are the tools used in the lessons of education, including active learning and evaluation. Many of these are used in the classroom for evaluation, which determines the level of learning on any particular topic. For example, a unit can use various handouts or worksheets to see which students are getting it and which students are struggling with it (Janovsky, 2018).

Instructional materials are tools used to facilitate and make lessons more efficient. It is a resource that teachers will use to convey instructions. This will be created by the number of educational system teachers and experts. So for every teacher, it's the best reference. And instructional materials help to create a good teacher. It can provide a high degree of interest for a learner. It provides continuity for learning as well as a presentation of different theories of learning (Hayes, 2018).

Instructional materials are tools to assist in the construction of lessons. Teachers learn to make them work for their students with experience and adapt accordingly. Newer teachers tend to have trouble selecting high-leverage lessons with a purpose and finding random activities they believe will build understanding. Research - based and effective teaching materials can therefore set an example for strong lesson plans (Libre, 2018).

This study is based on the following theories; first, Vygotsky 's theory of social development, which states that social interaction profoundly affects cognitive development. The first step with any new student to build a set of goals. Goals enable a student to track and adjust their progress continuously. Small adjustments can be made considerably easier throughout the year than making the examination time a huge pivot come (or, as is common, after the results of the mock examination). This helps students feel more in control during examinations and reduces anxiety. Bandura's theory of social learning also reinforces this, suggesting that by observing, imitating, and modeling, people learn from each other. Through observation, imitation and modeling, people learn from each other. The theory has often been called a bridge between behavioral theories and cognitive learning, as it includes attention, memory and motivation. Finally, Bruner's theory of constructivism suggests that learning is a social process where students create new concepts based on current knowledge.

A major theme in Bruner's theoretical framework is that learning is an active process in which learners build on their current and past knowledge new ideas or concepts (Cullata, 2019).

It's all student effort. Engagement teaching is like constant tweeting with zero followers. Singing in a stadium empty. Dancing in the dark alone. We often use words and phrases such as student engagement, student - centeredness, curiosity, and so on — and these are all great. But a motivated student with zero technology, limited resources, and even a novice teacher will do better in a classroom of the 21st century than an apathetic student. (Heick, 2019).

The first step in building a set of goals with any new student. Goals allow a student to continuously track and adjust their progress. Small adjustments can be made considerably easier throughout the year than making a huge pivot come examination time (or, as is common, after mock examination results). This helps students feel more in control and reduces anxiety during examinations (Scott, 2017).

Instead of dictating a one-size-fits-all lesson plan to a passive student body, teachers find more creative ways to engage students. The relationship between reading, writing to students ' real-world experiences and giving them, wherever possible, a range of structured choices in their activities has the potential to foster autonomy and keep students investing in learning. In this context, collaborative projects with clearly defined objectives and small groups of no more than five can be a great way to teach collaboration and interpersonal skills while maintaining individual accountability, assigning a clear and substantial role to each student in completing the group task and evaluating students separately on the basis of individual and group performance (Gajowski, 2018).

Strategic Intervention Materials, popularly referred to as SIM in Philippine Education, is an educational material intended for the students to re-examine concepts or topics considered to be Least Mastered. The basic parts of which are: Reference & Enrichment Card, Guide Card, Activity Card, Assessment Card. SIMs are an apprenticeship kit for both teachers and students. Its objective is to promote the interest of students; to learn scientific concepts and skills; and to apply learned skills and concepts to real life situations (coursehero.com, 2017).

SIM or Strategic Intervention Material points to teaching aid initiated in teaching strategies to motivate and enhance the level of understanding of students ' activity. The use of SIM with the textbook and other learning materials will improve the learning of students (Ruiz, 2014).

Strategic Intervention Materials are designed and conceptualized to help teachers provide the support they need to advance their studies. These will increase and deepen the skills, knowledge and understanding of the child not only in science and mathematics, but also in various learning areas in the curriculum.

SIM can provide an opportunity to explore various ideas and concepts that enrich their understanding of the various topics that sharpen their abilities. In addition, strategic educational materials tend to draw lessons not so clear to the learners and help them gain mastery of the skills. The advantage of strategic intervention materials is not only the convenience and system of the teacher, but also the easy understanding of the learners (Rodrigo, 2015).

