International Journal of Multidisciplinary Research and Publications
ISSN (Online): 2581-6187

Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method

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***Abstract*—** *The study investigated the effectiveness of improving students' participation and performance in science remedial classes through targeted instructional method. Specifically, it aimed to determine the level of targeted instructional method, the level of Students' Participation, the level of Student Performance. Also, the significant relationship between targeted instructional method and student participation and a significant difference in the student's performance. The study was carried out in the school year 2024–2025 Bukal Elementary School, Majayjay Sub- Office, Division of Laguna. In this study, the data of selected eighty students from grades three, four, five and six were collected and processed using a descriptive research approach design. This research utilized a quantitative-descriptive design to assess the effectiveness of targeted instructional methods in improving participation and performance among students enrolled in science remedial classes. The participants included in this study were eighty (80) selected students from Grades Three, Four, Five and Six at Bukal Elementary School, Majayjay Sub-Office during the school year 2024–2025. These students were identified as struggling learners in science based on their academic participation and performance. Based on the evaluation of the respondents, The results indicate that targeted instructional methods were implemented at a very high level except for adaptive learning which indicates high level. Also, the level of Students' participation in collaboration and task completion are all very high while effective and focus and self-imitated learning are all in high level. Based on the evaluation, students demonstrated a very satisfactory level of performance in the formative assessment, while in the performance in the summative assessment was rated as outstanding. Based on the result of the data computed it was found out that there is a significant relationship between the targeted instructional method and students' participation. Moreover, it was also found out that there is there is a significant difference in students' performance across formative assessment and summative assessment. Based on the finding of the study, the following conclusions were drawn. There is a significant relationship between the targeted instructional method and students' participation thus, rejected for feedback reinforcement, leading to the rejection of the first hypothesis as it showed a significant correlation with all aspects of participation. Also, there is a significant difference in students' performance across formative assessment and summative assessment, thus the second hypothesis is also rejected. The results showed that students performed well across all assessment types, with a significant differences in their scores. Based on the results and conclusion posted in the study, the recommendation was formulated. School administrator should integrate targeted instructional methods, particularly feedback reinforcement and data-driven approaches, to equip students with problem-solving skills, adaptability, and collaboration essential qualities for a dynamic and evolving workforce.*

***Keywords*—** *Students' Participation; Remedial Classes; Targeted Instructional Method.*

I. INTRODUCTION

One of the primary objectives of the education system is to ensure that no student is left behind. However, as teachers, we cannot always guarantee that every student will immediately grasp all learning competencies, particularly in subjects like science, where concepts can be challenging to understand. Recognizing this, the education system mandates that any learner who receives a grade lower than 75 in any subject must undergo intervention through remedial classes. These remedial sessions provide additional support, helping students strengthen their understanding and improve their academic performance. Successful completion of remedial classes is required for students to progress to the next grade level. This approach ensures that learners receive the necessary guidance to meet academic standards and promote fairness and inclusivity in education.

Science education plays a critical role in fostering analytical thinking and problem-solving skills among students. However, many learners struggle with science subjects, leading to poor participation, performance, and low engagement in remedial classes. Remedial programs are designed to provide additional support to students who have difficulties grasping key concepts, yet their effectiveness often depends on the instructional methods used. Traditional teaching approaches in remedial science classes may not adequately address students' diverse learning needs, resulting in persistent academic challenges. Locally, researchers have documented that science remedial classes, while necessary, often lack effectiveness due to a one-size-fits-all approach (Bautista & Capili, 2020).

This study explores the effectiveness of targeted instructional methods in enhancing student participation and performance in science remedial classes. Targeted instruction involves differentiated teaching strategies that cater to individual learning styles, ensuring that students receive personalized support. By implementing interactive teaching techniques, hands-on activities, and adaptive learning approaches, educators can create an engaging learning environment that fosters better understanding and retention of scientific concepts. For instance, studies in the U.S. highlight the effectiveness of personalized and differentiated learning

Rhonabel Samson Borgoños, "Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 7, Issue 12, pp. 256-262, 2025.

approaches in boosting student motivation and understanding (Tomlinson, 2017; Darling-Hammond et al., 2020).

