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Culturally Responsive Science Teaching on Students' Scientific Curiosity and Behavior

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Abstract*—This study examines the relationship between culturally responsive science teaching (CRST) and students' scientific curiosity and scientific behavior in science among SHS students in selected public and private schools in Sta. Cruz, Laguna. Anchored on culturally responsive pedagogy, curiosity-driven theory, and social cognitive theory, it aims to determine how culturally grounded instructional practices influence learners' curiosity and behavioral engagement in science. Specifically, the study examines the level of CRST used by the teacher respondents, measures students' scientific curiosity and behavior in science, determines whether significant differences exist in CRST, students' scientific curiosity, and scientific behavior between selected public and private schools, and identifies whether a significant relationship exists between these variables. The study used a quantitative descriptive-correlational research design. Data were gathered through a validated researcher-made questionnaire distributed using a simple random sampling. Mean and standard deviation were used to determine the levels of CRST, scientific curiosity, and students' behavior in science, while the t-test identified significant differences between public and private schools. Pearson r correlation was used to assess the relationship between CRST and the dependent variables.*

Findings reveal very high levels of CRST practices, scientific curiosity, and students' behavior in science in both public and private schools. No significant differences were found in CRST, scientific curiosity, and students' behavior in science between public and private schools. However, significant relationships were found between CRST and students' scientific curiosity, as well as students' behavior in science, indicating that culturally responsive practices influence cognitive and behavioral engagement in science learning. The study concludes that the null hypotheses on the differences in CRST, students' scientific curiosity, and students' behavior in science between public and private schools are accepted, while the null hypotheses on the relationships between CRST and the dependent variables are rejected. The findings highlight the importance of strengthening culturally responsive pedagogy through teacher training, curriculum development, and institutional support.

***Keywords*—** *Culturally responsive science teaching, scientific curiosity, students' behavior, science engagement, inclusive learning experiences*

I. INTRODUCTION

In recent years, there has been a growing recognition that science education must do more than simply transmit canonical content. It must also engage students as whole persons drawing on their backgrounds, experiences, identities, and cultures to foster deeper learning, motivation, and equitable outcomes. According to Dela Cruz (2022), the science curriculum in the Philippines was designed to produce scientifically literate individuals who are responsible decision-makers capable of applying scientific knowledge to address community problems.

Building on this vision, culturally responsive science teaching has been associated with several positive academic outcomes for students, including improved science achievement, attitudes, and identities (Brown et al., 2018). Culturally responsive science teaching (CRST) refers to instructional practices that intentionally draw upon students' cultural knowledge, experiences, and frames of reference to make science learning more relevant, engaging, and effective. It involves recognizing students' cultural assets, bridging the gap between students' home and community environments and the formal science classroom, and adapting pedagogy and curriculum so that diverse learners feel included and supported (Will & Najarro, 2022).

In practical terms, CRST may include incorporating local communities' traditional knowledge, using examples and contexts drawn from students' everyday experiences, or allowing learners to explore scientific phenomena that are relevant to their cultural settings. Such culturally anchored instruction can enhance student engagement and foster meaningful connections between scientific concepts and real-world applications.

Scientific curiosity, on the other hand, refers to the intrinsic desire to know more about natural phenomena, the motivation to explore, ask questions, uncover knowledge, and resolve uncertainties through investigation. It can be viewed both as a stable personal trait and as a situational state triggered by the learning environment (Bacanli & Kurtca, 2020). A classroom that values students' cultural perspectives and provides authentic, relatable experiences can stimulate this sense of curiosity and inquiry.

Moreover, students' behavior in science refers to the adaptive and self-regulated behaviors that learners use to sustain engagement, overcome challenges, and achieve success in science learning. These behaviors help students maintain focus, persist through difficulty, manage tasks independently, and use initiative in learning activities. Ramadani et. al., (2025) further stated that students exhibiting strong behavior are more likely to develop scientific curiosity, critical thinking skills, and higher academic performance.

Therefore, this study examined the relationship between culturally responsive science teaching and students' scientific curiosity and behavior as an input for enhancing science instruction. By exploring these relationships, the study aimed to contribute to more inclusive and effective science teaching practices that empowered learners from diverse cultural

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backgrounds. It also provided insights into how culturally responsive strategies could be integrated into classroom practices to improve student engagement and learning outcomes.

1.1 Statement of the Problem

Problem/s which were addressed by the research

This study aimed to determine the relationship of culturally responsive science teaching on students' scientific curiosity and behavior in science.

Specifically, it sought to answer the following questions:

1. What is the level of culturally responsive science teaching in public and private schools in terms of:
   1.1 Cultural Relevance;
   1.2 Community Engagement;
   1.3 Equity and Inclusion;
   1.4 Cultural Context Understanding; and
   1.5 Adaptation of Teaching Methods?
2. What is the level of students' scientific curiosity in public and private schools in terms of:
   2.1 Cognitive;
   2.2 Behavioral;
   2.3 Affective; and
   2.4 Social?
3. What is the level of students' behavior in science in public and private schools in terms of:
   3.1 Perseverance;
   3.2 Independence;
   3.3 Discipline;
   3.4 Initiative?
4. Is there a significant difference in the level of culturally responsive science teaching between selected public and private schools?
5. Is there a significant difference in the students' scientific curiosity between selected public and private schools?
6. Is there a significant difference in the students' behavior between selected public and private schools?
7. Is there a significant relationship between culturally responsive science teaching and students' scientific curiosity and student behavior in selected public schools?
8. Is there a significant relationship between culturally responsive science teaching and scientific curiosity and student behavior in selected private schools?

II. Methodology

The study used a quantitative descriptive-correlational research design. Data were gathered through a validated researcher-made questionnaire distributed using a simple random sampling. Mean and standard deviation were used to determine the levels of CRST, scientific curiosity, and students' behavior in science, while the t-test identified significant differences between public and private schools. Pearson r correlation was used to assess the relationship between CRST and the dependent variables.

III. Results and Discussion

This part discusses how the information collected was presented, examined and interpreted in order to respond to sub-problems regarding an overall study problem. Furthermore, results of this research will also be presented in response to previous questions stemming from this study.

Level of Using Culturally Responsive Science Teaching in Public and Private Schools

The scope of culturally responsive science teaching used by public and private schools is shown in terms of cultural relevance; participatory engagement; equity and inclusion; understanding of the cultural context; and adaptation of teaching to various learner needs. These variables are used to assess how science teachers implement culturally responsive teaching.

Table 1 shows the extent of culturally responsive science teaching in public and private schools in terms of cultural relevance. The mean score and standard deviation for all five constructs is included with the respondents from both the public and private schools indicating that educators create links between how they explain natural phenomenon such as weather, plants, animals as well as narratives associated with the phenomenons using the context of culture without difficulty. Educators relate the concepts contained in scientific disciplines with those that exist in the community creating relevance for their students.

