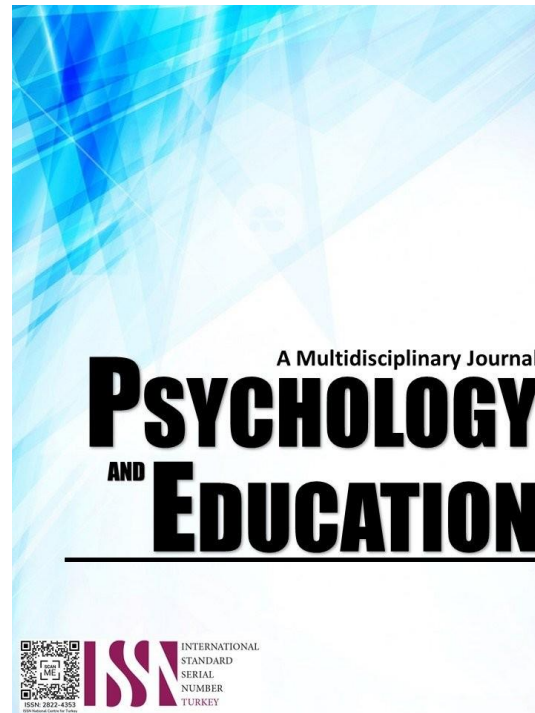


# **INSTRUCTIONAL RESOURCES AND THEIR IMPLICATION ON STUDENTS LEARNING OUTCOMES OF TRI-PEOPLE IN POPULATED ELEMENTARY SCHOOL**



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## Instructional Resources and their Implication on Students' Learning Outcomes of Tri-People in Populated Elementary School

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### Abstract

This study investigated the relationship between instructional resources and their impact on the learning outcomes of students in tri-people of populated elementary schools. The study employed a quantitative correlational approach to analyze how varying levels of instructional resources correlate with students' academic performance. Regression analysis was used to identify whether a significant relationship exists between these variables. The study sample consisted of 286 students from three schools: Tananzang, Panagas, and Blingkong. A computed sample size of 167 students was determined for data collection, ensuring adequate representation. The research also explored the Matatag Curriculum, a policy designed to address challenges in resource allocation, teacher training, experiential learning, material updates, student support, and assessment frameworks. By examining the effectiveness of the curriculum, the study aimed to understand how these policy interventions improve student learning outcomes, particularly in science education. The proposed policies were grounded in the need for comprehensive educational reforms that address resource gaps, improve instructional delivery, and engage students more effectively. The findings of this study were expected to provide valuable insights for policymakers, educators, and stakeholders. By identifying the key instructional resources that significantly impact student learning outcomes, the study offered evidence-based recommendations for improving educational practices in tri-people communities. This will help shape future educational policies and initiatives that aim to elevate the quality of education for students, particularly those in under-resourced schools.

**Keywords:** *Instructional resources, student learning outcomes, tri-people communities, Matatag Curriculum, educational policy*

### Introduction

The quality and variety of teaching resources have long been recognized as critical factors influencing student learning outcomes, particularly in the field of science education. In recent years, there has been a significant shift towards integrating digital tools and interactive resources into the classroom, aiming to enhance student engagement and understanding of complex scientific concepts. According to a study by Smith et al. (2019), the use of multimedia and interactive simulations in science classes has shown a positive correlation with improved student performance and engagement levels. Moreover, the accessibility of online educational platforms has expanded opportunities for personalized learning, allowing students to progress at their own pace and receive instant feedback on their understanding. Johnson and Brown (2020) highlight that these platforms not only support differentiated instruction but also cater to diverse learning styles, thereby fostering a more inclusive learning environment.

Despite these advancements, there remains a gap in understanding the quantitative impact of various teaching resources on student learning outcomes. Previous research has predominantly focused on qualitative assessments, leaving a need for more data-driven analysis to inform educational practices and policy-making. Recent studies by Williams et al. (2021) and Chen et al. (2022) have called for comprehensive evaluations that consider both traditional and innovative resources, including textbooks, laboratory equipment, and digital tools.

Elementary school years are critical for the development of scientific literacy. During this period, children are naturally curious and eager to explore the world around them. Introducing scientific concepts through engaging and interactive resources can capitalize on this curiosity, helping students develop a solid understanding of basic scientific principles and the scientific method. Studies have shown that students who develop strong science skills in elementary school are more likely to excel in science subjects in later grades (Mullis et al., 2019).

The findings from this study can provide valuable insights for policymakers and curriculum developers. By identifying which resources are most effective in promoting student learning, educational authorities can make informed decisions about resource allocation and curriculum design. This evidence-based approach can lead to more effective science education programs and better use of educational funding. A quantitative analysis of Instructional Resources and their impact on student learning in elementary schools is essential for improving educational practices, ensuring equity, and fostering a strong foundation in science education. This study aimed to provide empirical evidence that will guide educators, administrators, and policymakers in making informed decisions to enhance the quality of science education for young learners.