The research aims to assess the effectiveness of targeted instructional methods by analyzing student participation levels and academic performance. The findings will provide insights into how educators can optimize remedial programs to improve learning outcomes. Ultimately, this study seeks to contribute to the development of more effective science remedial teaching strategies that can bridge learning gaps and enhance student success.

1.1 Statement of the Problem

Specifically, it seeks to answer the following questions:

1. What is the level of targeted instructional method in terms of:

1.1. Adaptive Learning;
1.2. Data Driven;
1.3. Feedback Reinforcement;
1.4. Personalization; and
1.5. Skill Building?

2. What is the level of Students' Participation in terms of:

2.1. Collaboration;
2.2. Effectiveness and focus;
2.3. Self-imitated learning; and
2.4. Task completion?

3. What is the level of Student Performance in terms of:

3.1. Formative Assessment; and
3.2. Summative Assessment

4. Is there a significant relationship between targeted instructional methods and student participation?

5. Is there a significant difference in the performance of the students?

II. Methodology

This research utilized a quantitative-descriptive design to assess the effectiveness of targeted instructional methods in improving participation and performance among students enrolled in science remedial classes. This study employs a quantitative descriptive research design, which aims to systematically describe a population, situation, or phenomenon through numerical data and statistical analysis. According to Polit and Beck (2018), descriptive research is designed to gain more information about characteristics within a particular field of study, providing a picture of situations as they naturally occur without manipulation.

For the quantitative component the following methods was included: survey research, Likert-scale measurements, and for the statistical analysis, descriptive and inferential statistics will be employed. The quantitative approach was used to gather measurable data. This approach helped the research achieve its goal in determining the effectiveness of targeted instructional methods in improving participation and performance among students enrolled in science remedial classes.

III. Results and Discussion

This chapter presented the different results and discussed the results from treating the data gathered in this study. All specific questions in Chapter 1 under the statement of the problem were answered in this chapter supported by tables. It presents the data gathered about the significant relationship between targeted instructional method and Students' Participation. In particular, the study sought to address the following:

Level of targeted instructional method

In this study, the level of targeted instructional method refers to Adaptive Learning, Data Driven, Feedback Reinforcement, Personalization**,** and Skill Building.

The following tables show the statement, mean, standard deviation. remarks and verbal interpretation from the perspectives of respondents.

TABLE 1. Level of Targeted Instructional Method in Terms of Adaptive Learning

Statements	Mean	SD	Remarks
1. The teacher adjusts the level of difficulty in science lessons based on students' progress.	3.88	0.75	Often
2. The teacher modified science activities if students find the content too challenging or too easy.	4.08	0.57	Often
3. The teachers teaching approach changes in response to individual student performance in real-time.	4.35	0.68	Always
4. The teacher use assessments to guide adaptive learning strategies during science instruction.	4.19	0.62	Often
5. The pace of science lessons of the teacher varies depending on students' mastery of the material.	4.48	0.55	Always
Weighted Mean	**4.19**		
SD	**0.67**		
Verbal Interpretation	**High**		

As presented in Table 1, there is a high level of targeted instructional method in terms of Adaptive Learning, with a weighted mean of M = 4.19, and SD = 0.67. This implies that teachers frequently adjust their instructional strategies based on students' progress, ensuring that learning activities are appropriately challenging and responsive to individual needs.

There is strong agreement that teachers modify science activities when students find the content too easy or too difficult. Additionally, the varying pace of science lessons based on students' mastery of the material ensures that learners receive instruction tailored to their competencies. The real-time adjustments in teaching approaches further reinforce an adaptive learning environment, allowing students to engage with the content at an optimal level.

This implies further that the implementation of adaptive learning strategies enhances instructional effectiveness by addressing diverse learning paces and abilities. By utilizing assessments to guide instruction, teachers can create a more student-centered learning experience, fostering better comprehension and engagement.

As presented in Table 2, there is a very high level of targeted instructional method in terms of Data-Driven

Rhonabel Samson Borgoños, "Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 7, Issue 12, pp. 256-262, 2025.

Instruction, with a weighted mean of M = 4.25, SD = 0.68. This indicates that teachers consistently use assessment data to refine their teaching strategies, ensuring that lessons are aligned with students' strengths and areas for improvement.