Table 1. Level of Using Culturally Responsive Science Teaching in Public and Private Schools in terms of Cultural Relevance

Statements	Public			Private		
My teacher's culturally responsive science teaching…	Mean	SD	Remarks	Mean	SD	Remarks
…explains natural events by connecting them to cultural beliefs or practices.	4.52	0.50	Always	4.56	0.54	Always
…relates scientific concepts to issues or practices found in the community.	4.47	0.50	Always	4.55	0.50	Always
…integrates science lessons with examples that reflect my local culture and traditions.	4.52	0.50	Always	4.51	0.51	Always
…selects and presents learning materials that reflect different cultural backgrounds.	4.65	0.49	Always	4.67	0.47	Always
…designs classroom activities that connect science to my cultural experiences.	4.32	0.53	Always	4.49	0.50	Always
Weighted Mean	4.49			4.56		
SD	0.52			0.51		
Verbal Interpretation	Very High			Very High		

Educators incorporate examples from the local culture when presenting integrated lessons. Educators also select and use materials that illustrate or represent diverse cultures in the

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children's learning, in addition to designing and implementing science learning activities related to the children's own personal cultural experiences, indicating that both types of schools provide educators with extensive opportunities to create an inclusive, meaningful, and culturally relevant environment for the education of all students.

The level of using culturally responsive science teaching in terms of cultural relevance obtained an overall weighted mean of 4.49 with a standard deviation of 0.52 in public schools and 4.56 with a standard deviation of 0.51 in private schools, both verbally interpreted as Very High. This indicates that teachers in both types of schools consistently incorporate cultural elements in their science instruction. The results further imply that educators recognize the importance of connecting scientific concepts with students' cultural backgrounds, community practices, and lived experiences to enhance understanding and engagement in science learning.

The findings indicate that cultural relevance is a strongly practiced component of culturally responsive science teaching in both public and private schools. By integrating local culture, community contexts, and diverse cultural perspectives into science instruction, teachers help students see the connection between scientific knowledge and their real-life experiences, thereby promoting meaningful and inclusive learning.

Table 2 shows the level of using culturally responsive science teaching in public and private schools in terms of community engagement. Respondents from both public and private schools indicate that teachers actively participate in science-related school activities or projects that involve the local community, collaborate with community members to share scientific or traditional knowledge, incorporate community resources and materials into science experiments or demonstrations, integrate real community problems into science activities or projects, and develop ways to solve community problems using science concepts. These practices reflect teachers' efforts to make science learning more relevant, practical, and connected to students' everyday lives, while also strengthening partnerships between the school and the community. Additionally, such engagement provides students with opportunities to apply scientific knowledge in real-world contexts, enhancing both their understanding and appreciation of science. The level of using culturally responsive science teaching in terms of community engagement obtained an overall weighted mean of 4.40 with a standard deviation of 0.50 in public schools and 4.53 with a standard deviation of 0.53 in private schools, both verbally interpreted as Very High. This indicates that teachers from both school types frequently engage the community in the teaching and learning of science. The results further imply that educators recognize the importance of connecting science education with real-life community contexts, encouraging students to apply scientific knowledge in addressing issues and concerns within their local environment.

The findings indicate that community engagement is a strongly practiced component of culturally responsive science teaching in both public and private schools. By involving community members, utilizing local resources, and addressing real community concerns through science activities, teachers help learners understand the practical value of science and strengthen the relationship between schools and the communities they serve.

Table 2. Level of using Culturally Responsive Science Teaching in Public and Private Schools in Terms of Community Engagement

Statement	Public			Private		
My teacher's culturally responsive science teaching allows me to...	Mean	SD	Remarks	Mean	SD	Remarks
…participate in science-related school activities or projects that involve the local community.	4.42	0.50	Always	4.51	0.54	Always
…collaborate with community members to share scientific or traditional knowledge.	4.24	0.43	Always	4.41	0.54	Always
…incorporates community resources and materials into science experiments or demonstrations.	4.45	0.50	Always	4.52	0.54	Always
…integrates real community problems into science activities or projects.	4.49	0.51	Always	4.59	0.51	Always
…develop ways to solve community problems using science concepts.	4.41	0.51	Always	4.61	0.52	Always
Weighted Mean	4.40			4.53		
SD	0.50			0.53		
Verbal Interpretation	Very High			Very High		

Table 3 shows the level of using culturally responsive science teaching in public and private schools in terms of equity and inclusion. Respondents from both public and private schools indicate that teachers provide equal opportunities for all students to participate in science activities, ensure that learning materials represent diverse cultures and perspectives in science, support students who need additional help in learning scientific concepts, address unfair ideas or negative comments about certain groups during science discussions, and adapt teaching methods to meet the diverse learning needs of students. This indicates that inclusive practices are actively promoted, fostering a supportive and respectful learning environment for all learners.

The level of using culturally responsive science teaching in terms of equity and inclusion obtained an overall weighted mean of 4.55 with a standard deviation of 0.50 in public schools and 4.62 with a standard deviation of 0.51 in private schools, both verbally interpreted as Very High. This indicates that teachers from both types of schools strongly practice

inclusive strategies in their science classrooms. The findings further imply that educators actively promote fairness, respect, and equal participation among students while recognizing their diverse cultural backgrounds and learning needs.

Table 3. Level of using Culturally Responsive Science Teaching in Public and Private Schools in terms of Equity and Inclusion

Statement	Public			Private		
My teacher's culturally responsive science teaching…	Mean	SD	Remarks	Mean	SD	Remarks
…provide equal opportunities for all students to participate in science activities.	4.69	0.46	Always	4.72	0.48	Always
…ensure that learning materials represent …diverse cultures and perspectives in science.	4.51	0.50	Always	4.57	0.51	Always
…support students who need additional help in learning scientific concepts.	4.57	0.50	Always	4.72	0.47	Always
…addresses unfair ideas or negative comments about certain groups during science discussions.	4.41	0.49	Always	4.49	0.53	Always
…adapt teaching methods to meet the diverse learning needs of students.	4.56	0.50	Always	4.63	0.51	Always
Weighted Mean	4.55			4.62		
SD	0.50			0.51		
Verbal Interpretation	Very High			Very High		

The results indicate that equity and inclusion are consistently integrated into science teaching practices in both public and private schools. By ensuring equal opportunities, addressing biases, and supporting diverse learners, teachers help create a learning environment that values diversity and encourages active participation among all students.

Table 4 shows the level of using culturally responsive science teaching in public and private schools in terms of cultural context understanding. Respondents indicate that teachers recognize personal biases that may affect interactions with students in science classes, integrate students' cultural backgrounds when explaining science lessons, consider students' cultural beliefs when planning science lessons and activities, analyze how teaching methods align with the cultural context of learners, and seek feedback from students about how culture affects their science learning experiences. These responses describe how teachers demonstrate awareness and consideration of students' cultural contexts in the teaching and learning process. Consistent practices are observed across both public and private school settings.

The level of using culturally responsive science teaching in terms of cultural context understanding obtained an overall weighted mean of 4.46 with a standard deviation of 0.51 in public schools and 4.51 with a standard deviation of 0.56 in private schools, both verbally interpreted as Very High. This indicates that teachers regularly reflect on their teaching approaches and consider the cultural backgrounds and experiences of their students when delivering science instruction. The findings further imply that educators are aware of the importance of aligning teaching strategies with students' cultural contexts to promote meaningful and effective learning.