One helpful solution is to develop a Strategic Intervention Material (SIM). This is called strategic because teachers need to examine pupils ' performance in every learning area. For teaching and learning mediation, material for strategic intervention is used. This tool comes in a variety of ways to teach science intervention. It is believed that strategic intervention material is an effective strategic teaching aid for teachers to achieve learning goals. It is a module

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of puzzles, games, vivid illustrations, concept map for motivating and interesting students (De Garcia, 2015).

Strategic intervention materials, commonly referred to as SIM in Philippine Education, are teaching materials that reflect the concept or themes that students consider to be the least mastered. The basic features are: guide card, activity card, assessment card, enrichment card and reference card (Calonia, 2016).

The use of strategic intervention materials has contributed significantly to the mastery of scientific concepts and the development of scientific process skills, which is why science teachers should use or adopt SIMs to improve the performance of their students (Alboruto, 2017).

Strategic intervention materials (SIM) were known to improve performance in different schools and areas of learning. This claim has been demonstrated by several studies and different SIMs have been prepared for different learning areas and competences. However, some of these materials are not suitable for the kind of students in the locality (Plenos, 2017). The use of the SIMs has been effective in improving the least-learned competence of the physics learners. The increase in physics performance is highly determined by the introduction of SIM in the class (Hererra, 2016).

In this paper, experimental and control groups are included. In an experiment, the control group and the experimental group are compared. The only difference between the two groups is that in the experimental group the independent variable is changed. The independent variable in the control group is "controlled" or kept constant (Helmenstine, 2019).

Villonez (2018) on his study entitled "Use of SIM (Strategic Intervention Material) as a Strategy and Academic Achievement of Grade 7 Students on Selected Topics in Earth Science" Results of the study showed that the pretest and the post-test mean values of the experimental and control group in the subject eclipse differed significantly. A better average gain than the control group was achieved by the experimental group. A better average gain than the control group was achieved by the experimental group. This indicates significantly improved student performance by using strategic intervention materials (SIM) in the experimental group. It can be concluded that after the lesson was taught by SIM, the performance of students in the experimental group was greatly improved. Therefore, the use of SIM was better and more efficient in teaching certain subjects in science than the use of traditional methods. It was also recommended that SIM be used in the teaching of science and other subjects as a teaching material or strategy.

This study of Villonez is related to the current study because both studies consider grade seven students as respondents. The difference is only the choice of the topic.

Dacumos (2016) showed that teachers have different perspectives on SIM integration in his study entitled "Perspective of Secondary Teachers in the Use of Science Strategic Intervention Material (SIM) in Increasing Student Learning Proficiency in Science Education." These views influenced their use of SIM in the classroom, especially as a tool for abbreviation and re-teaching during remediation sessions. They believe that SIM will promote autonomous learning and enhance memory among students to enhance their performance in understanding many complicated concepts and skills in science. However, despite these benefits, teachers face obstacles in preparing and implementing the SIM properly.

This study of Dacumos is related to the present study because it considers varied topics in Science while the latter only considers the concepts of waves.

The difference is that the perception of teachers are taken into consideration while the present was mainly the perception of grade seven students.

Banaag (2018) in her thesis study "Using Strategic Intervention Material to Improve Academic Performance of Students in Social Studies," stated that the students ' performance in the Strategic Intervention Material - based scores was satisfactory and very satisfactory, and that there was a significant difference between the students ' pre- and post - test scores. It was concluded that strategic material is useful to reduce the least learned topics while improving the students' performance.

This study of Banaag is related to the present to the current study for both studies aim to improve academic performance of the students. The only difference is that the SIM of Banaag is used in Social Studies subject while the current study will be used in Science subject.

Cubilllas (2018) in her thesis study entitled "Development and Validation of Strategic Intervention Materials (SIMs) in Teaching Elementary English 4-Content Validation," considered developmental as it has undergone three phases, namely: planning, development and validation. The study's respondents were the experts in content. The aspects of the materials considered "satisfactory" by the experts are then recommended to be improved. Teachers may also develop more strategic intervention materials to address the lesser-learned skills of the pupils for other subject areas, and a similar study may be conducted elsewhere covering a larger number of respondents.