TABLE 2. Level of Targeted Instructional Method in Terms of Data Driven

Statements	Mean	SD	Remarks
1.The teacher use assessment data to adjust teaching strategies in science remedial classes.	4.45	0.55	Always
2.The teacher prepare data from students' previous performances that helps inform the activities and materials.	4.30	0.72	Always
3.The teacher regularly analyze students' assessment scores to identify individual learning needs.	4.19	0.73	Often
4.Science lessons are designed based on the assessment data of students' strengths and weaknesses.	3.99	0.61	Often
5.The teacher modify instructional approaches based on real-time feedback during science classes.	4.35	0.71	Always
Weighted Mean		**4.25**	
SD		**0.68**	
Verbal Interpretation		**Very High**	

Data-driven decision-making, according to popular opinion, makes it possible to identify individual learning needs, which in turn leads to better instructional modifications. The regular analysis of assessment scores ensures that science lessons are structured based on students' performance trends, making the learning process more targeted and efficient. Additionally, modifying instructional approaches based on real-time feedback helps in addressing immediate learning gaps.

Additionally, this suggests that data-driven instruction greatly improves the quality of science education by encouraging evidence-based teaching strategies. The strategic use of assessment data allows teachers to personalize learning experiences, optimize lesson effectiveness, and ensure that students receive appropriate support to improve their academic performance.

TABLE 3. Level of Targeted Instructional Method in Terms of Feedback Reinforcement

Statements	*Mean*	*SD*	*Remarks*
1.The teacher provides immediate feedback to students on their performance in science activities.	4.25	0.52	Always
2.Students receive positive reinforcement from the teacher to encourage participation in science class.	4.31	0.69	Always
3.Constructive feedback is given to students to help them improve on specific science skills.	4.38	0.70	Always
4.The teacher discusses students' strengths and areas for improvement regularly during science class.	4.23	0.62	Always
5.The teacher provides feedback on students' performance in a way that boosts their confidence and encourages them to participate.	4.35	0.68	Always
Weighted Mean		**4.30**	
SD		**0.64**	
Verbal Interpretation		**Very High**	

As presented in Table 3, there is a very high level of targeted instructional method in terms of Feedback Reinforcement, with a weighted mean of M = 4.30, SD = 0.64. This indicates that teachers consistently provide immediate and constructive feedback to students, reinforcing their learning and fostering a supportive classroom environment.

There is strong agreement that teachers regularly offer positive reinforcement, encouraging student participation in science activities. The provision of constructive feedback helps students refine specific science skills, ensuring that they receive targeted guidance for improvement. Furthermore, discussing students' strengths and areas for development promotes self-awareness and motivation, enabling them to take an active role in their learning process.

This implies further that effective feedback reinforcement enhances students' confidence and engagement in science learning. By providing timely and meaningful feedback, teachers create an environment where students feel supported in their academic growth. The continuous cycle of feedback and encouragement fosters a positive learning atmosphere, improving student performance and participation.

TABLE 4. Level of Targeted Instructional Method in Terms of Personalization

Statements	*Mean*	*SD*	*Remarks*
1.Science lessons are tailored to the unique learning needs of each student.	4.21	0.69	Always
2.The teacher provide additional resources or tasks based on each student's comprehension level.	4.14	0.59	Often
3.Students receive different activities in science class depending on their current understanding.	4.21	0.77	Always
4.Instruction in remedial science is adjusted to address students' specific areas of difficulty.	4.23	0.69	Always
5.The teacher considers each student's progress and interests when creating lesson plans.	4.36	0.68	Always
Weighted Mean		**4.23**	
SD		**0.69**	
Verbal Interpretation		**Very High**	

As presented in Table 4, there is a very high level of targeted instructional method in terms of Personalization, with a weighted mean of M = 4.23, SD = 0.69. This suggests that science instruction is consistently tailored to meet the individual learning needs of students, ensuring that lessons are adapted based on their progress and comprehension levels.

There is strong agreement that teachers design science lessons to accommodate the diverse learning abilities of students. The provision of additional resources and differentiated activities allows learners to engage with content at their own pace, fostering a more inclusive and effective learning environment. Furthermore, adjustments in remedial science instruction ensure that students receive targeted support in areas where they face difficulties.