Table 4. Level of using Culturally Responsive Science Teaching in Public and Private Schools in terms of Cultural Context Understanding

Statement	Public			Private		
My teacher's culturally responsive science teaching…	Mean	SD	Remarks	Mean	SD	Remarks
…recognizes personal biases that may affect interactions with students in science classes.	4.42	0.66	Always	4.62	0.52	Always
…integrates students' cultural backgrounds when explaining science lessons.	4.43	0.50	Always	4.49	0.56	Always
…considers students' cultural beliefs when planning science lessons and activities.	4.37	0.51	Always	4.43	0.54	Always
…analyzes how teaching methods align with the cultural context of the learners.	4.47	0.54	Always	4.53	0.54	Always
…seeks feedback from students about how culture affects their science learning experiences.	4.54	0.50	Always	4.54	0.51	Always
Weighted Mean	4.46			4.51		
SD	0.51			0.56		
Verbal Interpretation	Very High			Very High		

The findings highlight that awareness of cultural context are important aspects of science teaching in both public and private schools. Through reflection, cultural sensitivity, and feedback from learners, teachers enhance their instructional approaches and ensure that science education remains relevant to students' cultural experiences.

Table 5 shows the level of using culturally responsive science teaching in public and private schools in terms of adaptation of teaching methods. Respondents from both public and private schools indicate that teachers apply a variety of teaching strategies that reflect students' diverse backgrounds, adjust classroom activities to match students' preferred learning styles, employ visual, hands-on, and experiential methods to make science more accessible, provide different learning materials to match students' cultural experiences, and design quizzes, tests, or activities that consider students'

different cultural backgrounds. These practices indicate that teachers are flexible in addressing the diverse needs of learners and are able to create more inclusive classroom environments. Moreover, such adaptation of teaching methods helps improve students' understanding and engagement in science by making lessons more relevant and meaningful to their experiences.

Table 5. Level of using Culturally Responsive Science Teaching in Public and Private Schools in terms of Adaptation of Teaching Methods.

Statement	Public			Private		
My teacher's culturally responsive science teaching… Scale	Mean	SD	Remarks	Mean	SD	Remarks
…applies a variety of teaching strategies that reflect students' diverse backgrounds.	4.55	0.50	Always	4.57	0.57	Always
…adjust classroom activities to match students' preferred learning styles.	4.51	0.50	Always	4.55	0.51	Always
…employs visual, hands-on, and experiential methods to make science more accessible.	4.64	0.48	Always	4.71	0.46	Always
…provides different learning materials to match students' cultural experiences.	4.47	0.50	Always	4.49	0.55	Always
…designs quizzes, tests, or activities in science that consider students' different cultural backgrounds.	4.54	0.50	Always	4.49	0.61	Always
Weighted Mean SD Verbal Interpretation	4.54 0.50 Very High			4.56 0.55 Very High		

The level of using culturally responsive science teaching in terms of adaptation of teaching methods obtained an overall weighted mean of 4.54 with a standard deviation of 0.50 in public schools and 4.56 with a standard deviation of 0.55 in private schools, both verbally interpreted as Very High. This indicates that teachers frequently modify and adjust their teaching strategies to address the diverse needs, learning styles, and cultural backgrounds of students. The findings further imply that educators recognize the importance of flexible instructional approaches to make science learning more engaging and accessible to all learners.

The results reveal that adapting teaching methods is a strongly practiced strategy in culturally responsive science teaching. By employing varied instructional strategies and culturally relevant materials, teachers help ensure that science instruction becomes inclusive, engaging, and responsive to the diverse characteristics of learners in both public and private schools.

Level of Students' Scientific Curiosity in Public and Private Schools

In this study**,** the level of Students' Scientific Curiosity in Public and Private Schools refers to Cognitive; Behavioral; Affective; and Social.

The level of Students' Scientific Curiosity in Public and Private Schools is shown in the following table, which shows the statement, mean, standard deviation, remarks, and verbal interpretation.

Table 6 shows the level of students' scientific curiosity in public and private schools in terms of cognitive dimension. Respondents indicate that students show interest in learning how and why scientific phenomena occur, apply logical reasoning when forming scientific conclusions, analyze information from various sources to explain scientific concepts, compare different scientific ideas to identify similarities and differences, and explore new scientific topics beyond what is discussed in class.

Table 6. Level of Students' Scientific Curiosity in Public and Private Schools in terms of Cognitive

Statement	Public			Private		
Culturally responsive science teaching helps me to…	Mean	SD	Remarks	Mean	SD	Remarks
…show interest in learning how and why scientific phenomena occur.	4.67	0.48	Always	4.66	0.48	Always
…apply logical reasoning when forming scientific conclusions.	4.55	0.51	Always	4.57	0.51	Always
…analyze information from various sources to explain scientific concepts.	4.53	0.50	Always	4.67	0.49	Always
…compare different scientific ideas to identify similarities and differences.	4.51	0.54	Always	4.63	0.50	Always
…explore new scientific topics beyond what is discussed in class.	4.56	0.52	Always	4.59	0.54	Always
Weighted Mean SD Verbal Interpretation	4.56 0.51 Very High			4.62 0.50 Very High		

The level of students' scientific curiosity in terms of cognitive obtained an overall weighted mean of 4.56 with a standard deviation of 0.51 in public schools and 4.62 with a standard deviation of 0.50 in private schools, both verbally interpreted as Very High. This indicates that students demonstrate a very high level of curiosity in understanding scientific ideas and concepts. The findings further imply that learners actively use reasoning, analysis, and exploration in learning science, which helps them deepen their understanding of scientific phenomena.

The results indicate that the cognitive aspect of scientific curiosity is strongly evident among students in both public and

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private schools. Through logical thinking, analysis of information, and exploration of new topics, students develop deeper engagement and intellectual interest in science learning.

Table 7 shows the level of students' scientific curiosity in public and private schools in terms of behavioral dimension. Respondents indicate that students observe details during laboratory or field activities, show enthusiasm in discovering new scientific facts or phenomena, participate actively in science experiments and investigations, explore new materials or resources related to science topics, and demonstrate persistence when solving challenging scientific problems. These behaviors reflect students' active engagement and interest in learning science, as well as their willingness to explore and investigate concepts beyond what is presented in the classroom. Moreover, such manifestations of curiosity indicate that students are developing important scientific habits, such as critical thinking, inquiry, and perseverance, which are essential for deeper understanding and meaningful learning in science.

Table 7. Level of Students' Scientific Curiosity in Public and Private Schools in terms of Behavioral

Statement Culturally responsive science teaching encourages me to…	Public			Private		
	Mean	SD	Remarks	Mean	SD	Remarks
…observe details during laboratory or field activities.	4.61	0.49	Always	4.61	0.54	Always
…show enthusiasm in discovering new scientific facts or phenomena.	4.57	0.50	Always	4.65	0.50	Always
…participate actively in science experiments and investigations.	4.61	0.50	Always	4.67	0.48	Always
…actively explore new materials, tools, or resources related to science topics.	4.54	0.51	Always	4.71	0.46	Always
…demonstrate persistence when solving challenging scientific problems.	4.57	0.51	Always	4.66	0.50	Always
Weighted Mean SD Verbal Interpretation	4.56 0.52 Very High			4.57 0.54 Very High		

The level of students' scientific curiosity in terms of behavioral obtained an overall weighted mean of 4.56 with a standard deviation of 0.52 in public schools and 4.57 with a standard deviation of 0.54 in private schools, both verbally interpreted as Very High. This indicates that students frequently demonstrate observable behaviors that reflect curiosity in science learning. The findings further imply that learners actively engage in scientific activities, experiments, and investigations, showing persistence and enthusiasm in exploring scientific ideas.

The findings indicate that behavioral expressions of curiosity are evident among students as they actively participate in scientific tasks and demonstrate enthusiasm in discovering new knowledge in science.