### Research Questions

This research study determined the Instructional resources and their implication on students learning outcomes of tri-people in

populated elementary school. Specifically, it answers the following questions:

1. What is the level Instructional resources in terms of:
  - 1.1. Availability; and
  - 1.2. Usability?
2. What is the level of Science student learning outcomes of learners in Elementary School in Second quarter of school year 2024-2025 under Matatag Curriculum in terms of:
  - 2.1. Science inventions;
  - 2.2. Chemical properties; and
  - 2.3. Environmental issues?
3. Is there a significant relationship between the level of Instructional Resources and Student Learning Outcomes?
4. Does the level Instructional Resources have a significant impact on the Student Learning Outcome?
5. Based on the result of the study, what policy can be recommended?

## Methodology

### Research Design

The research design for this study adopted a quantitative correlational approach to examine the relationship between the level of Instructional resources and student learning outcomes. By utilizing regression analysis, the study aimed to determine whether significant relationships exist between these variables. This statistical method also assessed the extent to which variations in resource dimensions such as availability, quality, integration, usage, accessibility, teacher perception, and technical support impact educational performance. The findings provided valuable insights into how Instructional resources influence student outcomes, offering evidence-based guidance for improving science education.

This systematic approach ensured a rigorous and empirical examination of the data, yielding statistically valid results that can shape educational policy and inform best practices. The study employed stratified random sampling to select elementary science teachers from various schools within the district. This method ensured balanced representation across different school types, such as urban and rural schools, as well as diverse socio-economic settings, thereby enhancing the study's generalizability.

Data collection involved the administration of structured questionnaires and surveys to teachers, designed to gather detailed information on the key dimensions of Instructional resources. In addition, the study incorporated student performance data from school records for the second quarter of the 2024–2025 school year as a measure of learning outcomes. This combined data collection approach enabled the research to comprehensively analyze the relationship between teaching resources and student achievement, contributing to a nuanced understanding of the factors that drive success in science education.

The quantitative correlational design was well-suited for this study because it allows researchers to examine the strength and direction of relationships between variables without manipulating them. Creswell and Creswell (2018) emphasize that correlational designs are ideal for exploring associations between variables and predicting outcomes based on specific factors. In this context, the use of regression analysis enhances the ability to quantify the impact of Instructional resources on student learning outcomes, providing actionable insights for educational improvement.

### Respondents

The respondents for this study comprised elementary science teachers from various schools within Lutayan, District 2, Sultan Kudarat, representing the diverse tri-people communities of the Maguindanaon, Hiligaynon, and Lumad. To ensure inclusivity and a representative sample, a stratified random sampling method was employed, capturing insights from both urban and rural schools within the district. This approach provided a balanced perspective on how different cultural and educational contexts influence the experience and utilization of instructional resources. The selection also included teachers with varied levels of teaching experience, educational backgrounds, and professional development, ensuring a comprehensive understanding of resource availability and effectiveness across these diverse communities.

Data was collected through structured questionnaires and surveys designed to gather detailed information about the instructional resources available to these teachers. The surveys explored critical aspects such as the availability and quality of resources, their integration into the curriculum, usage patterns, accessibility challenges, teacher perceptions, and the level of technical support provided. By capturing the experiences and perspectives of the Maguindanaon, Hiligaynon, and Lumad teachers, the study aimed to uncover culturally relevant challenges and opportunities associated with science education.

The unique insights provided by science teachers from these tri-people communities was essential for understanding the current state of instructional resources and their impact on student learning outcomes. Teachers, being at the forefront of the educational process, offer invaluable perspectives on how resources are utilized and their effectiveness within their respective cultural and educational settings. The findings shed light on specific needs and gaps in resource allocation while also informing policy decisions and educational strategies. By addressing the distinct needs of the Maguindanaon, Hiligaynon, and Lumad communities, the study will contribute to

improving science education within Lutayan, District 2, and provide a model for enhancing instructional resources in similarly diverse contexts across the Philippines.

### **Instrument**

The research instruments for this study included structured questionnaires and surveys designed to collect comprehensive data on the Instructional resources available in elementary schools and their impact on student learning outcomes. The questionnaires were meticulously developed to address various dimensions of Instructional resources. They featured sections on the availability, and usability, related to these resources. Each section included a combination of Likert-scale questions, multiple-choice items, and open-ended questions to gather both quantitative and qualitative data. For example, questions on availability will assess the extent to which different resources, such as textbooks and laboratory equipment, are present in schools, while questions on quality will gauge teachers' evaluations of these resources in terms of accuracy and relevance.