This implies further that personalized instruction enhances students' academic development by catering to their unique needs and interests. By considering individual progress and learning styles when planning lessons, teachers create a more student-centered approach that promotes deeper understanding, greater engagement, and improved performance in science education.

As presented in Table 5, there is a very high level of targeted instructional method in terms of Skill Building, with a

Rhonabel Samson Borgoños, "Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 7, Issue 12, pp. 256-262, 2025.

weighted mean of M = 4.23, SD = 0.64. This indicates that science instruction strongly emphasizes the development of essential skills needed for student improvement.

TABLE 5. Level of Targeted Instructional Method in Terms of Skill Building

Statements	*Mean*	*SD*	*Remarks*
1. remedial classes emphasize essential skills needed for student improvement.	4.38	0.51	Always
2.The teacher incorporate activities that develop students' foundational science skills.	4.14	0.59	Often
3.Targeted instruction includes practice on specific science skills that students struggle with.	4.21	0.72	Always
4.Students are given opportunities to build practical skills relevant to science topics.	4.13	0.66	Often
5.The teacher incorporates skill-building exercises as an integral part of daily lessons in science remedial classes.	4.31	0.69	Always
Weighted Mean	**4.23**		
SD	**0.64**		
Verbal Interpretation	**Very High**		

There is strong agreement that science remedial classes focus on foundational skill-building, ensuring that students receive ample opportunities to practice and refine their scientific abilities. Teachers integrate activities that target specific skills students struggle with, providing structured support to enhance their learning. Additionally, the inclusion of practical skill-building exercises in daily lessons helps students apply their knowledge in meaningful ways.

This implies further that a strong emphasis on skill development fosters students' confidence and competence in science. By incorporating targeted instructional strategies that build essential and practical science skills, teachers create an environment that promotes deeper understanding, active engagement, and sustained academic progress.

Level of Students' Participation

In this study, the level of Students' Participation refers to Collaboration, Effectiveness and focus, Self-imitated learning, and Task completion.

The following tables show the statement, mean, standard deviation, remarks and verbal interpretation from the perspectives of respondents.

TABLE 6. Level of Students' Participation in Terms of Collaboration

Statements	**Mean**	**SD**	**Remarks**
1.Students participate in group discussions and share their ideas in science activities.	4.38	0.54	Always
2.Students help each other understand difficult science concepts during group work.	4.08	0.63	Often
3.There is a strong sense of teamwork among students in science remedial classes.	4.11	0.76	Often
4.Students willingly engage in collaborative tasks with peers during science class.	4.10	0.61	Often
5.Group projects are completed effectively due to student cooperation.	4.39	0.61	Always
Weighted Mean	**4.21**		
SD	**0.63**		
Verbal Interpretation	**Very High**		

As presented in Table 6, there is a very high level of students' participation in terms of Collaboration, with a weighted mean of M = 4.21, SD = 0.63. This indicates that students actively engage in group discussions and cooperative activities in science classes, contributing to a collaborative learning environment.

There is strong agreement that students participate in group discussions and share their ideas during science activities. The presence of teamwork in science remedial classes allows students to support one another in understanding difficult concepts. Furthermore, the willingness of students to collaborate in group tasks enhances the effectiveness of their projects,

fostering a sense of cooperation and shared responsibility.

This implies further that collaboration plays a significant role in enhancing students' learning experiences. By working together, students develop communication and problem-solving skills while reinforcing their understanding of science concepts. A collaborative environment encourages teamwork, critical thinking, and active engagement in the learning process.

TABLE 7. Level of Students' Participation in terms of Effectiveness and focus

Statements	***Mean***	***SD***	***Remarks***
1.Students remain focused and actively participate in science remedial classes.	4.24	0.62	Always
2.Students consistently pay attention to instructions and discussions during class	4.16	0.72	Often
3.Students demonstrate an understanding of the material by responding to questions.	4.21	0.71	Always
4.There is minimal disruption or distraction among students during science lessons.	4.00	0.73	Often
5.Students are engaged in all class activities and follow the instructions provided.	4.15	0.66	Often
Weighted Mean	**4.15**		
SD	**0.69**		
Verbal Interpretation	**High**		

As presented in Table 7, there is a high level of students' participation in terms of Effectiveness and Focus, with a weighted mean of M = 4.15, SD = 0.69. This indicates that students demonstrate strong attention and engagement during science remedial classes.