4. Data Analysis

Problem 1. Academic profile of grade seven students in Science in the third quarter

The grade seven students ' academic profile in Science in the respondents' third quarter was reflected on their report card. In particular, the researcher studied and collected these grades and summarize them in Table 2 below.

Table 2

Academic Profile of Grade Seven Student Respondents

Grading Scale/Descriptors	Respondents	
	f	%
90-100 (Outstanding)	0	0.00
85-89 (Very Satisfactory)	2	2.22
80-84 (Satisfactory)	42	46.67
75-79 (Fairly Satisfactory)	46	51.11
Below 75 (Did not meet expectation)	0	0.00
Total	90	100.00
Mean	79.56 (Satisfactory)	

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Based on Table 2, 46 or 51.11 percent of respondents had a 75-79 grade scale with a fairly satisfactory descriptor. This was followed by 42 or 46.67% of respondents with an 80-84 grade scale and a satisfactory descriptor, respectively. Only 2 or 2.22% of respondents had an 85-89 grade scale with a very satisfactory descriptor. It was interesting to note that none of the respondents obtained the lowest and highest-grade scale below 75 and 90-100 or did not meet expectations and outstanding with descriptors. The study respondents were found to be categorized as satisfactory learners with a mean grade of 79.56 by getting the mean grade of the respondents.

As Heick (2019) generalized, academic performance is the effort of all students. In a 21st century classroom, a motivated student with zero technology, limited resources, and even a novice teacher did better than an apathetic student.

2. Significant difference in the pretest mean score of the students in the control group and experimental group

Pre -test results were indicators of what the students knew about pre - instruction lessons to be taught. The pre - test result is shown in Table 2.

Table 2 shows the students ' rough scores in the 50-item test. It could be observed that the experimental and control groups had the preponderance of the same scores ranging from 15-19, approximately 44.44% for both the experimental and control groups. For experimental and control groups, respectively, the next largest frequencies of 13 and 14 were in the 20-24 ranges.

Two students who made up 4.44 percent of the experimental group obtained the highest score of 29, which was 58 percent of the number of items. In addition, a single student or 2.22 percent of the control group obtained that score range. However, most or 96 percent of the group had obtained less than 50 percent of the items and may be considered not to have enough knowledge of the wave lessons.

The experimental group's lowest scores were in the range of 5-9 obtained by 4.44%, while those in the control group were 17.78% in the same range as well.

The distribution yielded an average of 17 items, indicating that 34 percent of the 50-item tests were correctly answered by those in the control group, whereas an average of 18 or 36 percent of the 50-item test was the correct experimental group.

Table 3

Results of Pre-test of Experimental Group and Control Group

Scores	Experimental Group		Control Group	
	F	%	f	%
30-34	0	0.00	0	0.00
25-29	2	4.44	1	2.22
20-24	13	28.89	14	31.11
15-19	20	44.44	20	44.44
10-14	8	17.78	2	4.44
5-9	2	4.44	8	17.78
Total	45	99.99	45	99.99
Mean	17.56		16.78	
Standard Deviation	4.48		5.35	

Based on the acquired standard deviation, respectively 4.48 and 5.35 in experimental and control groups, it could be assumed that the scores of the control group students were slightly more dispersed than the control group scores. Obviously, only two intervals concentrated the higher frequencies in the latter.

The standard deviation brought the interval of the highest frequencies at 10 - 24 for the experimental group. Such interval was at 15 - 24 for the control group.

The T-Test was used to determine whether the pre-test scores of the experimental and control groups differed significantly. Table 4 showed the data.

Table 4

Result of the t-test on the Pre-test

	Experimental Group	Control Group
N	45	45
X	17.56	16.78
Ñ	4.48	5.35
Computed value of t	0.72	
Critical value of t	$t_{(99,0.05)}$ 1.984	

Table 4 showed that the calculated value of t at 0.72 was lower than the critical value of 1.984 at a meaning and freedom level of 5 %. The null hypothesis was therefore accepted, which means that there was no significant difference between the means of two groups. The average of the experimental group was 0.78 point above the average control group. In claiming that the performance of the experimental group was better than the control group, this difference was not statistically significant. It was implied that between what the groups knew about waves there was no significant difference. The two groups were therefore appropriate experimental choices.