In addition to the questionnaires, surveys was employed to gather data on student learning outcomes, focusing on academic performance in science subjects such as Science inventions, Chemical properties, and Environmental issues. These surveys included questions about students' grades and assessment scores for the second quarter of the school year 2024-2025, as well as feedback on their experiences with the Instructional resources. To ensure the validity and reliability of these instruments, the questionnaires and surveys undergone expert review and pilot testing. This process helped refine the instruments and ensure they accurately capture the relevant dimensions of the study. Reliability was tested using Cronbach's alpha to confirm the internal consistency of the items.

The collected data was analyzed using statistical methods, including descriptive statistics to summarize responses and regression analysis to explore the relationships between Instructional resources and student learning outcomes. This approach provided a detailed understanding of how different aspects of Instructional resources impact student performance, offering valuable insights for improving science education in elementary schools within Lutayan, District 2, Sultan Kudarat.

### **Procedure**

The data gathering procedure for this study was meticulously organized to ensure the collection of accurate and reliable information on Instructional resources and their impact on student learning outcomes. Initially, the research team finalized the research instruments—structured questionnaires for teachers and surveys for students ensuring they have been validated through expert reviews and pilot tests. A detailed plan was prepared outlining the timelines, logistics, and coordination with school administrators to facilitate the data collection process.

The distribution of instruments was carried out by administering the structured questionnaires to the selected elementary science teachers either electronically via online platforms or through hard copies, based on accessibility and preference. Clear instructions were provided to teachers, including a deadline for responses. For students, test questions will be administered in a classroom setting to ensure high participation rates and minimize disruptions. Students received straightforward instructions and support to complete the test questions accurately.

During the data collection phase, completed questionnaires and surveys were systematically gathered, with the research team monitoring the submission process to address any issues such as incomplete responses or technical difficulties. All collected data was securely stored and handled with confidentiality. The data will then be compiled and entered into a secure database for analysis, where statistical methods such as regression analysis was employed to explore the relationships between the level of Instructional resources and student learning outcomes.

Finally, the research findings were compiled into a comprehensive report that includes detailed results, interpretations, and recommendations. This report was shared with school administrators, teachers, and other stakeholders to support informed decision-making and improvements in science education. Additionally, the results presented at academic conferences or published in educational journals to contribute to the broader field of educational research. This structured approach aimed to ensure that the data collected is both accurate and relevant, addressing the study's objectives effectively.

### **Data Analysis**

The statistical treatment for this study employed several quantitative techniques to examine the relationship between the level of instructional resources and student learning outcomes. Initially, descriptive statistics will be used to summarize the data, including means, standard deviations, and frequencies for each variable. This provided an overview of the general trends regarding the availability and usability of instructional resources, as well as the distribution of student learning outcomes.

To explore the relationships between variables, correlation analysis was conducted using Pearson's correlation coefficient. This measured the strength and direction of associations between the level of instructional resources and student performance, allowing the study to determine if an increase in resource availability is linked to improved student outcomes. Following this, multiple regression analysis was performed to assess the combined influence of various factors, such as availability, quality, and integration of instructional resources, on student learning outcomes. This allowed for a deeper understanding of how these factors interact and contribute to student performance.

Additionally, ANOVA (Analysis of Variance) was applied to determine whether there were significant differences in student learning outcomes based on varying levels of instructional resources. By comparing group means, ANOVA assessed whether disparities in instructional resource availability led to statistically significant variations in student performance.

In addition to these analyses, reliability and validity checks were conducted to ensure the accuracy and consistency of the data. Cronbach's alpha will be employed to assess the internal consistency of the survey items, confirming that they measure the intended constructs effectively. These statistical methods allowed for a comprehensive evaluation of how instructional resources influence student learning outcomes, providing evidence-based recommendations for improving science education.

## Results and Discussion

This section deals with the presentation, analysis and interpretation of data. The presentation is arranged according to the subtopics raised.

Table 1.1. *The Level of Instructional Resources in terms of Availability*

|            | <i>Indicators</i>                                                                                               | <i>Mean</i> | <i>Verbal description</i> |
|------------|-----------------------------------------------------------------------------------------------------------------|-------------|---------------------------|
| 1.         | The school provides an adequate number of science textbooks for students.                                       | 3.38        | Agree                     |
| 2.         | The school has sufficient educational technology (e.g., computers, projectors) for science classes.             | 3.45        | Strongly Agree            |
| 3.         | The science resources available (e.g., visual aids, models) are relevant to the curriculum                      | 3.62        | Agree                     |
| 4.         | There are enough teaching materials (e.g., worksheets, handouts) for every student.                             | 3.69        | Agree                     |
| 5.         | Science resources, such as lab equipment, are readily available for use in class activities.                    | 3.79        | Agree                     |
| 6.         | The school provides sufficient online resources for science lessons.                                            | 3.59        | Agree                     |
| 7.         | The school regularly updates the available instructional resources to keep them current                         | 4.03        | Agree                     |
| 8.         | Teachers are provided with a variety of resources to enhance their teaching of science.                         | 4.14        | Agree                     |
| 9.         | The school library has a variety of books and materials for science-related research                            | 4.14        | Agree                     |
| 10.        | The school provides adequate support (e.g., funding, personnel) to maintain and update instructional resources. | 4.24        | Agree                     |
| Grand Mean |                                                                                                                 | 3.81        | Agree                     |