There is strong agreement that students remain focused and actively participate in lessons, ensuring that they grasp the material being discussed. Their ability to follow instructions and respond to questions reflects their understanding and attentiveness. Although minimal distractions occur, students generally maintain their engagement in class activities, contributing to a productive learning atmosphere.

This implies further that maintaining focus and active participation enhances students' learning outcomes. Students may learn and retain scientific concepts more effectively by reducing distractions and maintaining focus. An environment that promotes concentration and active involvement ultimately leads to better comprehension and academic performance.

As presented in Table 8, there is a high level of students' participation in terms of Self-Initiated Learning, with a weighted mean of M = 4.16, SD = 0.72. This indicates that students exhibit initiative in exploring science concepts beyond the classroom, although with varying levels of consistency.

There is strong agreement that students ask questions to deepen their understanding of science topics. Additionally,

Rhonabel Samson Borgoños, "Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 7, Issue 12, pp. 256-262, 2025.

they show interest in seeking extra resources and participating in supplementary science activities. While some students take the initiative to explore beyond the curriculum, there is room for further encouragement to develop independent learning habits more consistently.

Table 8. Level of Students' Participation in Terms of Self-imitated Learning

Statements	Mean	SD	Remarks
1.Students seek additional resources or clarification on science topics independently.	3.94	0.60	Often
2.Students ask questions to better understand the science concepts being taught.	4.26	0.74	Always
3.There is evidence of student initiative to learn more about the science topics discussed.	4.16	0.82	Often
4.Students volunteer to participate in extra science activities or assignments.	4.11	0.71	Often
5.Students show interest in exploring science concepts beyond what is covered in class.	4.34	0.65	Always
Weighted Mean		**4.16**	
SD		**0.72**	
Verbal Interpretation		**High**	

This implies further that fostering self-initiated learning can enhance students' curiosity and motivation to explore science beyond structured lessons. Encouraging students to seek additional knowledge and resources can lead to a more inquiry-driven learning experience, promoting lifelong learning skills.

TABLE 9. *Level of Students' Participation in Terms of Task Completion*

Statements	***Mean***	***SD***	***Remarks***
1.Students complete their science assignments within the allotted class time.	4.18	0.59	Often
2.Assigned science tasks are consistently completed by students without delay.	4.48	0.66	Always
3.Students demonstrate accountability by finishing their science activities regularly.	4.05	0.73	Often
4.There is a high rate of task completion among students in science remedial classes.	4.26	0.67	Always
5.Students complete both individual and group tasks promptly in science class.	4.16	0.60	Often
Weighted Mean		**4.23**	
SD		**0.66**	
Verbal Interpretation		**Very High**	

As presented in Table 9, there is a very high level of students' participation in terms of Task Completion, with a weighted mean of M = 4.23, SD = 0.66. This indicates that students generally complete their assigned science tasks on time and demonstrate accountability in fulfilling their academic responsibilities.

There is strong agreement that students consistently complete their science assignments within the allotted time and demonstrate responsibility in finishing their activities. A high rate of task completion suggests that students are committed to meeting academic expectations, whether working individually or collaboratively.

This implies further that students' ability to complete tasks efficiently contributes to their academic success. By maintaining a high level of accountability and responsibility, students develop discipline and work ethic, which are essential for their overall learning progress.

Level of Students' Performance

In this study, the level of Students' Performance refers to Formative Assessment and Summative Assessment.

The following tables show the statement, mean, standard deviation. remarks and verbal interpretation from the perspectives of respondents.

TABLE 10. Level of Students' Performance in terms of Formative Assessment

Score	Assessment		Descriptive Equivalent
	F	%	
41 – 50	24	*30.00*	Outstanding
31 – 40	49	*61.25*	Very Satisfactory
21 – 30	7	*8.75*	Satisfactory
11 – 20	0	*0.00*	Fairly Satisfactory
0 – 10	0	*0.00*	Did not meet Expectation
Total	**80**	***100***	
Weighted Mean	***36.96***		
SD	***5.245***		
Verbal Interpretation	***Very Satisfactory***		

The findings in Table 10 indicate that the level of students' performance in terms of Formative Assessment is very satisfactory, as reflected in the weighted mean score (M = 36.96, SD = 5.245). These results highlight the students' strong grasp of the subject matter, as demonstrated through their assessment scores.