Table 8 shows the level of students' scientific curiosity in public and private schools in terms of affective dimension. Respondents indicate that students' express enjoyment when learning new scientific concepts, display a positive attitude toward discovering how things work in nature, appreciate the value of science in explaining everyday experiences, show curiosity that leads to deeper learning, and enjoy discussing scientific ideas and discoveries with peers or teachers.

Table 8. Level of Students' Scientific Curiosity in Public and Private Schools in terms of Affective

Statement Culturally responsive science teaching cultivates me to…	Public			Private		
	Mean	SD	Remarks	Mean	SD	Remarks
…express enjoyment when learning new scientific concepts.	4.42	0.66	Always	4.62	0.52	Always
…display a positive attitude toward discovering how things work in nature.	4.42	0.58	Always	4.46	0.66	Always
…appreciate the value of science in explaining everyday experiences.	4.27	0.72	Always	4.45	0.61	Always
…show curiosity that leads to deeper learning in science.	4.42	0.62	Always	4.45	0.62	Always
…enjoy discussing scientific ideas and discoveries with peers or teachers.	4.37	0.67	Always	4.32	0.68	Always
Weighted Mean SD Verbal Interpretation	4.58 0.50 Very High			4.56 0.50 Very High		

The level of students' scientific curiosity in terms of affective obtained an overall weighted mean of 4.58 with a standard deviation of 0.50 in public schools and 4.56 with a standard deviation of 0.50 in private schools, both verbally interpreted as Very High. This indicates that students generally possess positive emotions and attitudes toward science learning. The results further imply that learners feel enjoyment, appreciation, and interest in understanding scientific concepts and phenomena.

The findings indicate that the affective component of scientific curiosity is evident among students, as they show positive attitudes, enjoyment, and appreciation for science and its relevance to everyday life.

Table 9 shows the level of students' scientific curiosity in public and private schools in terms of social dimension. Respondents indicate that students participate in group discussions that explore scientific ideas and questions, share scientific observations and findings during class activities, help peers understand difficult science lessons, collaborate

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with classmates in investigating science-related problems, and exchange information and resources related to science topics. These responses describe how students engage with others in constructing and deepening their understanding of scientific concepts. They also highlight the presence of interactive and cooperative learning experiences within science classes, where communication and shared inquiry are evident.

Table 9. Level of Students' Scientific Curiosity in Public and Private Schools in terms of Social

Statement	Public			Private		
Culturally responsive science teaching enhances me to…	Mean	SD	Remarks	Mean	SD	Remarks
…Participate in group discussions that explore scientific ideas and questions.	4.49	0.54	Always	4.53	0.51	Always
…Share scientific observations and findings during class activities.	4.41	0.49	Always	4.57	0.51	Always
…Help peers learn difficult science lessons or concepts.	4.51	0.50	Always	4.66	0.48	Always
…Collaborate with peers to investigate science-related problems.	4.48	0.58	Always	4.53	0.51	Always
…Exchange information and resources related to science topics with classmates.	4.62	0.49	Always	4.57	0.52	Always
Weighted Mean	4.50			4.57		
SD	0.52			0.51		
Verbal Interpretation	Very High			Very High		

The level of students' scientific curiosity in terms of social obtained an overall weighted mean of 4.50 with a standard deviation of 0.52 in public schools and 4.57 with a standard deviation of 0.51 in private schools, both verbally interpreted as Very High. This indicates that students frequently demonstrate curiosity through social interaction and collaborative learning.

The findings further imply that learners actively engage with their peers in discussing, sharing, and exploring scientific ideas.

The results reveal that the social dimension of scientific curiosity plays an important role in science learning, as students collaborate, share knowledge, and participate in discussions that deepen their understanding of scientific concepts.

Level of Students' Behavior in Science in Public and Private Schools

In this study, the level of Students' Behavior in Science in Public and Private Schools refers to Perseverance; Independence; Discipline; and Initiative.

The level of Students' Behavior in Science in Public and Private Schools is shown in the following table, which shows the mean, standard deviation, and verbal interpretation.

Table 10 shows the level of students' behavior in science in public and private schools in terms of perseverance. Respondents indicate that students persist in completing science tasks even when activities are difficult, continue working on science experiments even after making mistakes or experiencing failure, exert extra effort to complete challenging science lessons, maintain focus during science activities despite distractions, and demonstrate patience when solving complex science problems. These responses reflect observable patterns of students' consistent effort and focus during science-related tasks and activities.

Table 10. Level of Students' Behavior in Science in Public and Private Schools in terms of Perseverance

Statement	Public			Private		
Culturally responsive science teaching improves my behavior by…	Mean	SD	Remarks	Mean	SD	Remarks
…persisting in completing science tasks even when the activities are difficult.	4.57	0.50	Always	4.57	0.51	Always
…continuing working on science experiments even after making mistakes or failing.	4.56	0.50	Always	4.59	0.53	Always
…exerting extra effort to complete challenging science lessons.	4.59	0.49	Always	4.63	0.49	Always
…maintaining focus during science activities even when distractions occur.	4.53	0.51	Always	4.55	0.51	Always
…demonstrating patience when solving complex science problems.	4.51	0.53	Always	4.62	0.50	Always
Weighted Mean	4.55			4.59		
SD	0.51			0.51		
Verbal Interpretation	Very High			Very High		

The level of students' behavior in science in terms of perseverance obtained an overall weighted mean of 4.55 with a standard deviation of 0.51 in public schools and 4.59 with a standard deviation of 0.51 in private schools, both verbally interpreted as Very High. This indicates that students demonstrate a high level of determination and persistence in completing science-related tasks. The findings further imply that learners are willing to overcome challenges and continue working toward understanding scientific concepts despite difficulties.

The results indicate that perseverance is a strongly manifested behavior among students in science learning, as they show determination, patience, and consistent effort when faced with complex scientific activities and problems.

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Table 11 shows the level of students' behavior in science in public and private schools in terms of independence. Respondents indicate that students initiate science task without relying heavily on teacher assistance, complete science activities by deciding how to perform the task independently, manage time effectively when working on individual science assignments, monitor their own progress while doing science-related task, and seek additional learning resources independently to improve their understanding of science concepts. These responses describe students' ability to take responsibility for their own learning and decision-making in science activities. They also illustrate how learners demonstrate self-directed behaviors and initiative when engaging with scientific tasks and concepts.

Table 11. Level of Students' Behavior in Science in Public and Private Schools in terms of Independence

Statement	Public			Private		
Culturally responsive science teaching improves my behavior by…	Mean	SD	Remarks	Mean	SD	Remarks
…initiating science tasks without relying heavily on teacher assistance.	4.39	0.53	Always	4.45	0.65	Always
…completing science activities by deciding on my own how to do the task.	4.36	0.51	Always	4.52	0.58	Always
…managing time effectively when working on individual science assignments.	4.54	0.51	Always	4.55	0.56	Always
…checking my own progress while doing science-related tasks.	4.40	0.51	Always	4.50	0.56	Always
…seeking additional learning resources independently to improve science learning.	4.59	0.51	Always	4.60	0.53	Always
Weighted Mean	4.45			4.53		
SD	0.52			0.58		
Verbal Interpretation	Very High			Very High		

The level of students' behavior in science in terms of independence obtained an overall weighted mean of 4.45 with a standard deviation of 0.52 in public schools and 4.53 with a standard deviation of 0.58 in private schools, both verbally interpreted as Very High. This indicates that students are capable of working independently and managing their learning responsibilities in science tasks. The findings further imply that learners develop self-directed learning behaviors that help them improve their understanding and performance in science.