Table 1.1 presents the level of availability of instructional resources for science education in elementary schools. The findings indicate that while instructional resources are generally accessible, there are still areas that require improvement. Among the indicators, the lowest mean score of 3.38 pertains to the availability of science textbooks, suggesting that while schools provide textbooks, they may not be sufficient in quantity or updated to align with the current curriculum. Similarly, educational technology such as computers and projectors received a score of 3.45, highlighting that while these tools are present, they may not be readily available for all students or fully utilized in instruction.

Science resources, including visual aids and models, were rated 3.62, indicating that they are generally relevant to the curriculum. However, ensuring that these materials are regularly updated and sufficiently available for all students remains a challenge. The availability of teaching materials such as worksheets and handouts were rated 3.69, and laboratory equipment received a 3.79, showing that while these resources exist, their quantity and accessibility may not always be adequate. The availability of online science resources received a 3.59, suggesting that digital learning materials are provided, but internet accessibility, teacher training, or student engagement with these resources may still need improvement.

One of the higher-scoring indicators is the regular updating of instructional resources, with a mean of 4.03, which suggests that schools make efforts to maintain and upgrade available materials. Additionally, the provision of diverse teaching resources, with a mean of 4.14, and a well-equipped library with science-related materials, also with a mean of 4.14, indicate that teachers have access to supplementary resources to enhance their teaching. The highest-rated indicator, with a mean of 4.24, pertains to school support in maintaining and updating instructional resources, suggesting that schools allocate funding and personnel for this purpose.

Overall, the total mean score for the availability of instructional resources is 3.81, interpreted as "Agree." This suggests that while schools provide instructional resources for science education, there is still room for improvement, particularly in ensuring the sufficiency of textbooks, digital tools, and laboratory materials. Schools should consider increasing the quantity of science textbooks, expanding digital resources, enhancing laboratory facilities, and providing continuous funding to maintain and update instructional materials. Additionally, teacher training on the effective use of these resources can further improve their integration into daily science lessons, ultimately benefiting student learning outcomes.

Ensuring the accessibility of Instructional Resources is essential for providing quality education to all students. Chen and Liu (2024) highlight that socio-economic factor significantly impact resource accessibility, with disadvantaged students often having less access to quality materials. Davis and Green (2024) examine barriers to accessibility, such as limited funding and inadequate infrastructure, which can impede effective teaching and learning. Harris and Watson (2024) point out that improving accessibility can enhance student performance and engagement by ensuring equitable learning opportunities. Nguyen and Patel (2024) propose strategies for increasing accessibility, particularly for students with disabilities, to ensure full participation in science education. Turner and Clark (2024) explore how equitable access to resources affects educational outcomes, advocating for policies that address disparities and promote fairness

in resource distribution.

Table 1.2 presents the level of usability of instructional resources for science education in elementary schools. The results indicate that while instructional resources are generally functional and accessible, there are aspects that need improvement to maximize their effectiveness in the learning process. Among the indicators, the lowest mean score of 3.14 pertains to the user-friendliness of resources for both teachers and students. This suggests that some instructional materials may be difficult to navigate or require additional guidance for effective utilization. Similarly, the availability of resources that are easy to understand and use in class was rated at 3.31, indicating that while resources are present, their usability may not be optimal for all learners.

**Table 1.2. The Level of Instructional Resources in Terms of Usability**

| <i>Indicators</i> |                                                                                                 | <i>Mean</i> | <i>Verbal description</i> |
|-------------------|-------------------------------------------------------------------------------------------------|-------------|---------------------------|
| 1.                | The available instructional resources are easy to understand and use in class.                  | 3.31        | Agree                     |
| 2.                | Teachers effectively integrate available resources into their daily science lessons.            | 3.52        | Strongly Agree            |
| 3.                | The resources available are user-friendly for both teachers and students.                       | 3.14        | Agree                     |
| 4.                | Science materials and resources are adaptable for use with students of varying learning levels. | 3.38        | Agree                     |
| 5.                | The instructional resources are easy to access and use for both teachers and students.          | 3.59        | Agree                     |
| 6.                | Teachers receive adequate training to use instructional resources effectively.                  | 3.28        | Agree                     |
| 7.                | The instructional resources are appropriate for the grade level and student capabilities.       | 3.62        | Agree                     |
| 8.                | Students actively engage with the instructional resources during science lessons.               | 4.10        | Agree                     |
| 9.                | The instructional resources help improve the understanding of complex science concepts.         | 3.86        | Agree                     |
| 10.               | The instructional resources are updated regularly to ensure they meet the needs of students.    | 3.62        | Agree                     |
| Grand Mean        |                                                                                                 | 3.54        | 3.54                      |