A majority of students (61.25%) achieved a Very Satisfactory rating, while 30.00% reached the Outstanding level, indicating a high level of competency in the assessed topics. Meanwhile, 8.75% of students performed at the Satisfactory level. Notably, no students fell under the Fairly Satisfactory or Did Not Meet Expectation categories, demonstrating the effectiveness of the instructional approach. The fact that the standard deviation value shows that student performance was fairly consistent throughout the cohort is evidence of this.

Overall, these results implied that students have a strong foundational understanding of the concepts assessed in formative evaluations. Their very satisfactory performance reflects both effective instructional strategies and the impact of supplementary learning materials, which support comprehension and reinforce key concepts.

TABLE 11. Level of Students' Performance in terms of Summative Assessment

Score	Assessment		Descriptive Equivalent
	F	%	
41 – 50	50	*62.50*	Outstanding
31 – 40	30	*37.50*	Very Satisfactory
21 – 30	0	*0.00*	Satisfactory
11 – 20	0	*0.00*	Fairly Satisfactory
0 – 10	0	*0.00*	Did not meet Expectation
Total	**80**	***100***	
Weighted Mean	***41.35***		
SD	***4.041***		
Verbal Interpretation	***Outstanding***		

As demonstrated by the weighted mean score (M = 41.35, SD = 4.041), the results in Table 11 show that the students' level of performance in terms of summative assessment is exceptional. These results highlight the students' strong

Rhonabel Samson Borgoños, "Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 7, Issue 12, pp. 256-262, 2025.

mastery of the subject matter, as demonstrated through their high summative assessment scores.

A significant majority of students (62.50%) achieved an Outstanding rating, while 37.5% attained a Very Satisfactory level. Notably, no students scored within the Satisfactory, Fairly Satisfactory, or Did Not Meet Expectation categories, indicating a high level of comprehension and retention of the material. The relatively low standard deviation suggests minimal variation in performance, signifying that most students consistently excelled in the summative assessment.

Overall, these results imply that students have achieved a deep understanding of the concepts assessed, demonstrating strong retention, application, and problem-solving skills. Their outstanding performance reflects the effectiveness of instructional methods which enhance comprehension and reinforce key concepts.

Test of Relationship between the targeted instructional method and the Students' Participation

To test the significant relationship between the targeted instructional method and the Students' Participation in terms of Collaboration, Effectiveness and focus, Self-imitated learning, and Task completion they were treated statistically using Real Statistics Data Analysis Tools using the Pearson product moment correlation coefficient.

TABLE 12. Significant Relationship between the Targeted Instructional Method and the Students' Participation

Targeted instructional method		Students' Participation			
		Collaboration	Effectiveness and focus	Self-imitated learning	Task completion
Adaptive Learning	Pearson Correlation Significance (2-Tailed)	0.1067	0.1637	0.3131	0.1401
		0.6296	0.2813	0.3873	0.3874
	N	79	79	79	79
	Analysis	*Not Sig*	*Not Sig*	*Not Sig*	*Not Sig*
Data Driven	Pearson Correlation Significance (2-Tailed)	0.0726	0.2752	0.4322	0.4508
		0.3377	0.0187	0.0186	0.4240
	N	79	79	79	79
	Analysis	*Not Sig*	*Sig*	*Sig*	*Not Sig*
Feedback Reinforcement	Pearson Correlation Significance (2-Tailed)	0.2147	0.2492	0.5115	0.4903
		0.0444	0.0015	0.0004	0.0442
	N	79	79	79	79
	Analysis	*Sig*	*Sig*	*Sig*	*Sig*
Personalization	Pearson Correlation Significance (2-Tailed)	0.1326	0.3543	0.6363	0.5680
		0.6752	0.0718	0.0428	0.8875
	N	79	79	79	79
	Analysis	*Not Sig*	*Not Sig*	*Sig*	*Not Sig*
Skill Building	Pearson Correlation Significance (2-Tailed)	0.1174	0.2291	0.4571	0.5760
		0.6058	0.0607	0.0551	0.8113
	N	79	79	79	79
	Analysis	*Not Sig*	*Not Sig*	*Not Sig*	*Not Sig*