The results reveal that independence is an evident behavior among students, as they demonstrate initiative in completing tasks, managing their time, and seeking additional resources to enhance their science learning. These responses describe students' ability to take ownership of their learning processes in science. They also reflect consistent engagement in self-directed practices during science-related activities.

Table 12 shows the level of students' behavior in science in public and private schools in terms of discipline. Respondents indicate that students consistently follow classroom rules during science lessons and activities, observe safety procedures properly when conducting science experiments, maintain attention during science discussions and laboratory work, complete science tasks within the allotted time, and control their behavior to avoid disrupting science classes. These behaviors reflect students' sense of responsibility and respect for the learning environment. They also describe how students maintain order and consistency in their actions during science activities. Furthermore, these responses highlight the presence of structured and well-managed classroom practices in science learning.

Table 12. Level of Students' Behavior in Science in Public and Private Schools in terms of Discipline

Statement	Public			Private		
Culturally responsive science teaching improves my behavior by…	Mean	SD	Remarks	Mean	SD	Remarks
…following classroom rules consistently during science lessons and activities.	4.76	0.43	Always	4.78	0.42	Always
…observing safety procedures properly when conducting science experiments.	4.69	0.46	Always	4.75	0.49	Always
…maintaining attention during science discussions and laboratory work.	4.65	0.48	Always	4.69	0.49	Always
…completing science tasks within the allotted time.	4.64	0.48	Always	4.61	0.53	Always
…controlling behavior to avoid disrupting science classes.	4.67	0.48	Always	4.65	0.56	Always
Weighted Mean	468			4.70		
SD	0.47			0.56		
Verbal Interpretation	Very High			Very High		

The level of students' behavior in science in terms of discipline obtained an overall weighted mean of 4.68 with a standard deviation of 0.47 in public schools and 4.70 with a standard deviation of 0.56 in private schools, both verbally interpreted as Very High. This indicates that students display a strong sense of responsibility and self-control in science learning environments. The findings further imply that learners follow classroom rules, observe safety measures, and maintain focus during scientific activities and discussions.

The findings indicate that discipline is a highly evident behavior among students in science classes, enabling them to participate effectively in experiments, discussions, and other learning activities while maintaining an orderly and productive

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learning environment. These results describe how students consistently follow established rules and procedures during science tasks. They also highlight the presence of organized and focused classroom interactions that support effective learning. Moreover, disciplined behavior helps students develop responsibility and cooperation during science-related activities.

Table 13 shows the level of students' behavior in science in public and private schools in terms of initiative. Respondents indicate that students ask questions in science class to explore new ideas, volunteer to participate in science experiments and classroom activities, start science tasks promptly without being reminded by the teacher, share their own ideas or solutions during discussions or group activities, and seek opportunities to learn more about science topics beyond the lesson. These behaviors reflect a proactive approach to learning, demonstrating students' curiosity, independence, and willingness to engage deeply with scientific concepts. Such initiative suggests that students are not only receptive to instruction but are also motivated to take an active role in their own learning process.

Table 13. Level of Students' Behavior in Science in Public and Private Schools in terms of Initiative

Statement Culturally responsive science teaching improves my behavior by…	Public			Private		
	Mean	SD	Remarks	Mean	SD	Remarks
…asking questions in science class to explore new ideas.	4.53	0.53	Always	4.60	0.56	Always
…volunteering to participate in science experiments and classroom activities.	4.41	0.51	Always	4.42	0.58	Always
…starting science tasks promptly without being reminded by the teacher.	4.48	0.51	Always	4.43	0.56	Always
…sharing my own ideas or solutions during science discussions or group activities.	4.45	0.54	Always	4.47	0.53	Always
…seeking opportunities to learn more about science topics beyond the lesson.	4.54	0.54	Always	4.59	0.53	Always
Weighted Mean SD Verbal Interpretation	4.48 0.53 Very High			4.50 0.56 Very High		

The level of students' behavior in science in terms of initiative obtained an overall weighted mean of 4.48 with a standard deviation of 0.53 in public schools and 4.50 with a standard deviation of 0.56 in private schools, both verbally interpreted as Very High. This indicates that students demonstrate proactive behaviors in science learning by actively participating in classroom activities and expressing curiosity about scientific topics. The findings further imply that learners take an active role in exploring knowledge and contributing ideas during science lessons.

The results reveal that initiative is a well-developed behavior among students, as they actively engage in asking questions, sharing ideas, and seeking opportunities to expand their knowledge in science. These responses describe students' active involvement in classroom interactions and learning processes. These also highlight how learners take proactive steps to deepen their understanding of scientific concepts.

Significant Difference in Using Culturally Responsive Science Teaching Between Selected Public and Private Schools

Table 14 shows the significant difference in using Culturally Responsive Science Teaching in public and private schools. Culturally Responsive Science Teaching refers to Cultural Relevance, Community Engagement, Equity and Inclusion, Cultural Context Understanding, and Adaptation of Teaching Methods. This comparison highlights how these key components are implemented across different school settings, providing insights into possible variations in teaching practices and approaches. It also emphasizes the importance of these dimensions in promoting inclusive and meaningful science learning experiences for students.

Table 14. Significant Difference in the Culturally Responsive Science Teaching Between Selected Public and Private Schools

Culturally Responsive Science Teaching	Types of Schools	n	Mean	SD	t-cal	t-crit	df	Decision
Cultural Relevance	Public	150	4.49	0.52	1.26	1.98	149	Accept
	Private	150	4.56	0.51				
Community Engagement	Public	150	4.4	0.5	2.76	1.98	149	Reject
	Private	150	4.53	0.53				
Equity and Inclusion	Public	150	4.55	0.5	1.74	1.98	149	Accept
	Private	150	4.62	0.51				
Cultural Context Understanding	Public	150	4.46	0.51	0.951	1.98	149	Accept
	Private	150	4.51	0.56				
Adaptation of Teaching Methods	Public	150	4.54	0.5	0.464	1.98	149	Accept
	Private	150	4.56	0.55				

Table 14 presents the significant difference in the level of culturally responsive science teaching between selected public and private schools across different dimensions, namely cultural relevance, community engagement, equity and inclusion, cultural context understanding, and adaptation of teaching methods.

In terms of cultural relevance, public schools obtained a mean of 4.49 (SD = 0.52) while private schools recorded a mean of 4.56 (SD = 0.51). The computed t-value of 1.26 is lower than the critical value of 1.98, resulting in the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private schools in terms of cultural relevance in science teaching.

For community engagement, public schools obtained a mean of 4.40 (SD = 0.50) while private schools recorded a higher mean of 4.53 (SD = 0.53). The computed t-value of

2.76 is greater than the critical value of 1.98, leading to the rejection of the null hypothesis. This indicates that there is a significant difference between public and private schools in terms of community engagement in culturally responsive science teaching, indicating that private schools demonstrate slightly stronger engagement with community-related science learning practices.

In terms of equity and inclusion, public schools obtained a mean of 4.55 (SD = 0.50) while private schools recorded a mean of 4.62 (SD = 0.51). The computed t-value of 1.74 is lower than the critical value of 1.98, leading to the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private schools in terms of promoting equity and inclusion in science teaching.