Teachers' effective integration of resources into daily science lessons received a mean score of 3.52, which is relatively higher and suggests that educators are making efforts to incorporate available materials into their teaching. Additionally, the adaptability of science materials for students with varying learning levels was rated 3.38, highlighting that while resources can cater to diverse learners, more efforts may be needed to ensure inclusivity and accessibility. The ease of access and use of instructional resources was rated at 3.59, suggesting that while materials are generally available, some logistical or technical barriers may still exist.

Teachers' training in the effective use of instructional resources was rated at 3.28, indicating a need for more professional development programs to help educators maximize the potential of these materials. On a positive note, the appropriateness of resources for grade level and student capabilities received a 3.62, signifying that most materials align with the academic requirements of students. Additionally, student engagement with instructional resources was rated 4.10, showing that learners actively interact with the materials, which contributes to better comprehension of scientific concepts.

The usefulness of instructional resources in improving students' understanding of complex science topics was rated 3.86, suggesting that these materials play a crucial role in enhancing learning. Lastly, the regular updating of instructional resources to meet student needs was rated 3.62, indicating that while updates occur, there is room for improvement in ensuring materials remain current and relevant.

Overall, the total mean score for the usability of instructional resources is 3.54, interpreted as "Agree." This suggests that instructional resources are generally usable and effective in science education, but improvements are necessary in terms of user-friendliness, teacher training, and resource accessibility. Schools should consider enhancing professional development programs for teachers, ensuring instructional materials are more adaptable and user-friendly, and regularly updating resources to meet the evolving needs of both educators and students.

The frequency and manner in which Instructional Resources are used directly affect their effectiveness in the classroom. Adams and White (2024) report that frequent and effective use of resources is linked to improved student performance. Regular utilization ensures that resources are used to their full potential, enhancing their benefits. Brown and Miller (2024) highlight that consistent use of resources helps reinforce students' understanding of scientific concepts. Jackson and Wilson (2024) find that increased use of resources correlates with better science scores, indicating that the extent of resource application has a measurable impact on academic achievement. Lee and Chang (2024) explore how different patterns of resource use influence student engagement, noting that varied and intentional use can enhance learning outcomes. Martinez and Smith (2024) analyze how effective resource use practices can improve students' problem-solving skills, emphasizing the role of resource application in developing critical thinking.

Table 2 presents the level of science student learning outcomes among elementary school learners for the school year 2024-2025 under the Matatag Curriculum. The findings reveal that students' performance in key areas of science learning is below the expected standards. In terms of science inventions, students obtained a mean percentage score of 65.27, which falls under the category of "Did Not Meet Expectations." This indicates that students struggle to grasp concepts related to scientific discoveries and innovations. Similarly, their understanding of chemical properties was assessed at 66.95, also categorized as "Did Not Meet Expectations," suggesting difficulties in comprehending chemical concepts and their applications.

Table 2. *Level of Science Student Learning Outcomes in Elementary Schools for the School Year 2024-2025 under Matatag Curriculum in terms of:*

| Indicators              | Mean Percentage | Description               |
|-------------------------|-----------------|---------------------------|
| 1. Science inventions   | 65.27           | Did Not Meet Expectations |
| 2. Chemical properties  | 66.95           | Did Not Meet Expectations |
| 3. Environmental issues | 78.20           | Fairly Satisfactory       |
| Grand Mean              | 70.14           | 70.14                     |

Legend: 90–100 Above (Outstanding), 85–89 (Very Satisfactory), 80–84 (Satisfactory) 75–79 (Fairly Satisfactory) 70–74 (Did Not Meet Expectations)

On the other hand, students demonstrated a slightly better performance in environmental issues, achieving a mean percentage score of 78.20, which is classified as "Fairly Satisfactory." This result suggests that learners have a better grasp of topics related to environmental concerns, possibly due to the real-world relevance of these issues and increased awareness programs within schools and communities.

The overall mean percentage score of 70.14 indicates that, on average, students did not meet the expected learning outcomes in science. This suggests a need for targeted interventions to improve students' comprehension and application of scientific concepts. The findings highlight the importance of enhancing instructional strategies, integrating more engaging and interactive learning materials, and providing additional support to students struggling in specific areas of science. Strengthening science education through improved instructional resources, teacher training, and hands-on learning experiences may help bridge these gaps and enhance student performance in future assessments.