3. Significant difference between the pre-test and post-test mean score of the students in the control group and experimental group

The performance of the two groups were summarized in Table 5.

Table 5

Result of the Pre-test and Post-test of the Experimental Group Taught Using Strategic Intervention Materials (SIM)

Scores	Pre-test		Post-test	
	f	%	f	%
30-34	0	0.00	2	4.44
25-29	2	4.44	20	44.44
20-24	13	28.89	10	22.22
15-19	20	44.44	9	20.00
10-14	8	17.78	4	8.89
5-9	2	4.44	0	0.00
Total	45	99.99	45	99.99

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Mean	17.56	22.78
Standard Deviation	4.48	8.55

Visibly, the table showed a remarkable improvement in scores from 17.56 to 22.78, a 5.22-point increase. The highest post-test frequency was in the 15-19 range obtained by the 20 students or 44.44 percent of the class. On the other hand, the highest frequency in the post-test was in the range25-29 that 20 students or 44.44 percent of the class gained.

In addition, 4.44 percent of the class, or those in the pre - test who got the score ranging from 5 - 9, were scattered leaving the score range dropping to zero in the post - test. It was also noticeable that the highest score range of 35 - 39 was achieved by 2 students or 4.44 percent of the class.

Table 6

Result of the Pre-test and Post-test of the Control Group Taught Using Traditional Approach

Scores	Pre-test		Post-test	
	f	%	f	%
30-34	0	0.00	1	2.22
25-29	1	2.22	8	17.78
20-24	14	31.11	16	35.56
15-19	20	44.44	9	20.00
10-14	2	4.44	10	22.22
5-9	8	17.78	1	2.22
Total	45	99.99	45	100.00
Mean	16.78		19.56	
Standard Deviation	5.35		5.72	

There was a sudden drop in scoring frequency ranging from 5 - 9 to 15 - 19. It was obvious that the scores ranging from 10 - 14, 20 - 24 25 - 29, and 30 - 34 were scattered among the students who gained an improved performance for those frequencies. It was interesting to note that one student or 2.22 percent of the class exceeded the rest by obtaining a score ranging from 30-34 which was remarkable for the higher scorer in the pre-test range of only 25-29. It revealed that some students might have enjoyed the subject on waves that had been translated into learning the subject. The standard deviation increased from 5.35 to 6.41, indicating a higher scoring spread due to the increase in the highest score and the same lowest score.

Small adjustments could be made considerably easier throughout the year as stated by Scott (2017) than making an enormous pivot come exam time (or, as is common, after the results of the mock exam). This helped students feel more in control during examinations and reduces anxiety. The results of the pre-test and post-test might determine how students adjusted the lesson in particular.

4. Significant difference in the post-test mean score of the post-test mean score of the students in the control group and experimental group

The performances of the two groups were summarized in the table below:

Table 7

Performance of the Two Groups After Instruction Focusing on their Post-test Scores

	Experimental Group	Control Group
N	45	45
D	5.22	2.78
S_D	3.52	4.07
Computed value of t	6.74	9.38
Critical value	1.676	1.676

The table showed the sample size for both experimental and control groups of 45 students. In addition, the mean difference in scores from the pre-test to the post-test was 5.22 and 2.78. The calculated value of t for the experimental group was 6.74 and the control group was 9.38 higher than the critical value of 1.676. The result led to the null hypothesis being rejected. It could be inferred that both groups learned to teach wave concepts using the Materials of Strategic Intervention and Traditional Approach.

As Cullata (2019) reiterated on Bandura's theory of social learning, by observing, imitating, and modeling, people learn from each other. Through observation, imitation and modeling, people learned from each other. The theory was often referred to as a bridge between cognitive learning and behavioral theories because it included attention, memory, and motivation. Comparing student test scores between pre-test and post-test might increase as students worked together and interacted with their classmates while the teacher facilitated the whole process.

Problem 5. Significant difference between the mean gain score of the students in the control group and experimental group.