Regarding cultural context understanding, public schools obtained a mean of 4.46 (SD = 0.51) while private schools recorded a mean of 4.51 (SD = 0.56). The computed t-value of 0.951, which is lower than the critical value of 1.98, resulted in the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private schools in terms of teachers' understanding of students' cultural contexts.

Lastly, in terms of adaptation of teaching methods, public schools obtained a mean of 4.54 (SD = 0.50) while private schools obtained a slightly higher mean. The computed t-value of 0.464 is lower than the critical value of 1.98, which led to the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private schools in adapting teaching methods to accommodate students' diverse cultural backgrounds and learning needs.

The findings reveal that most dimensions of culturally responsive science teaching do not significantly differ between public and private schools, except for community engagement, where a significant difference was observed. This implies that while both types of schools generally implement culturally responsive practices in science teaching, private schools tend to demonstrate slightly higher involvement in community-related science learning activities.

Significant Difference in Students' Scientific Curiosity Between Selected Public and Private Schools

Table 15 shows the significant difference in students' scientific curiosity between selected public and private schools. Scientific curiosity refers to learners' intrinsic motivation to explore, question, and understand concepts through cognitive, behavioral, affective, and social dimensions. The comparison highlights how students from different school types engage in science and whether the school environment influences their curiosity. It also underscores the importance of curiosity in enhancing engagement, inquiry skills, and overall learning outcomes, while pointing to areas for improvement in fostering scientific curiosity.

Table 15 presents the significant difference in students' scientific curiosity between selected public and private schools in terms of the following dimensions: cognitive, behavioral, affective, and social.

In terms of the cognitive dimension, public school students obtained a mean of 4.56 (SD = 0.51) while private school students recorded a mean of 4.62 (SD = 0.50). The computed t-value of -1.332 is lower than the critical value of 1.98, resulting in the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private school students in terms of cognitive scientific curiosity. This indicates that students from both school types demonstrate similar levels of interest in understanding scientific concepts, applying logical reasoning, and analyzing scientific information.

Table 15. Significant Difference in the Students' Scientific Curiosity Between Selected Public and Private Schools

Students' Scientific Curiosity	Types of Schools	n	Mean	SD	t-cal	t-crit	df	Decision
Cognitive	Public	150	4.56	0.51	-1.332	1.98	149	Accept
	Private	150	4.62	0.5				
Behavioral	Public	150	4.56	0.52	-0.255	1.98	149	Accept
	Private	150	4.57	0.54				
Affective	Public	150	4.58	0.5	-1.922	1.98	149	Accept
	Private	150	4.66	0.5				
Social	Public	150	4.5	0.52	-1.473	1.98	149	Accept
	Private	150	4.57	0.51				

For the behavioral dimension, public school students obtained a mean of 4.56 (SD = 0.52) while private school students recorded a mean of 4.57 (SD = 0.54). The computed t-value of -0.255, which is lower than the critical value of 1.98, led to the acceptance of the null hypothesis. This indicates that there is no significant difference between the two groups in terms of behavioral expressions of scientific curiosity. The results imply that students from both school types actively participate in experiments, investigations, and science-related activities at similar levels.

In terms of the affective dimension, public school students obtained a mean of 4.58 (SD = 0.50) while private school students obtained a slightly higher mean of 4.66 (SD = 0.50). The computed t-value of -1.922 is still lower than the critical value of 1.98, leading to the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private school students in terms of their attitudes, enjoyment, and emotional interest in science learning.

Lastly, in terms of the social dimension, public school students obtained a mean of 4.50 (SD = 0.52) while private school students recorded a mean of 4.57 (SD = 0.51). The computed t-value of -1.473 is lower than the critical value of 1.98, resulting in the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private school students in terms of social scientific curiosity, such as participating in group discussions, sharing scientific ideas, and collaborating with peers.

The results reveal that there is no significant difference in the level of students' scientific curiosity between public and private schools across all dimensions. This indicates that students from both school settings demonstrate comparable levels of curiosity in science, including their thinking

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processes, observable behaviors, emotional engagement, and social interactions in learning scientific concepts.

Significant Difference in Students' Behavior Between Selected Public and Private Schools

Table 16 shows the significant difference in students' behavior between selected public and private schools. Students' behavior in science refers to the observable actions and learning habits of students in terms of perseverance, independence, discipline, and initiative. This comparison highlights how students from different school types demonstrate their ability to persist through challenges, manage their learning independently, follow rules and procedures, and take active roles in science-related activities. Furthermore, the results emphasize the importance of students' behavior in promoting effective learning and sustained engagement in science.

Table 16. Significant Difference in the Students' Behavior Between Selected Public and Private Schools

Students' Behavior	Types of Schools	n	Mean	SD	t-cal	t-crit	df	Decision
Perseverance	Public	150	4.55	0.51	-0.941	1.98	149	Accept
	Private	150	4.59	0.51				
Independence	Public	150	4.45	0.52	-1.394	1.98	149	Accept
	Private	150	4.53	0.58				
Discipline	Public	150	4.68	0.57	-0.265	1.98	149	Accept
	Private	150	4.7	0.5				
Initiative.	Public	150	4.48	0.53	-0.346	1.98	149	Accept
	Private	150	4.5	0.56				

Table 16 presents the significant difference in students' behavior between selected public and private schools in terms of perseverance, independence, discipline, and initiative.

In terms of perseverance, public school students obtained a mean of 4.55 (SD = 0.51) while private school students recorded a mean of 4.59 (SD = 0.51). The computed t-value of -0.941 is lower than the critical value of 1.98, resulting in the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private school students in terms of perseverance. The findings indicate that students from both school types demonstrate similar levels of persistence in completing science tasks, overcoming challenges, and continuing their efforts even after experiencing mistakes.

For independence, public school students obtained a mean of 4.45 (SD = 0.52) while private school students recorded a mean of 4.53 (SD = 0.58). The computed t-value of -1.394, which is lower than the critical value of 1.98, led to the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private school students in terms of independence. This implies that students in both school settings are similarly capable of initiating science tasks, managing their learning responsibilities, and seeking additional resources independently.

In terms of discipline, public school students obtained a mean of 4.68 (SD = 0.57) while private school students recorded a mean of 4.70 (SD = 0.50). The computed t-value of -0.265 is lower than the critical value of 1.98, which resulted in the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private school students in terms of discipline in science classes. The results indicate that students from both types of schools consistently follow classroom rules, observe safety procedures, and maintain focus during science activities.

Lastly, in terms of initiative, public school students obtained a mean of 4.48 (SD = 0.53) while private school students recorded a mean of 4.50 (SD = 0.56). The computed t-value of -0.346 is lower than the critical value of 1.98, resulting in the acceptance of the null hypothesis. This indicates that there is no significant difference between public and private school students in terms of initiative in science learning.

The findings reveal that there is no significant difference in students' behavior between public and private schools across all dimensions. This indicates that students from both educational settings demonstrate comparable levels of perseverance, independence, discipline, and initiative in their engagement with science learning activities.

Significant Relationship between Culturally Responsive Science Teaching and Students' Behavior and Curiosity in Selected Public Schools

Table 17 shows the significant relationship between the culturally responsive science teaching and students' scientific curiosity and behavior in selected public schools. Students' curiosity refers to cognitive, behavioral, affective, and social indicators, while students' behavior in science refers to perseverance, independence, discipline, and initiative. This relationship suggests that culturally responsive teaching practices may play an important role in enhancing both scientific curiosity and positive learning behaviors. It also highlights how integrating students' cultural backgrounds and experiences into instruction can foster greater engagement, motivation, and active participation in science learning.