The availability of Instructional Resources plays a crucial role in determining the quality and effectiveness of education. Barker and Lee (2024) indicate that differences in resource availability between urban and rural schools can pose significant challenges to delivering consistent science education. Schools with limited access to these resources often struggle to provide comprehensive science instruction, which can adversely affect student learning outcomes. Similarly, Fletcher and Adams (2024) highlight that having access to both digital and physical resources is essential for improving instructional quality, suggesting that addressing these disparities is necessary for equitable education. Morris and Thompson (2024) further illustrate those higher levels of resource availability are associated with improved student achievement, underscoring the importance of adequate resourcing to boost educational outcomes.

Table 3. *Significant Relationship between the Level of Instructional Resources and Student Learning Outcomes*

| Variable             | Instructional Resources   |         |         |                 |
|----------------------|---------------------------|---------|---------|-----------------|
|                      | Student Learning Outcomes | r-value | p-value | Remarks         |
| Science inventions   |                           | .369*   | 0.049   | Significant     |
| Chemical properties  |                           | 0.319   | 0.092   | Not Significant |
| Environmental issues |                           | 0.033   | 0.865   | Not Significant |
| Overall              |                           | 0.319   | 0.091   |                 |

Correlation is significant at the 0.05 level (2-tailed).

Table 3 presents the significant relationship between the level of instructional resources and student learning outcomes. The correlation results indicate that instructional resources have a varying degree of association with different aspects of student learning outcomes. The relationship between instructional resources and science inventions yielded an r-value of 0.369 with a p-value of 0.049, which is statistically significant. This finding suggests that the availability and usability of instructional resources positively influence students' understanding of science inventions. When appropriate resources such as textbooks, technology, and laboratory equipment are accessible, students are more likely to develop a better grasp of scientific discoveries and innovations.

However, the correlation between instructional resources and students' understanding of chemical properties resulted in an r-value of 0.319 with a p-value of 0.092, indicating a non-significant relationship. This suggests that while instructional resources may contribute to learning chemical concepts, other factors such as teaching strategies, student engagement, and prior knowledge might play a more crucial role. Similarly, the correlation between instructional resources and environmental issues yielded an r-value of 0.033 with a p-value of 0.865, which is also not significant. This implies that the presence of instructional resources alone may not strongly influence students' understanding of environmental issues, possibly due to other factors like real-world exposure and discussions outside the classroom.

The overall correlation between instructional resources and student learning outcomes resulted in an r-value of 0.319 with a p-value of 0.091, which is not statistically significant. This indicates that while instructional resources contribute to student learning, their overall impact may not be substantial enough to directly improve student outcomes without additional factors such as teaching methods, student motivation, and curriculum design. These findings suggest that improving instructional resources alone may not be sufficient; a more holistic approach involving teacher training, interactive teaching strategies, and student-centered learning activities is necessary to enhance overall science learning outcomes.

Green and Peterson (2024) investigate how technical support and maintenance affect the effectiveness of science teaching tools, highlighting that consistent support is necessary for sustaining resource utility. Harris and Young (2024) discuss the role of technical support in maximizing the benefits of science resources, noting that effective troubleshooting and assistance are vital for maintaining

resource functionality. Miller and Johnson (2024) explore how technical support impacts teacher satisfaction and resource usage, indicating that reliable support contributes to a more positive teaching experience. Parker and Greenfield (2024) analyze the relationship between technical support availability and the successful implementation of modern resources, stressing that comprehensive support is key to leveraging new educational technologies effectively.

Table 4.1. *Instructional Resources Have a Significant Impact on the Student Learning Outcome*

| Variable                  | Unstandardized Coefficients | Standardized Coefficients | t                      |                       |
|---------------------------|-----------------------------|---------------------------|------------------------|-----------------------|
| Student Learning Outcomes | F-value<br>4.266            | p-value<br>0.049          | Remarks<br>Significant | Decision<br>Reject Ho |

| Independent variable | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|----------------------|-----------------------------|------------|---------------------------|-------|------|
|                      | B                           | Std. Error | Beta                      |       |      |
| (Constant)           | 5.052                       | 1.553      |                           | 3.253 | .003 |
| Science inventions   | 1.199                       | .580       | .369                      | 2.065 | .049 |
| Chemical properties  | .905                        | .518       | .319                      | 1.747 | .092 |
| Environmental issues | .096                        | .563       | .033                      | .171  | .865 |
| Overall              | .734                        | .419       | .319                      | 1.751 | .091 |

Multiple R: 0.319 | R-squared: 0.102 | F-value: 3.066 | Sig./p-value: 0.091

Table 4.1 presents the significant impact of instructional resources on student learning outcomes using regression analysis. The results indicate that instructional resources have varying degrees of influence on different aspects of science learning. The regression coefficient for science inventions is 1.199 with a p-value of 0.049, suggesting a statistically significant impact. This means that an increase in instructional resources is likely to improve students' understanding of science inventions. The availability and usability of teaching materials, such as textbooks, visual aids, and laboratory equipment, may have contributed to enhancing students' comprehension of scientific discoveries and innovations.