The comparative efficacy of the two teaching approaches using strategic intervention materials and traditional approach could be seen by the difference in experimental and control group post-test results. The scores in the post-test were subjected to statistical treatment if they are significantly different or not.

Table 8

Result of the Post-test of the Experimental Group and the Control Group

Scores	Experimental Group		Control Group	
	f	%	f	%
30-34	2	4.44	1	2.22
25-29	20	44.44	8	17.78
20-24	10	22.22	16	35.56
15-19	9	20.00	9	20.00
10-14	4	8.89	10	22.22
5-9	0	0.00	1	2.22
Total	45	99.99	45	100.00
Mean	22.78		19.56	
Standard	8.55		5.72	

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Deviation		

The data in Table 5 showed that the score range with the highest frequency in the experimental group is 25-29 or 44.44 percent of the class, whereas the control group with 35.56 percent of the students had the highest score range at 20-24. It was also visible that 4.44% of the experimental group had the highest score range from 30-34, while 2.22% of the control group also had the highest range. It can be inferred from the experimental group that the top scorers were specifically from. Such scoring distributions in the experimental group resulted in a higher mean than in the control group. Due to the predominance of higher frequencies in both groups at the same intervals, their standard deviations showed a greater spread of scores in the experimental group.

Figure 6

Graph of the Post-test of Experimental Group and Control Group

The graph showed that the highest bar was in the range 25-29, indicating the highest frequency of scores for the experimental group, while the control group was in the score range 20-24. It can also be observed that the experimental group scores were higher than the control group from the 25-29 and above score range except for the 15 - 19 score range, however, both groups had the same score frequency.

Table 9

Results of the t-test on the Post-test of the Experimental and Control Groups

	Experimental Group	Control Group
N	45	45
X	22.78	19.56
S	8.55	5.72
Computed value of t	2.10	
Critical value of $t_{(99,0.05)}$	1.984	

The table clearly showed the calculated value of t being 2.10 and a critical value of t being 1.984 for the degree of freedom of 99 at the meaning level of 5 percent. The null hypothesis was therefore rejected. The t-test result showed that the Strategic Intervention Materials was a more effective approach than the traditional approach to teaching wave concepts.

As Janovsky (2018) had stated, instructional materials were the tools used in education lessons, including active learning and assessment. Many of these were used for evaluation in the classroom, which determined the learning level on any specific topic. For instance, a unit used different handouts or worksheets to see which students got it and which students struggled with it.

The use of Strategic Intervention Materials or SIM therefore greatly improved the test scores of the student. Ruiz (2014) also supported SIM or Strategic Intervention Material pointing to teaching aid initiated in teaching strategies to motivate and enhance students ' activity's level of understanding. Using SIM with the textbook and other learning materials enhanced student learning.

Strategic intervention materials can be used to teach certain topics in Grade 7 Science because it had some advantages. The set-up provided teachers with a more positive attitude towards their students. In addition, using SIM motivated students to develop their critical thinking skills and apply learned concepts in situations of real life.

It can then be inferred that it had been found that using SIM was a better approach to teaching wave concepts. However, administering a pre-test prior to instruction was always recommended. However, it should not be overlooked that some students were also taught using traditional approach to obtain an increase in their scores. The students ' analytical skills must be considered whatever approach to teaching was applied.

5. Conclusion

It is clear now to say that the integration of Strategic Intervention Materials in teaching 7th Grade Science in the Philippines can de facto serve as a powerful tool to bridge learning gaps, enhance comprehension, and nurture a deeper appreciation for scientific concepts. It must be noted that targeted, engaging, and learner-centered resources, SIM can truly empowers students to take an active role in their own learning journey, making science not just a subject to study, but a process to experience. In a context where diverse learning abilities, limited resources, and varying educational backgrounds often challenge classroom instruction, SIM offers an innovative, practical, and adaptable solution.

The use of SIM is eventually not merely about addressing academic deficiencies—it is about fostering curiosity, critical thinking, and problem-solving skills that will serve students well beyond the classroom. When thoughtfully designed and soundly applied, Strategic Intervention Materials can profoundly transform science education into a meaningful and life-changing experience, equipping Filipino 7th Grade students with the knowledge, skills, and mindset to thrive in a rapidly changing, science-driven world.

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