The results of the study showed that the statement stating that there is no significant relationship between culturally responsive science teaching and students' curiosity and behavior was rejected. The analysis revealed a significant positive relationship between the dimensions of culturally responsive science teaching—including cultural relevance, community engagement, equity and inclusion, cultural context and understanding, and adaptation of teaching methods—and students' curiosity and behavior across all measured indicators. This indicates that students in classrooms where teachers implement culturally responsive science teaching tend to exhibit higher levels of curiosity, engagement, critical thinking, self-directed learning, and positive student behavior.

Table 17 presents the significant relationship between culturally responsive science teaching and students' behavior and curiosity in selected public schools. Culturally responsive science teaching includes cultural relevance, community engagement, equity and inclusion, cultural context understanding, and adaptation of teaching methods, while students' outcomes are measured in terms of curiosity

(cognitive, behavioral, affective, and social) and behavior (perseverance, independence, discipline, and initiative).

Table 17. Significant Relationship between Culturally Responsive Science Teaching to the Students' Behavior and Curiosity in Selected Public Schools

Culturally Responsive Science Teaching		Students' Curiosity				Students' Behavior			
		Cognitive	Behavioral	Affective	Social	Perseverance	Independence	Discipline	Initiative
Cultural Relevance	Pearson Correlation	0.186*	0.429*	0.395*	0.570*	0.470*	0.522*	0.505*	0.490*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	150	150	150	150	150	150	150	150
Community Engagement	Pearson Correlation	0.222*	0.466*	0.514*	0.560*	0.472*	0.512*	0.374*	0.535*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	150	150	150	150	150	150	150	150
Equity and Inclusion	Pearson Correlation	0.329*	0.614*	0.589*	0.520*	0.551*	0.450*	0.557*	0.488*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	150	150	150	150	150	150	150	150
Cultural Context Understanding	Pearson Correlation	0.224*	0.545*	0.563*	0.541*	0.445*	0.538*	0.500*	0.494*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	150	150	150	150	150	150	150	150
Adaptation of Teaching Methods	Pearson Correlation	0.251*	0.490*	0.524*	0.572*	0.409*	0.480*	0.482*	0.474*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	150	150	150	150	150	150	150	150

In terms of cultural relevance, the results reveal significant positive correlations with all dimensions of students' curiosity and behavior. Cultural relevance is positively correlated with cognitive curiosity (r = 0.186), behavioral curiosity (r = 0.429), affective curiosity (r = 0.395), and social curiosity (r = 0.570). Similarly, it also shows positive relationships with students' behavior, including perseverance (r = 0.470), independence (r = 0.522), discipline (r = 0.505), and initiative (r = 0.490). All correlations have p-values of 0.000, indicating that the relationships are statistically significant. These results indicate that connecting science instruction with students' cultural experiences and backgrounds enhances both their curiosity and behavioral engagement in science learning.

For community engagement, the results also indicate significant positive relationships with all dimensions of curiosity and behavior. The correlations include cognitive curiosity (r = 0.222), behavioral curiosity (r = 0.466), affective curiosity (r = 0.514), and social curiosity (r = 0.560). In terms of behavior, community engagement shows significant relationships with perseverance (r = 0.472), independence (r = 0.512), discipline (r = 0.374), and initiative (r = 0.535). With all p-values equal to 0.000, the findings imply that involving community contexts and real-life experiences in science instruction encourages students to become more curious, engaged, and responsible in their learning.

In terms of equity and inclusion, the results reveal strong and significant positive relationships with students' curiosity and behavior. Equity and inclusion correlate with cognitive curiosity (r = 0.329), behavioral curiosity (r = 0.614), affective curiosity (r = 0.589), and social curiosity (r = 0.520). In addition, it is positively correlated with students' perseverance (r = 0.551), independence (r = 0.450), discipline (r = 0.557), and initiative (r = 0.488). All correlations are statistically significant with p-values of 0.000, indicating that inclusive teaching practices and equitable learning opportunities contribute significantly to the development of students' curiosity and positive behaviors in science learning.

For cultural context understanding, the findings show significant positive correlations with students' curiosity and behavior. The correlations include cognitive curiosity (r = 0.224), behavioral curiosity (r = 0.545), affective curiosity (r = 0.563), and social curiosity (r = 0.541). In terms of behavior, cultural context and understanding show positive relationships with perseverance (r = 0.445), independence (r = 0.538), discipline (r = 0.500), and initiative (r = 0.494). All p-values are 0.000, indicating statistically significant relationships. This indicates that teachers' reflection on cultural contexts and students' experiences helps promote stronger curiosity and responsible behavior among learners.

Lastly, adaptation of teaching methods also shows significant positive correlations with all dimensions of students' curiosity and behavior. The correlations include cognitive curiosity (r = 0.251), behavioral curiosity (r = 0.490), affective curiosity (r = 0.524), and social curiosity (r = 0.572). In terms of behavior, adaptation of teaching methods correlates with perseverance (r = 0.409), independence (r = 0.480), discipline (r = 0.482), and initiative (r = 0.474). All correlations are statistically significant with p-values of 0.000, indicating that flexible and culturally responsive teaching strategies enhance students' engagement, curiosity, and responsible learning behaviors.

Significant Relationship between Culturally Responsive Science Teaching and Students' Behavior and Curiosity in Selected Private Schools

Table 18 shows the significant relationship between culturally responsive science teaching and students' scientific curiosity and behavior in selected private schools. Students' curiosity refers to cognitive, behavioral, affective, and social indicators, while students' behavior in science refers to perseverance, independence, discipline, and initiative.

The results of the study show that the statement stating that there is no significant relationship between culturally responsive science teaching and students' curiosity and behavior was rejected. The analysis revealed a significant

positive relationship between the dimensions of culturally responsive science teaching—including cultural relevance, community engagement, equity and inclusion, reflective practices, and adaptation of teaching methods—and students' curiosity and behavior across all measured indicators. This indicates that students in private school classrooms where teachers implement culturally responsive science teaching consistently demonstrate higher levels of curiosity, engagement, critical thinking, self-directed learning, and positive students' behavior. This indicates that culturally responsive teaching practices contribute to creating a more meaningful and supportive science learning environment for students.

Table 18. Significant Relationship between Culturally Responsive Science Teaching to the Students' Behavior and Curiosity in Selected Private Schools

Culturally Responsive Science Teaching		Students' Curiosity				Students' Behavior			
		Cognitive	Behavioral	Affective	Social	Perseverance	Independence	Discipline	Initiative
Cultural Relevance	Pearson Correlation	0.325*	0.575*	0.502*	0.555*	0.505*	0.580*	0.410*	0.558*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
	N	150	150	150	150	150	150	150	150
Community Engagement	Pearson Correlation	0.278*	0.590*	0.549*	0.619*	0.607*	0.583*	0.459*	0.609*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
	N	150	150	150	150	150	150	150	150
Equity and Inclusion	Pearson Correlation	0.409*	0.626*	0.559*	0.530*	0.582*	0.540*	0.501*	0.511*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
	N	150	150	150	150	150	150	150	150
Cultural Context Understanding	Pearson Correlation	0.363*	0.623*	0.597*	0.710*	0.596*	0.650*	0.504*	0.651*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
	N	150	150	150	150	150	150	150	150
Adaptation of Teaching Methods	Pearson Correlation	0.324*	0.667*	0.610*	0.621*	0.665*	0.659*	0.451*	0.593*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
	N	150	150	150	150	150	150	150	150

Table 18 presents the significant relationship between the culturally responsive science teaching and students' behavior and curiosity in selected private schools. The culturally responsive science teaching includes cultural relevance, community engagement, equity and inclusion, reflective practices and cultural context understanding, and adaptation of teaching methods, while students' outcomes are measured in terms of curiosity (cognitive, behavioral, affective, social) and behavior (perseverance, independence, discipline, initiative).