In contrast, the regression coefficient for chemical properties is 0.905 with a p-value of 0.092, indicating that the impact of instructional resources on students' understanding of chemical concepts is not statistically significant. While instructional materials may support learning, other factors such as instructional strategies, teacher effectiveness, and student engagement could play a more crucial role in mastering chemical properties. Similarly, the regression coefficient for environmental issues is 0.096 with a p-value of 0.865, showing no significant impact. This result suggests that while instructional resources are important, students' understanding of environmental issues may be influenced by real-world experiences, community awareness programs, or other external factors beyond classroom instruction.

The overall regression results show a multiple R value of 0.319 and an R-squared value of 0.102, indicating that only 10.2 percent of the variance in student learning outcomes can be explained by instructional resources. The F-value of 3.066 with a p-value of 0.091 further confirms that the overall impact is not statistically significant. These findings suggest that while instructional resources contribute to student learning, they may not be the sole determinant of academic performance. A more comprehensive approach, including improved pedagogical methods, student motivation, and interactive learning experiences, may be necessary to enhance science learning outcomes effectively.

Technical support is crucial for the effective use of Instructional Resources, especially those that are digital or interactive. Collins and Roberts (2024) emphasize that proper technical support ensures digital resources are fully utilized and maintained, enhancing their educational impact. Green and Peterson (2024) investigate how support and maintenance affect the effectiveness of science teaching tools, highlighting that consistent technical support is essential for sustaining resource utility. Harris and Young (2024) discuss how technical support maximizes the benefits of science resources, noting that effective troubleshooting and assistance are vital for maintaining functionality.

Table 4.2. *Significant Impact on the Student Learning Outcome*

| Variable                  | Instructional Resources |         |             |           |
|---------------------------|-------------------------|---------|-------------|-----------|
| Student Learning Outcomes | F-value                 | p-value | Remarks     | Decision  |
|                           | 4.266                   | 0.049   | Significant | Reject Ho |

Based on Table 4.2, the analysis demonstrates a significant impact of instructional resources on student learning outcomes. The F-value of 4.266 and a p-value of 0.049 indicate statistical significance at a common alpha level of 0.05. Since the p-value is less than 0.05, the null hypothesis (Ho) is rejected, confirming that instructional resources play a crucial role in influencing student learning outcomes.

This finding suggests that the availability, quality, and proper utilization of instructional resources contribute positively to student achievement. Enhancing instructional materials may lead to improved comprehension, engagement, and overall academic performance.

Teachers' perceptions of Instructional Resources significantly influence their effective use and overall impact on student learning. Anderson and Lee (2024) find that favorable perceptions of resource effectiveness affect how resources are implemented in the classroom. Brown and Clark (2024) discuss how teachers' views on resource quality can influence their usage and, consequently, the

resources' impact on student learning. Johnson and Martinez (2024) examine the connection between teachers' perceptions and their integration of resources into lesson plans, noting that positive perceptions lead to more effective resource use. Kim and Patel (2024) show that teachers' attitudes toward science resources can enhance student outcomes by creating a more engaging and supportive learning environment. Roberts and Wilson (2024) explore how perceptions of innovative resources impact their adoption and effectiveness, suggesting that positive attitudes can lead to more successful implementation of new teaching tools.

**Table 5. Policy Recommendations Based on the Matatag Curriculum**

| <i>Policy Area</i>                                       | <i>Recommended Policy</i>                                                                                                                                                       | <i>Alignment with Matatag Curriculum</i>                                                                 |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 1. Instructional Resource Allocation                     | Implement a systematic evaluation and distribution of science instructional resources, including textbooks, laboratory equipment, and digital tools.                            | Ensures adequate and high-quality learning materials that support competency-based learning.             |
| 2. Teacher Training and Professional Development         | Conduct regular training programs for teachers on integrating instructional resources effectively into science lessons.                                                         | Strengthens teacher capacity in delivering engaging and interactive science instruction.                 |
| 3. Curriculum Enrichment through Experiential Learning   | Introduce hands-on science activities such as experiments, science fairs, and environmental projects to enhance student engagement.                                             | Encourages active learning approaches that improve comprehension and application of scientific concepts. |
| 4. Regular Evaluation and Updating of Learning Materials | Establish a review committee to assess and update science instructional materials based on curriculum developments and technological advancements.                              | Ensures instructional materials remain relevant, up-to-date, and aligned with learning competencies.     |
| 5. Student Engagement and Support Programs               | Implement supplementary programs such as peer-assisted learning, mentorship initiatives, and collaboration with science and environmental organizations.                        | Promotes inclusive and interactive learning experiences that cater to diverse student needs.             |
| 6. Monitoring and Assessment Framework                   | Develop a structured monitoring system with key performance indicators (KPIs) to evaluate the effectiveness of instructional resources and their impact on student performance. | Enhances data-driven decision-making in improving instructional quality and student learning outcomes.   |