TABLE 13. *Test of Difference on Students Performance in Formative and Summative Test*

	Formative		Summative					
Performance	***M***	***SD***	***M***	***SD***	**Mean Difference**	***t***	***df***	***p***
Scores	36.94	5.23	41.35	4.04	4.41	-18.27	118	0.000*

*Note: * p < .05.*

Shown in Table 12 is the significant relationship between the targeted instructional method and students' participation in terms of Collaboration, Effectiveness and Focus, Self-Initiated Learning, and Task Completion. The findings include Pearson correlation coefficients (r-values), p-values, and sample size (N = 79) for each relationship.

The results indicate that Adaptive Learning and Skill Building do not have statistically significant relationships with any participation factors, indicating that these methods alone may not directly enhance collaboration, effectiveness and focus, self-initiated learning, or task completion.

In contrast, Data-Driven Instruction showed significant relationships with Effectiveness and Focus and Self-Imitated Learning, implying that data-guided instruction helps maintain student engagement and independent learning.

Feedback Reinforcement exhibited significant correlations with all participation factors, highlighting that consistent feedback positively influences collaboration, effectiveness and focus, self-imitated, and task completion.

Meanwhile, Personalization showed a significant relationship only with Self-Imitated Learning, indicating that tailored instruction fosters independent learning but may not strongly impact other participation factors.

Overall, these findings implies that feedback reinforcement and data-driven instruction are the most effective methods in enhancing student participation, while adaptive learning and skill-building have limited direct impact.

Test of Difference between the Students' Performance

To test the significant difference between the Students' Performance they were treated statistically using Real Statistics Data Analysis Tools using the Test of difference.

Shown in Table 13 is the test of difference in students' performance in terms of Formative Assessment and Summative Assessment. The findings include mean

Rhonabel Samson Borgoños, "Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 7, Issue 12, pp. 256-262, 2025.

differences, confidence intervals, t-values, degrees of freedom (df), and p-values (Sig 2-tailed).

The results indicate that there are statistically significant differences among Formative Assessment and Summative Assessment as all p-values exceed the 0.05 significance threshold. This indicates that students performed consistently across all assessment types, with no substantial variations in their scores.

Overall, these findings imply that students exhibit a uniform level of performance, regardless of whether they are assessed through formative assessments and summative assessments highlighting a balanced learning progression in science remedial classes.

IV. Conclusion and Recommendations

On the basis of the foregoing findings, the following conclusion was drawn.

There is a significant relationship between the targeted instructional method and students' participation thus, rejected for feedback reinforcement, as it showed a significant correlation with all aspects of participation. This indicates that continuous feedback enhances collaboration, focus, self-initiated learning, and task completion. Additionally, data-driven instruction demonstrated a significant relationship with effectiveness and self-initiated learning, suggesting that the use of student performance data can positively influence engagement. These findings highlight the importance of structured feedback and data-driven approaches in fostering active student participation.

There is a significant difference in students' performance across formative assessment and summative assessment is rejected. The results showed that students performed consistently well across all assessment types, with significant differences in their scores. This indicates that the type of assessment, students gained a high level of achievement. While this reflects strong academic performance, further instructional strategies such as differentiated assessment techniques and personalized learning interventions may help optimize student learning outcomes.

Based on the drawn conclusions, the following recommendations are proposed:

1. School administrator may integrate targeted instructional methods, particularly feedback reinforcement and data-driven approaches, to equip students with problem-solving skills, adaptability, and collaboration essential qualities for a dynamic and evolving workforce.
2. Parents may actively support their children's learning by reinforcing structured feedback at home, encouraging self-initiated learning, and fostering a growth mindset to enhance students' participation and performance in science education.
3. Students struggling in science may be given personalized learning plans with structured feedback and adaptive instructional methods to enhance their engagement, comprehension, and overall academic success.

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Rhonabel Samson Borgoños, "Improving Students' Participation and Performance in Science Remedial Classes Through Targeted Instructional Method," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 7, Issue 12, pp. 256-262, 2025.