For cultural relevance, the results indicate significant positive correlations across all dimensions. Specifically, cultural relevance correlates with cognitive curiosity (r = 0.325), behavioral curiosity (r = 0.575), affective curiosity (r = 0.502), and social curiosity (r = 0.555). In terms of students' behavior, correlations include perseverance (r = 0.505), independence (r = 0.580), discipline (r = 0.410), and initiative (r = 0.558). All correlations are statistically significant with p-values = 0.000, indicating that integrating students' cultural experiences and backgrounds in science instruction enhances their curiosity and behavior.

For community engagement, the correlations are even stronger across all dimensions. Cognitive curiosity shows r = 0.278, behavioral curiosity r = 0.590, affective curiosity r = 0.549, and social curiosity r = 0.619. Behavioral dimensions also show significant relationships: perseverance (r = 0.607), independence (r = 0.583), discipline (r = 0.459), and initiative (r = 0.609). These results indicate that involving community contexts in science learning significantly motivates students' curiosity and strengthens positive behaviors.

Regarding equity and inclusion, significant positive correlations are observed with all dimensions of curiosity and behavior: cognitive (r = 0.409), behavioral (r = 0.626), affective (r = 0.559), social (r = 0.530), perseverance (r = 0.582), independence (r = 0.540), discipline (r = 0.501), and initiative (r = 0.511). These results indicate that inclusive teaching practices and equitable opportunities significantly contribute to students' curiosity and positive learning behaviors in private schools.

For reflective practices and cultural context understanding, the strongest correlations were observed across all dimensions. Cognitive curiosity is r = 0.363, behavioral r = 0.623, affective r = 0.597, and social r = 0.710. Students' behavior also shows strong correlations: perseverance (r = 0.596), independence (r = 0.650), discipline (r = 0.504), and initiative (r = 0.651). This implies that teachers' reflective practices and consideration of cultural contexts strongly enhance both curiosity and responsible behavior among private school students.

Finally, for adaptation of teaching methods, significant positive relationships were also observed: cognitive curiosity (r = 0.324), behavioral (r = 0.667), affective (r = 0.610), social (r = 0.621), perseverance (r = 0.665), independence (r = 0.659), discipline (r = 0.451), initiative (r = 0.593), all with p-values = 0.000. This indicates that tailoring instructional strategies to students' diverse cultural and learning needs fosters higher engagement, curiosity, and proactive behaviors.

The findings reveal that culturally responsive science teaching in private schools has a strong and significant positive relationship with students' curiosity and behavior across all dimensions. This implies that integrating cultural relevance, community engagement, inclusive practices, reflective teaching, and adaptive instructional strategies effectively promotes students' active engagement, motivation,

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and responsible behaviors in science learning, with even stronger effects observed in private schools compared to public schools.

IV. Conclusion and Recommendations

The results of the study showed that there is no significant difference in the level of culturally responsive science teaching between selected public and private schools in Sta. Cruz, Laguna, was accepted. The analysis revealed that both public and private schools demonstrate a high level of culturally responsive teaching across dimensions such as cultural relevance, community engagement, equity and inclusion, cultural context understanding, and adaptation of teaching methods. This indicates that science teachers in both school types consistently integrate cultural elements into their lessons, fostering an inclusive and engaging learning environment.

The study found that the hypothesis stating that there is no significant difference in the level of students' scientific curiosity between selected public and private schools in Sta. Cruz, Laguna, was accepted. The analysis revealed that students in both public and private schools exhibit high levels of scientific curiosity across cognitive, behavioral, affective, and social indicators. This indicates that students are actively engaged in exploring scientific concepts, demonstrating curiosity, and participating in both collaborative and independent learning activities regardless of school type.

The findings indicated that the statement stating that there is no significant difference in the level of students' behavior between selected public and private schools in Sta. Cruz, Laguna, was accepted. The analysis revealed that students in both public and private schools display high levels of perseverance, independence, discipline, and initiative in science-related tasks. This indicates that students consistently apply effort, manage their learning independently, follow rules, and take initiative during science activities across both school types.

The results indicated that the statement stating that there is a significant relationship between culturally responsive science teaching and students' scientific curiosity and behavior in selected public schools in Sta. Cruz, Laguna, was rejected. The analysis revealed a significant positive relationship between culturally responsive teaching particularly cultural relevance, community engagement, equity and inclusion, cultural context understanding, and adaptation of teaching methods and students' scientific curiosity across cognitive, behavioral, affective, and social indicators. The analysis revealed a significant positive relationship between culturally responsive teaching practices and students' behavior in science, including perseverance, independence, discipline, and initiative. This indicates that students exposed to effective culturally responsive science teaching tend to demonstrate higher levels of curiosity, engagement, and exploration in science learning.

The study revealed that the statement stating that there is a significant relationship between culturally responsive science teaching and students' scientific curiosity and behavior in selected private schools in Sta. Cruz, Laguna was rejected. The analysis revealed a significant positive relationship between culturally responsive teaching particularly cultural relevance, community engagement, equity and inclusion, cultural context understanding, and adaptation of teaching methods and students' scientific curiosity across cognitive, behavioral, affective, and social indicators. The analysis revealed a significant positive relationship between culturally responsive teaching practices and students' behavior in science, including perseverance, independence, discipline, and initiative. This indicates that students taught through culturally responsive methods are more likely to demonstrate consistent effort, self-directed learning, responsible conduct, and proactive engagement during science activities.

Based on the drawn conclusions, the following recommendations resulted:

School administrators may strengthen the implementation of culturally responsive science teaching by providing continuous professional development programs, workshops, and seminars for teachers. Emphasis should be placed on enhancing strategies related to cultural relevance, community engagement, equity and inclusion, cultural context understanding, and adaptation of teaching methods to further improve students' scientific curiosity and behavior in science.

Science teachers may apply and enhance culturally responsive teaching practices in their classrooms. They may design more interactive, inquiry-based, and culturally grounded learning activities that connect scientific concepts to students' real-life experiences. Integrating collaborative tasks, reflective activities, and problem-solving exercises can further promote students' curiosity, engagement, and positive behavior in science.

Students may take an active role in their science learning by participating in class discussions, experiments, and collaborative activities. They should also utilize available learning resources, such as digital materials and science-related platforms, to further develop their curiosity, critical thinking, and independent learning skills, as well as to strengthen their perseverance, discipline, and initiative.

Future researchers may conduct further studies that explore additional variables related to culturally responsive science teaching. These may include the use of technology, teachers' cultural competence, school environment, and parental involvement. Longitudinal studies may also be conducted to examine the long-term impact of culturally responsive teaching on students' academic achievement, scientific curiosity, and behavior in science.

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