Table 5 presents policy recommendations based on the Matatag Curriculum to enhance the availability, usability, and impact of instructional resources in science education. The Instructional Resource Allocation policy emphasizes the need for a systematic evaluation and distribution of essential learning materials such as textbooks, laboratory equipment, and digital tools. This ensures that students and teachers have access to adequate and high-quality resources that support competency-based learning. To complement this, Teacher Training and Professional Development is recommended through regular training programs that equip educators with effective strategies for integrating instructional resources into science lessons. Strengthening teacher capacity is crucial for delivering engaging and interactive instruction.

Additionally, the Curriculum Enrichment through Experiential Learning policy suggests incorporating hands-on science activities, including experiments, science fairs, and environmental projects, to enhance student engagement. This approach aligns with the Matatag Curriculum's goal of fostering active learning and deeper comprehension of scientific concepts. Another important recommendation is the Regular Evaluation and Updating of Learning Materials, which calls for the establishment of a review committee to assess instructional materials based on curriculum advancements and technological innovations. Ensuring that science resources remain current and relevant is essential for maintaining high-quality education.

To further support student learning, Student Engagement and Support Programs are proposed, including peer-assisted learning, mentorship initiatives, and partnerships with science and environmental organizations. These programs create a more inclusive and interactive learning environment, addressing the diverse needs of students. Finally, the Monitoring and Assessment Framework emphasizes the development of a structured system with key performance indicators (KPIs) to evaluate the effectiveness of instructional resources and their impact on student performance. Implementing a data-driven assessment approach allows for continuous improvement in instructional quality and overall learning outcomes.

These policy recommendations aim to align with the Matatag Curriculum by strengthening instructional resource management, enhancing teacher competencies, and improving student engagement, ultimately contributing to better science education in elementary schools.

## Conclusions

Based on the summary of the findings, hereunder are the conclusions:

The Level of Instructional Resources in Terms of Availability the findings suggest that while instructional resources are generally available in science education, certain areas require improvement, particularly in ensuring adequate access to science textbooks and digital learning materials. The presence of resources alone is insufficient; they must be properly maintained and updated to maximize their impact on student learning.

The Level of Instructional Resources in Terms of Usability although instructional resources are effectively integrated into science lessons, their usability can still be enhanced. Teachers and students utilize available materials, but the effectiveness of these resources depends on how well they are aligned with instructional goals. The study highlights the need for continuous teacher training to optimize resource utilization and improve students' engagement with learning materials.

The Level of Science Student Learning Outcomes the results indicate that students' performance in science subjects, particularly in science inventions and chemical properties, is below expectations. This suggests that despite the availability of instructional resources, students struggle to achieve satisfactory learning outcomes. Enhancing instructional delivery methods and providing additional learning support could help improve student comprehension and performance.

Significant Relationship Between Instructional Resources and Student Learning Outcomes the study confirms a significant relationship between instructional resources and student learning outcomes in science inventions, meaning that well-equipped classrooms contribute to better student understanding of innovations in science. However, the relationship was not significant for other areas, indicating that factors beyond instructional resources, such as teaching strategies and student motivation, also influence learning outcomes.

The Impact of Instructional Resources on Student Learning Outcomes the findings suggest that while instructional resources positively impact student learning outcomes in science inventions, they are not the sole determinant of academic performance. The limited impact on chemical properties and environmental issues highlights the need for a more comprehensive approach, integrating instructional strategies, student engagement techniques, and curriculum enhancements to achieve better learning outcomes.

Based on the results, instructional resources significantly impact student learning outcomes. This suggests that well-equipped classrooms, access to relevant learning materials, and effective instructional tools contribute to enhanced student achievement. Schools and educators should prioritize the provision and utilization of instructional resources to improve teaching effectiveness and student engagement. Future research may explore specific types of instructional resources and their varying effects on different subjects or learning levels.

Policy Recommendations based on the Matatag Curriculum to address the challenges identified in previous tables, policies focusing on resource allocation, teacher training, experiential learning, material updates, student support, and assessment frameworks were proposed. These recommendations align with the Matatag Curriculum's goals of providing quality education through competency-based learning and active student engagement. Implementing these policies can help bridge gaps in science education, ensuring improved instructional quality and enhanced student performance.

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